Changepoint Administration

Administration Guide

Changepoint PSA 2017 SP2

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Contents

1. Changepoint Administration Introduction **21**

About Changepoint Administration 21
About accessing Changepoint Administration 21

2. Administration Tools **23**

Accessing system metrics 23
About license management 23
Viewing license information 23
Importing a Changepoint license 24
Locking Changepoint 24
About transferring records between resources 25
Transferring or copying a record between resources 25
Removing a record from a resource 26
Unlocking a record manually 26

3. Resources **27**

About global workgroups and workgroups 27
Accessing a global workgroup 27
Creating a global workgroup 28
Global Workgroup view options 28
Modifying a global workgroup 28
Accessing a workgroup 29
Creating a workgroup 29
Workgroup view, General tab options 30
About configuring financial settings for a workgroup 31
Configuring financial settings for a workgroup 32
Financial Settings section options 33
Overriding the default revenue transfer settings for a workgroup 34
About granting workgroup access and assigning resource managers 34
Viewing the members of a workgroup 35
Granting access rights to a workgroup 35
Specifying a resource manager for a workgroup 35
Setting up invoice batch printing 35
Invoice batch printing options 36
About workgroup settings for the resource management worksheet 36
Configuring workgroup settings for the resource management worksheet 37
Configuring workgroup settings for resource scheduling worksheet (RSW) 38

Setting planning units options for a workgroup 39
Modifying a workgroup 39
About role and feature mapping 40
Creating a role 40
Modifying a role 40
About qualifications and competencies 41
Creating a qualification category 41
Modifying a qualification category 42
Creating a qualification 42
Modifying a qualification 42
Creating a competency 43
Modifying a competency 43
About functions 44
Creating a function 44
Modifying a function 45
About user setup 45
Accessing a resource in User Setup 45
Creating a resource 45
User Setup dialog, Resource information tab options 46
About creating generic resources 48
About exempting resources from resource requests 48
Specifying user-managed information for a resource 49
Specifying payroll information for a resource 50
Specifying confidential information for a resource 52
Accessing billing or cost rates for a resource 54
Adding a new billing or cost rate for a resource 54
Specifying qualifications and functions for a resource 55
About security access settings for resources 55
Specifying security access for a resource 56
Specifying organizational information for a resource 56
Restricting the resources that a resource manager can manage in RSW 58
Attaching a picture to a resource profile 59
About copying values from a resource profile 59
Copying values from a resource profile 59
About editing resources 60
Editing a resource 61
Managing a resource's preferences 61
Viewing pending changes for a resource 61
Canceling a pending change for a resource 61
About transferring a resource to another workgroup 62

Transferring a resource to another workgroup 62
About terminating resources 62
Terminating a resource 63
Deleting a resource 63
Unlocking a resource's account 63
About the "Forgot your password?" functionality 64
About setting up default planning units 64
Setting up planning units at system level 65
Restricting or granting user setup access to a workgroup 65
Tracking security access 66
About nonworking days 66
Configuring a nonworking day 66
Modifying a nonworking day 67
Setting up resource leveling 68
About setting up resource demand analysis 68
Setting up resource demand analysis 69

4. Performance Management 71

Performance management overview 71
About individual and team performance 71
About portfolio performance 72
About using survey results for performance evaluation 72
Performance management terminology 73
About metric calculations setup 75
About IPM default settings 75
Defining IPM default settings 76
Defining an IPM reporting period 76
Editing IPM periods 77
About metric calculations 78
About metric types and categories 78
Viewing a metric calculation 82
Creating a metric calculation 82
Editing a metric calculation 83
About metric templates 83
Accessing a metric template 84
Creating a metric template 84
Creating an Adoption metric template 85
Creating a Results metric template 85
Creating a Customer Feedback metric template 86
Creating a Peer feedback metric template 87

Creating a Projects metric template 88
Creating a user-entered metric template 88
Creating a user-entered metric template for configurable fields 89
Entering target and threshold values 90
Editing a metric template 91
Deleting a metric template 91
Deactivating a metric template 91
Rollup method examples 92
About IPM metrics 93
About accessing IPM metrics 94
Accessing an IPM metric from a metric template 94
About creating IPM metrics 94
Creating an IPM metric from a metric template 94
Creating an IPM metric from the New menu 95
Create/Edit Metric dialog, General tab options 95
Adding a target to an IPM metric 96
Add Target dialog box options 96
Assigning an IPM metric to a resource 97
About team metrics 97
Assigning an IPM team metric 98
Editing an IPM metric assignment 98
Adjusting the weighting of IPM metrics for a resource 99

5. Financial Setup 101

About GL account codes 101
Creating a GL account code 101
Modifying a GL account code 102
About cost centers 102
Creating a cost center 102
Cost Center view, General section options 103
Modifying a cost center 103
Changing the default cost center 104
About configuring burden rates for cost centers 104
Configuring a burden rate for a cost center 104
Deactivating a burden rate 105
About currencies and exchange rates 105
Adding a currency 105
Accessing an exchange rate 106
Configuring an exchange rate 106
Editing an exchange rate 107

About taxation setup 107
Taxation setup process 108
About tax rates and tax schedules 108
Accessing a tax rate 109
Creating a tax rate 109
Accessing a tax schedule 111
Creating a tax schedule 111
About editing tax schedules 113
About work codes and work locations 114
Creating a work code category 114
Creating a work code 115
Creating a work locations group 116
Creating a work location 117
About taxation rule settings 118
Creating a recoverable tax 119
Recoverable Tax Setup options 120
Editing a recoverable tax setup 120
Creating an expense taxation setup 121
Expense Taxation Setup options 122
Editing an expense taxation setup 123
Creating a service taxation setup 124
Service Taxation Setup options 124
Editing a service taxation setup 125
Creating a product taxation setup 126
Product Taxation Setup options 127
Editing a product taxation setup 127
Troubleshooting taxation setup 128
About fiscal years and periods 128
Accessing a fiscal year 129
Creating a fiscal year and periods 129
Editing a fiscal year and periods 130
About closed periods 130
Accessing a closed period 131
Configuring a closed period 131
Editing a closed period 132
About billing offices 132
Accessing a billing office 132
Creating a billing office 133
Billing Offices view, General section options 133
Configuring logos for invoices 134

Configuring billing office settings 135
Setting default time entry restriction settings for all projects in a billing office 135
Billing Offices view, Settings section options 136
About invoice approval settings 141
Configuring invoice approval settings 141
Creating a billing role 142
Configuring invoice numbering 142
Billing Office Details, Invoice numbering options 143
Invoice numbering example 144
About engagement workflows 145
Configuring the engagement workflow 146
Granting access to a billing office 146
About creating reasons for write-offs and write-ups 147
Creating a reason for a write-off or a write-up 147
Modifying a reason for a write-off or write-up 147
Specifying default project plan editors 148
Modifying a billing office 148
Copying a billing office 149
About billing rates for billing offices 149
Creating a billing rate for a billing office 149
About billing role-based and resource-based cost rates 150
Rates view, Billing role section options 151
About editing billing rates for billing offices 152
Editing a billing rate for a billing office 152
Setting up daily rate conversions 153
Modifying daily rate conversions 153
About billing setup 154
Creating a remit-to address 154
Modifying a remit-to address 154
Creating a payment term statement for invoices 155
Modifying a payment term statement 155
Adding a custom invoice format 155
Modifying a custom invoice format 156
Setting up batch invoicing 156
Funding and scenario setup 156
Funding and scenario setup view options 157
About revenue recognition 157
Configuring revenue recognition 158
Revenue Recognition view options 159
About revenue transfers 160

Configuring default GL accounts for revenue types 161
Creating the list of adjustment reasons 161
Modifying the list of adjustment reasons 161
About budget settings 161
About budget item types 162
Creating a budget item type 162
Modifying a budget item type 162
Configuring default budget item types 163
Configuring request types for budget contingency 163
Specifying the budget revision for calculations 163
Configuring the default date for budget exchange rates 164
Configuring the default setting for replacing past amounts with actuals 164

6. User Interface Management 167

Changing the standard Changepoint terminology 167
Changing the default address types for companies and contacts 167
About configurable fields 168
About configurable fields for budgets and budget items 169
About configurable fields for engagements 170
About the default configurable fields 171
Enabling a default configurable field 171
Creating a configurable text field 172
Creating a configurable code field 172
Configurable Field Settings view options 173
Shared Fields section 174
Settings section 174
Entity-Based Settings 175
Metadata Settings 176
Calculated Field Settings 176
Request Settings 177
Creating a shared configurable field to be used for multiple entities 177
About restricting access to configurable fields 178
Restricting access to a configurable field 179
Editing a configurable field 180
About using entity records as values for drop-down lists 181
About modifying values for standard drop-down (lookup) lists 181
Creating drop-down list values for configurable code fields 182
Modifying drop-down list values 183
Setting up conditions to control the values of a configurable field 183
Setting up conditions to control the properties of a configurable field 184

Creating a conditional formula for a configurable field 185
Modifying the conditions for a configurable field 187
About creating calculated fields 188
Creating a calculated field 188
Rules for formulas for calculated fields 189
About using a stored procedure in a calculated field formula 191
Configurable field layout 192
Creating a configurable field group 192
About headers for configurable field groups 193
Adding a header to a configurable field group 193
Rearranging the configurable field groups in a tab or section 194
Rearranging the configurable fields in the Configurable Fields tab or section 194
About metadata settings for fields 195
Configuring metadata settings 195
Modify Metadata Settings section options 195
About hiding fields on the Changepoint user interface 197
Hiding a field 198
About user interface strings and PCIDs 199
Entering a translated user interface string 199
Editing a user interface string 200
Creating a custom PCID 200
About custom sections and section items 201
About editing a default section or section item name 201
Creating a custom section 201
Modifying a custom section 202
Adding a custom section item 202
Modifying a custom section item 202
Changing the order of sections and section items 203
Controlling access to a custom section item 203
About portlets 204
Creating a portlet 204
About controlling access to a portlet 205
Controlling access to a portlet 206
Modifying a portlet 206
Exporting a portlet 207
Importing a report into a portlet 207
About portals 207
Creating a portal 207
Restricting access to a portal 208
Modifying a portal 209

About prioritizing default portals 209
Prioritizing default portals 209
Configuring the portal layout 210
Setting a default language for the user interface 211
Configuring display options for Changepoint 211
About setting up links to custom help 211
Setting up a link to custom help 212
Modifying a link to custom help 212
About adding items to the Actions menu 213
Adding a submenu header to the Actions menu 214
Rearranging the order of submenu headers 214
Editing a submenu header in the Actions menu 215
Adding a submenu item to a submenu header 215
Submenu Item view, General options 216
Rearranging the order of submenu items 217
Editing a submenu item in the Actions menu 217

7. Time and Expenses 219

Specifying when time records become actual time 219
About restricting time for projects 219
About setting or changing time entry restrictions when there are existing projects 220
Enabling time entry restrictions 220
About non-project time 220
Creating a non-project time item 220
Non-Project Time section options 221
Modifying a non-project time item 222
About setting up expenses 222
Creating an expense category 222
Expense Category view, General section options 223
Adding GL account codes to an expense category 223
Modifying an expense category 224
Creating an expense type 224
Expense type view, General section options 225
Modifying an expense type 226
Enabling expense attachments 227
About creating expense advances 227
Creating an expense advance 227
Viewing expense advances 228
Editing an expense advance 228

8. Knowledge Management **229**

About knowledge management 229
Configuring a legal disclaimer for knowledge items 229
About knowledge categories 229
Creating a knowledge category 230
Modifying a knowledge category 230
Creating a knowledge subcategory 230
Modifying a knowledge subcategory 231
About knowledge subscriptions 231
Configuring a knowledge subscription 231
Modifying a knowledge subscription 232
About approval workflow for accessing knowledge item attachments 232
Setting up the approval workflow for knowledge item attachments 232
Modifying the approval workflow for knowledge items 233
Configuring team folders 233

9. Opportunity Management **235**

About sales methodology 235
Creating an opportunity status 235
Modifying an opportunity status 235

10. Request Management **237**

About request management 237
About support desks 238
Creating a support desk 238
Setting up the request numbering scheme 239
Restricting access to support desk requests 239
Restricting both view and edit access to support desk requests 240
Modifying a support desk 241
About the standard request types 241
Creating a request type 242
About restricting time entry for request types 243
Restricting time entry for request statuses 243
Restricting time entry for request types to specific resources or roles 243
Restricting edit access to a request type 244
Modifying a request type 245
Creating a request category or subcategory 245
Modifying a request category or subcategory 246
About request queues 246
Creating a request queue 247

Modifying a request queue 248
Restricting access to a request queue 248
Restricting access to project requests 249
About displaying additional information on the Request dialog box 249
Setting up the display of additional information on the Request dialog box 250
About assets 250
Creating an asset type 250
Modifying an asset type 251
Creating an asset option 251
Modifying an asset option 251
Assigning an option to an asset type 252
Creating an asset option lookup 252
Modifying an asset option lookup 253

11. Reporting 255

About configuring reports 255
Changing the category of a report 255
Creating a report category 255
Modifying a report category 256
About configuring Cognos reports in Changepoint Administration 256
Adding Cognos reports and items to Changepoint 257
About adding a custom ASP report 257
Adding a custom ASP report 257
Editing settings for an ASP report 258
Removing an ASP report 258
About integrating reports into entity profiles 259
Integrating a report into an entity profile 259
About moving Report Designer reports between databases 260
Exporting a Report Designer report 260
Importing a Report Designer report 260
About granting access to Report Designer reports 261
Granting access to a Report Designer report 261
About data providers 262
About creating SQL views in the Changepoint database 263
About importing data sources 264
Importing a data source 264
Deleting a data source 264
Creating a data provider category 265
Modifying a data provider category 265
Data Provider Category view, General section options 266

Creating a data provider 266
Configuring a data provider column 266
Data Provider view, General tab options 268
Deleting a custom data provider 269
Granting access to a data provider 269
About custom and static lookup lists 271
Creating a lookup list 271
Modifying a lookup list 272
About relationships between custom data providers 273
Creating a relationship between custom data providers 273
Modifying the relationship for a custom data provider 274
Exporting and importing data providers 275

12. Client Portal Management 277

About Client Portal management 277
Configuring general Client Portal settings 277
Client Portal Access view options 278
Accessing a Client Portal user 279
Managing Client Portal users 280
Client Portal user view, General section options 281
Client Portal user view, Security access section options 282

13. General Setup 283

Setting up server integration 283
Server Integration view options 283
About setting up addresses 283
Enabling a country 284
Adding a country 284
Adding states and provinces 284
Modifying a state or a province 285
Updating state and province information system-wide 285
Enforcing postal code formats 285
Enabling company history tracking 286
About email notifications 286
About standard Changepoint email templates 286
Email templates that support quick links 287
About creating email templates 288
Creating an email template 288
Email Templates view, General Section options 289
Email Templates view, Template information section options 290

Enabling an email template 290
Modifying an email template 290
Adding a merge field to an email template 291
Creating an email parameter 291
Editing an email parameter 292
About grouping records for email notifications 292
Example of grouping records for email notifications 293
Special considerations for trigger-based email templates 294
Setting up an entity-based email notification 295
Adding recipients to an entity-based email notification 296
About setting up conditions for an email notification 296
Setting up conditions for an email notification 297
Modifying an entity-based email notification 298
Sample trigger for trigger-based email notifications 299
Sample scheduled job for trigger-based email notifications 300
About sample code for embedded quick links 302
Setting up email integration 303
Enabling alternate names 303
Setting up name formatting 304
Setting up sign in and password validation 304
Sign in and Password Validation view options 305
Enabling secure socket layer support (SSL) 307
Enabling enhanced session management 307
About setting up auto-numbering 307
Setting up the auto-numbering scheme 308
Requirements for auto-numbering stored procedures 308
Numbering scheme options 310
Numbering scheme examples 311
About setting up custom stored procedures for portfolio health 312

14. Survey Management 315

About survey management 315
About accessing surveys 315
Survey status 315
Accessing a survey 316
Surveys tree view options 316
About creating surveys 317
About automated surveys 318
Creating a survey 318
Create/Edit Survey view options 319

Creating a survey from a template 319
Adding a question to a survey 320
Question editor options 320
Question types 321
About rating questions 322
Editing or deleting a question in a survey 322
Previewing a survey 322
Editing a survey 322
Deleting a survey 323
About prompt tags 323
Inserting a prompt tag into a survey question 323
Controling access to a survey 324
Access Control dialog box options 325
Configuring the layout of a survey 325
Adding text and images in header of a survey 325
Adding a background image to a survey 326
Removing an image from a survey 326
Adding an image to the list of images for a survey 326
Configuring the email messages used in a survey 327
Configure Theme dialog box options 328
Adding a survey to the Survey Management portlet 330
About survey templates 330
Creating a template category 330
Editing or deleting a template category 331
Accessing a survey template 332
Creating a corporate or personal survey template 332
Editing a survey template 332
Deleting a survey template 333
Saving a survey or a survey template as a corporate template 333
Saving a survey or a survey template as a personal template 333
About sending surveys 333
Sending a survey to respondents 334
Survey Email dialog box options 335
Prompt Tag Selection dialog box options 336
Reactivating an expired survey 336
Approving and rejecting respondents for an automated survey 336
About distribution lists 337
Accessing a survey distribution list 337
Creating a survey distribution list 337
Adding a member manually to a survey distribution list 338

Editing a member of a survey distribution list 338
Selecting existing members for a survey distribution list 339
Editing a survey distribution list 339
Deleting a survey distribution list 340
Sending a reminder email to a respondent 340
Viewing survey results from the survey profile 341
Viewing survey results from individual respondents 341
Viewing survey results from a resource or contact profile 342
Viewing surveys and ratings results that are associated with an entity 342
About the company report card 342
Viewing a company report card 344
About analyzing survey results 344
Accessing the survey analysis view 345
Viewing the survey analysis reports 345
Viewing the Response Trend Analysis chart 346
Viewing the Single Question Analysis chart 346
Viewing the PivotTable report 347
Exporting the Pivot Table report to Microsoft Excel 347
Using survey results for performance evaluation 347
Exporting survey results to a TXT or XML file 348
Marking a survey as complete 348

15. Importing and Exporting Data 351

About export setup 351
Creating an export view 351
Modifying an export view 351
Creating an export data type 352
Modifying an export data type 352
About creating export definitions 353
Creating an export definition category 353
Creating an export name 353
Creating an export file definition 354
Creating an export group and selecting the export view 355
Adding a line to an export file 355
Adding a column to a line in an export file 355
Changing the position of a column in an export file 356
Modifying an export definition 357
Setting up an export batch numbering scheme 357
Database procedures for export setup 357
Creating a custom database view for exports 357

Enabling export batch tracking in a database view 358
Adding a new topic for export publishing 358
About exporting data manually 359
Exporting data manually 360
Re-exporting data from a previously exported batch 361
Editing the export definition before exporting 361
Changepoint Export dialog box options 362
About export publishing 363
Creating an export publishing schedule 364
Configuring the recurrence settings for an export publishing schedule 365
Modifying an export publishing schedule 366
Setting up an export event notification 366
Setting up conditions for an export event notification 367
Modifying an event notification 368
About SQL SELECT statements for conditional formulas 369
Verifying the status of export publishing exports 369
Resending published data 371
About importing companies and contacts 371
About creating the import file for companies and contacts 372
Available fields for importing companies 373
Available fields for importing contacts 376
Importing companies and contacts 379

16. Archive Management 381

Archiving overview 381
Terminology 381
Archiving process 381
About retaining funding source data 382
About accessing archived data 382
About approving entities for archiving 382
Approving entities for archiving 383
Archive Approval view 383
Canceling archiving for an entity – archive administrator 384
About running the Archive Validation scheduled job 384
About the Archiving Validation Log report 386
Accessing the Archiving Validation Log report – archive administrator 387
Clearing entities from the Archiving Validation Log report – archive administrator 387
About the Archive Aged Entities scheduled job 387
Running the Archive Aged Entities scheduled job 387
About the Archiving Log report 388

Accessing the Archiving Log report – archive administrator 388
Troubleshooting archiving 388

17. Workflow Management 391

About workflow management 391
Workflow configuration overview 391
Enabling and disabling workflow for an entity 392
Resetting a workflow process instance 393
Resetting a workflow state instance 393
State definitions and layout 394
About workflow state definitions and filters 394
Creating a workflow state definition 396
Editing a workflow state definition 397
Activating and validating a workflow state definition 397
Copying a workflow state definition 398
About exporting and importing workflow state definitions 399
Exporting a workflow state definition 399
Importing a workflow state definition 399
Overview of the state workflow layout 400
Accessing the state workflow layout window 401
Adding a state to the state workflow layout 401
Restricting edit access to the entity while in a workflow state 402
Adding a state transition to the state workflow layout 402
Restricting edit access to the workflow state transition 403
Adding a trigger for a workflow state transition 403
Modifying a workflow state 405
Modifying a workflow state transition 405
Resource Request Workflow 406
Default state definitions for resource request workflow 406
Stored procedures for logic execution steps in resource request workflow 409
Process workflow layout 412
Creating a process workflow 412
Modifying a process workflow definition 412
About the process workflow layout window 413
Accessing the process workflow layout window 414
Process workflow step icons 414
Creating a process workflow layout 416
About process workflow steps 416
Configuring a process workflow state 418
About process workflow logic execution steps 418

Configuring a process workflow action step 420
Configuring a process workflow status step 420
Configuring a process workflow decision step 421
Configuring a process workflow notification step 422
Configuring a process workflow copy project step 423
Configuring a process workflow tri-state approval step 424
Configuring a process workflow system-driven survey step 424
Configuring a process workflow user-driven survey step 425
Configuring a process workflow upload step 426
Configuring a process workflow step transition 427
About assigning workflow steps to participants 428
Selecting a workflow step participant 430
About sending notifications to workflow participants 430
Sending an email notification to a workflow participant 431
Adding attachments and links to a workflow step 432
About workflow escalation 432
Configuring a workflow escalation 433
About workflow join decisions 434
Configuring a workflow join decision 435
About workflow split decisions 436
Configuring a workflow split decision 437
Sample stored procedure used in workflow split decision 439
About editing a workflow process 440
Editing a workflow process 441

Index 443

1. Changepoint Administration Introduction

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About Changepoint Administration

Changepoint Administration is the Changepoint administration application that is used for configuring and maintaining the Changepoint applications.

You use Changepoint Administration to set up:

- Changepoint licenses
- The organizational structure (global workgroups and workgroups) and resources within your organization
- Financial, taxation, and billing information
- System defaults for terminology, permissions, and option lists
- System defaults for time and expense management, sales management, request management, knowledge management, and reporting
- Data export and archiving
- Workflow processes

About accessing Changepoint Administration

You access Changepoint Administration by clicking the gear icon at the left of the menu bar in Changepoint. The gear icon appears only if you have been assigned at least one administration security feature.

The gear icon becomes active ( ) when the Changepoint Administration menu is displayed.

2. Administration Tools

Accessing system metrics

The sections in the **Tools > System Metrics** view display information about Changepoint usage:

- User activity – displays the number of users currently in the system, the average number of sessions, and the duration of each session.
- Client Portal user activity – displays the number of activated Client Portal users, the number of open sessions, and the average number of Client Portal sessions per day.
- Database metrics – provides statistics on Changepoint entities in the database.
- Version management – displays the Changepoint version number and updates.

To access system metrics

Click **Tools > System Metrics**.

About license management

You must import the license file that contains the security features that are assigned to resources in order to grant them access to Changepoint.

When you import a license file, the license information is displayed, which includes the list of security features, and the total number of licenses that have been purchased, assigned to resources, and are available to be assigned.

The **Base User** security feature is automatically assigned to each user account (resource profile), and provides access to sign in to the Changepoint applications. The total number of Changepoint users is based on the number of base user licenses that have been assigned.

Viewing license information

1. Click **Tools > License Management**.

   The **License Management** view appears. displays the following information:

Column	Description
Category field	Category of the security feature.
Feature field	Security feature names.
Feature code	Code that controls the licenses and their related security access.
Total field	Total number of licenses that have been purchased.
Used licenses field	Number of licenses that have been assigned to resources either directly, or indirectly by assigning the feature to a role, which is then assigned to resources.
Available licenses field	Number of licenses that have not been assigned to resources.

Importing a Changepoint license

1. Click **Tools > License Management**.
2. In the **Import new license** file field, click **Browse**, and then open the Changepoint license file (*.lic).
3. Click **Import**.

Locking Changepoint

You can lock Changepoint to prevent users from accessing the application for example, during system maintenance. When Changepoint is locked, only Changepoint system administrators can sign in, and only the configuration settings menu is available, unless the option to allow the system administrators full access has been selected.

1. Click **Tools > Lock Changepoint**.
2. Select the **Lock Changepoint and prevent users from signing in** check box.
3. To lock Changepoint immediately, select **Lock Changepoint immediately**.
4. To lock Changepoint at a specific time:
   a. Select **Lock Changepoint on the following date and time**.
   b. Enter the date and time.

5. To allow Changepoint administrators to have full access to Changepoint while it is locked, select the **Allow administrators full access when Changepoint is locked** check box.
6. To automatically sign out all users when Changepoint is locked, select the **Sign out all users before Changepoint is locked** check box.
7. To display a warning message to users:
   a. Select the **Warn users that Changepoint is about to be locked** check box.
   b. In the **Time before the warning message displays (in minutes)** field, enter the number of minutes before Changepoint is locked that the warning message is to be displayed. The default is 30 minutes.
   c. In the **Message displayed when Changepoint is about to be locked** field, enter the message that is displayed to resources when Changepoint is about to be locked.
   d. In the **Message displayed when users attempt to sign in while Changepoint is locked** field, enter the message that is displayed when resources try to sign in to Changepoint while it is locked.
8. Click **Save**.

About transferring records between resources

You can do the following with records for the standard fields and configurable fields for which a resource can be selected:

- Transfer records from one resource to another. For example, you can transfer the requests that are assigned to a resource to a different resource.
- Copy records from one resource to another, provided that the records can be assigned to multiple resources. For example, you can copy view access for a project from a resource to another resource.
- Remove records from a resource. For example, when a resource leaves the organization, you can remove the resource from being a time approver for other resources.

Transferring or copying a record between resources

1. Click **Tools** > **Transfer Records**.
2. In the Folders view, expand the entity and then select the record type.
3. In the **From resource** type-ahead field, enter the name of the source resource.

4. In the **To resource** type-ahead field, enter the name of the target resource.
5. Click **Load list**.

   A list of the records for the record type appears. The grayed-out records cannot be transferred or copied between the resources.

   Warning: For configurable fields that have conditional properties or values, you must verify that the target resource meets the conditional properties or values.
6. Do one of the following:
   - To transfer records to the target resource, select the records and then click **Transfer**.
   - To copy records to the target resource, select the records and then click **Copy**.

Removing a record from a resource

1. Click **Tools** > **Transfer Records**.
2. In the Folders view, expand the entity and then select the record type.
3. In the **From resource** type-ahead field, enter the name of the source resource.
4. Click **Load list**.

   A list of the records for the record type that can be removed from the resource appears.
5. Select the records, and then click **Remove**.
6. Click **OK** to confirm.

Unlocking a record manually

If a Changepoint session ends unexpectedly (for example, the computer crashes) while a record is being edited, the record may remain locked until a system update is run, which is typically overnight at the latest. However, you can unlock records manually.

1. Click **Tools** > **Unlock Records**.

   The **Unlock Records** view displays all of the records that are currently locked.
2. In the **Select** column, select the check boxes for the records that you want to unlock.
3. Click **Unlock**.

3. Resources

About global workgroups and workgroups

Global workgroups and workgroups represent your organization's business structure. Global workgroups represent the highest levels within the structure, and workgroups represent the lower levels. A workgroup can be associated with another workgroup to create a parent-child relationship.

You must have at least one global workgroup. At the global workgroup level, you define the default cost center and currency to be used for rollup reports and identify the intranet home page for the group.

> **Note:** It is recommended that you create your organization's cost centers before creating the global workgroups and workgroups.

Resources are assigned to workgroups. The number of workgroups or child workgroups that are associated with a global workgroup depends on how you want to structure your resources in Changepoint.

Global workgroup and workgroup inheritance rules

When you set up a global workgroup or a workgroup, the settings are applied and access rights to child workgroups and workgroup resources are inherited as follows:

- Settings for a global workgroup are inherited by all of its subworkgroups.
- Settings for a workgroup apply only to the workgroup itself unless the option to include all child workgroups is selected.
- When you grant access to global workgroups and workgroups, the following rules apply:
  - If you grant access to a global workgroup, all workgroups and resources under the global workgroup are granted access.
  - If you grant access to a workgroup, all resources within the workgroup are granted access.

Accessing a global workgroup

1. Click **Resources** > **Global Workgroups**.
2. In the Folders view, select the global workgroup.

Creating a global workgroup

1. Click **Resources** > **Global Workgroups**.
2. In the Folders view, select a global workgroup.
3. Click **New**.
4. Complete the fields as required. For more information, see "Global Workgroup view options" on page 28.
5. Click **Save**.

Global Workgroup view options

Option	Description
Global workgroup field	Name of the global workgroup.
Description field	Description of the global workgroup.
Default currency list	Default currency of the global workgroup.
Cost center list	Cost center of the global workgroup.
Default profile page field	URL for the default profile page of the workgroup in Changepoint.
Custom profile page field	URL for a custom profile page that replaces the default profile page of the global workgroup in Changepoint.
Maximum size of attachments (MB) field	Maximum size of the files that resources of the global workgroup can attach to entities (such as knowledge items and requests) in Changepoint. The default maximum is 40 MB.

Modifying a global workgroup

You can delete a global workgroup only if there are no active workgroups under it, or active resources associated with it. You must first unassign the resources from the workgroups and then delete the workgroups.

1. Click **Resources** > **Global Workgroups**.

2. In the Folders view, select the global workgroup.
3. To edit the global workgroup:
   a. Make the necessary changes.
   b. Click **Save**.
4. To delete the global workgroup, click **Delete**.

Accessing a workgroup

1. Click **Resources** > **Workgroups**.
2. In the **Workgroups** view, expand the global workgroups to locate the workgroup.
3. Click the workgroup.

   The workgroup settings appear.

Creating a workgroup

Workgroup settings apply to the resources who are assigned to the workgroup.

1. Click **Resources** > **Workgroups**.
2. In the Folders view, expand a global workgroup, and then select any workgroup.
3. Click **New**.
4. In the **General** tab, complete the fields as required. For more information, see "Workgroup view, General tab options" on page 30.
5. Click **Save**.
6. Complete the remaining tabs. For more information, see:
   - "Configuring financial settings for a workgroup" on page 32
   - "Granting access rights to a workgroup" on page 35
   - "Setting up invoice batch printing" on page 35
   - "Configuring workgroup settings for the resource management worksheet" on page 37
   - "Setting planning units options for a workgroup" on page 39

Workgroup view, General tab options

Option	Description
Workgroup field	Name of the workgroup.
Alternate name field	Name of the workgroup in a different language or alphabet.
Description field	Description for the workgroup.
Workgroup ID field	Identifier for the workgroup, which is used for custom reporting and integrations.
Select a global workgroup or a parent type-ahead field	Global workgroup or workgroup that is directly above this workgroup in your organization's hierarchy.
Global workgroup field	Global workgroup of the workgroup.
Parent workgroup field	Parent workgroup of the workgroup, if the parent workgroup is not a global workgroup.
Workgroup type list	Workgroup types are configured by your organization and can be configured at the system and global workgroup level. Examples include Finance, Consulting, and Administration.
Workgroup level list	Workgroup levels are configured by your organization and can be configured at the system and global workgroup level. Levels are typically geographic, for example: Global, National, or Regional.
Country list	Country where the workgroup is located.
Default currency list	Default currency for the workgroup.
Default profile page field	Default URL for the workgroup in Changepoint.
Custom profile page field	Custom URL that replaces the default URL for the workgroup in Changepoint.
Percent available for planned work field	Percentage of time that resources in this workgroup are available for planned work.

Option	Description
Prevent project managers from overbooking resources check box	When selected, project managers in the workgroup cannot save task assignments that result in resources being overbooked. Available only when resource leveling is enabled.
Warn project managers if task assignments result in overbooking of resources check box	When selected, a warning message appears if a project manager in the workgroup tries to save a new task assignment that results in resources being overbooked. However, project managers can still save the task assignment. Available only when resource leveling is enabled.
Enable start time capture in time sheet check box	When selected, the **Start time** field is available on the time sheet of the workgroup resources.
Enable mandatory start time capture in time sheet check box	When selected, workgroup resources must specify the start time when entering time in the time sheet.
Maximum number of decimal places in the time sheet field	Maximum number of decimal places that can be displayed for values in the time sheet.
Maximum time allowed per day in the time sheet field	Maximum number of time in hours and days that resources can enter for a day. This maximum includes both regular hours and overtime hours. A value of 0 means no limit.
Include in sales-related portlets check box	When selected, the workgroup is included in sales-related portlets.
Include in service-related portlets check box	When selected, the workgroup is included in the services-related portlets.

About configuring financial settings for a workgroup

You can specify the financial settings for a workgroup, such as the default GL account code, cost center and time and expense approvers.

Threshold approvers

You can set up an additional level of approval for expenses that exceed a threshold amount and specify a threshold approver for a workgroup. Threshold approval occurs after the line manager or engagement manager approves the expense report, but before the final expense approval.

Revenue transfer settings

You can override the default revenue transfer settings for a workgroup. If revenue is recognized based on cost rates, then transfers cannot be calculated based on billing rates. If the default revenue transfer setting for the organization is based on the labor multiplier, and you select the revenue transfer based on revenue percentage for the workgroup, the system uses the total revenue recognized per hour instead of the resource billing rate to calculate the transfer amount.

Configuring financial settings for a workgroup

1. Access the workgroup.
2. Expand the **Financial Settings** section.
3. Complete the fields as required. For more information, see "Financial Settings section options" on page 33.
4. To set up approvals for expenses that exceed a threshold amount:
   a. Select the **Enable threshold expense approval** check box.
   b. In the **Threshold expense amount** field, enter the amount over which expense reports must be approved.
   c. In the **Threshold expense approver** field, select the role that resources require to approve the expense reports that exceed the threshold amount.
5. Click **Save**.

Financial Settings section options

Option	Description
Default GL account code list	GL account code for invoice distribution. Invoices automatically distribute revenue for time to this GL account.
Cost center type-ahead field	Cost center for the workgroup.
Default time approver list	Default time approver for the workgroup resources.
Default expense approver list	Finance approver and default expense approver for the workgroup resources. **Note:** If you do not specify a default expense approver, the expense reports for the workgroup resources are approved automatically after the initial approval and threshold approval (when applicable).
Default billing office type-ahead field	Default billing office for the workgroup. Time entry cutoff dates that are configured for the billing office apply to workgroup resources when they enter non-project time in their time sheet.
Use revenue recognition defaults check box	When selected, the default revenue transfer settings that are configured for revenue recognition are used.
Transfer revenue based on labor multiplier option	When selected, revenue transfers to this workgroup are based on the specified percentage of resource cost rates. For more information, see "Overriding the default revenue transfer settings for a workgroup" on page 34.
Transfer revenue based on revenue percentage option	When selected, revenue transfers to this workgroup are based on the specified revenue percentage.
Enable threshold expense approval check box	When selected, expense reports that exceed the threshold amount must be approved by the threshold expense approver.
Threshold expense amount field	Monetary limit for the threshold. Expense reports that are over this limit must be approved.

Option	Description
Threshold expense approver list	Role that a resource requires to approve the expense reports that are over the threshold limit.
Roles required for the final approval of expense reports list	Roles required by a resource to give final approval to expense reports after a resource's line manager or engagement manager has approved the report.

Overriding the default revenue transfer settings for a workgroup

1. Access the workgroup.
2. Expand the **Financial settings** section.
3. Clear the **Use revenue recognition defaults** check box.
4. Do one of the following:
   - To base revenue transfers on resource cost rates, select the **Transfer revenue based on labor multiplier** check box, and then enter the percentage.
   - To base revenue transfers on resource billing rates, select the **Transfer revenue based on revenue percentage** check box, and then enter the percentage.
5. Click **Save**.

About granting workgroup access and assigning resource managers

By default, resources can access data that is related to their own workgroup, for example, in service portlets, reports, and in the resource scheduling calendar.

You can grant access to the workgroup data, either directly or through roles, to resources that do not belong to the workgroup.

Assigning resource managers

You can specify the resources and roles that will be resource managers for the workgroup and handle resource requests from other workgroups. If you specify a role, then the resources who are assigned the role are automatically resource managers for the workgroup.

Resource managers can access the workgroup resources in the resource management view, and are responsible for processing resource requests for a workgroup.

Viewing the members of a workgroup

1. Access the workgroup.
2. Expand the **Access rights** section.

   The members of the workgroup are listed in the **Resources belonging to this workgroup** list.

Granting access rights to a workgroup

1. Access the workgroup.
2. Expand the **Access rights** section.
3. In the **Resources allowed to access this workgroup** list, select the resources to be granted access.
4. In the **Roles allowed to access this workgroup** list, select the roles to be granted access.
5. Click **Save**.

Specifying a resource manager for a workgroup

1. Access the workgroup.
2. Expand the **Access rights** section.
3. In the **Resource managers for this workgroup, who will receive resource requests from other workgroups** list, select the resource manager.
4. In the **Roles required to be resource manager for this workgroup and receive resource requests from other workgroups** list, select the roles required by a resource to be a resource manager for the workgroup.
5. To extend the resource management responsibility to all subworkgroups of the current workgroup, select the **Include children** check box.
6. To allow only the resource managers of the workgroup to view workgroup resources in search results, select the **Restrict view access of members** check box.
7. Click **Save**.

Setting up invoice batch printing

1. Access the workgroup.
2. Expand the **Invoice batch printing** section.

3. Complete the fields as required. For more information, see "Invoice batch printing options" on page 36.
4. Click **Save**.

Invoice batch printing options

Option	Description
Batch print directory field	Directory where the invoice print files are placed.
Print server name field	Name of the printer server used by the workgroup.
Default printer field	Name of the printer used by the workgroup.
Header left, center, and right fields	Text that appears in the left, center, or right section of the header.
Footer left, center, and right fields	Text that appears in the left, center, or right section of the footer.
Format link	Format to apply to the header or footer. Options include: custom, date, file, file path, page and page number.
Delete print files from batch print directory after printing check box	When selected, the print files are purged from the system after printing. If the print files are not deleted, the invoices are reprinted each time the print job runs.
Allow users to override the deletion of print files check box	When selected, resources can override the deletion of the print file from the system.

About workgroup settings for the resource management worksheet

You can control the types of project demand that resources can select in the resource management worksheet (planned effort, forecast remaining effort, or both).

By default, resource managers can edit the demand items for the resources in the workgroups for which they are the resource manager. However, there are options that you can set up in the resource manager's own workgroup that force resource managers to have one or both of the following:

- view access to demand items in order to view, create, and edit the demand items in the resource management worksheet
- create and edit access to demand items in order to commit the changes to the demand items in the resource management worksheet

  Note: When create and edit access to demand items is required, and resource requests are enabled, resources who have edit access to resource requests through workflow can edit and commit changes to task assignments or project team entries that are associated to resource requests. Therefore these resources do not require edit access to the task assignments or project team entries.

You can also set an option that allows resources, including those who are not resource managers, to access a resource management scenario provided that:

- the resource has the view access to the entities to view and make changes to demand items in the scenario, or additionally, create and edit access to the entities to commit the changes
- the resource has been granted access to the resource management scenario

  Note: In all cases, the workgroup settings apply to the resource who belongs to the workgroup and is using the worksheet, and not to the workgroups that are displayed in the worksheet.

Configuring workgroup settings for the resource management worksheet

For RSW, see "Configuring workgroup settings for resource scheduling worksheet (RSW)" on page 38.

1. Access the workgroup.
2. Expand the **Resource scheduling worksheet/Resource management worksheet** section.
3. To allow resource managers to select planned effort, select the **Allow planned effort to be selected in RMW** check box.
4. To allow resource managers to select forecast remaining effort, select the **Allow forecast remaining effort to be selected in RMW** check box.
5. To require resource managers to have create and edit access in order to commit the changes to the demand items, select the **Resource managers require create and edit access to demand items** check box.

6. To require resource managers to have view access in order to view, create, and edit the demand items, select the **Resource managers require view access to demand items** check box.
7. To allow resources who are not resource managers to access resource management scenarios, select the **Resources require only entity access to access RMW scenarios** check box.
8. To apply the resource management worksheet workgroup settings to all subworkgroups of the current workgroup, select the **Include children** check box.
9. Click **Save**.

Configuring workgroup settings for resource scheduling worksheet (RSW)

For the resource management worksheet (RMW), see "Configuring workgroup settings for the resource management worksheet" on page 37.

Only the two options to require that resource managers have access to demand items apply to RSW.

You can require resource managers for the workgroup to have one or both of the following access requirements:

- view access to demand items in order to view, create, and edit the demand items in RSW
- create and edit access to demand items in order to commit the changes to the demand items in RSW

  Note: When create and edit access to demand items is required and resource requests are enabled, resources who have edit access to resource requests through workflow can edit and commit changes to task assignments or project team entries that are associated to resource requests. Therefore these resources do not require edit access to the task assignments or project team entries.

1. Access the workgroup.
2. Expand the **Resource scheduling worksheet/Resource management worksheet** section.
3. To require that resource managers have create and edit access in order to commit the changes to the demand items, select the **Resource managers require create and edit access to demand items** check box.

4. To require that resource managers have view access in order to view, create, and edit the demand items, select the **Resource managers require view access to demand items** check box.
5. Click **Save**.

Setting planning units options for a workgroup

You can set values for the daily capacity and daily conversion factor, and restrict the planning units that are available to the workgroup resources. The values that you set on the workgroup override the system-level default values. Values can also be set on individual resources in user setup, which override the workgroup values.

1. Access the workgroup.
2. Expand the **Planning units** section.
3. To apply the settings in this section to all subworkgroups of the current workgroup, select the **Include children** check box.
4. In the **Daily capacity** field, enter the number of hours in a working day.
5. In the **Daily conversion factor**, enter the number hours to be used to convert records from hours to days or FTE, and back.
6. To further restrict the planning units that are available to resources, clear the corresponding check boxes in the **Available planning units** table.
7. Click **Save**.

Modifying a workgroup

You cannot delete a workgroup if it has subworkgroups. You must first unassign the subworkgroup resources, and then delete the subworkgroups.

Warning: Deleting a workgroup can affect reporting. For example, if time was entered by workgroup resources, and the access checking on a report is enabled, the time records for the workgroup resources will not be included in the report after the workgroup is deleted. Access is tracked and stored only for the workgroups that are currently active.

1. Access the workgroup.
2. To edit the workgroup:
   a. Make the necessary changes.

b. Click **Save**.

3. To delete the workgroup, click **Delete**.

About role and feature mapping

In Changepoint, a role is a set of features that are required for a specific job or type of work. For example, you can create a project manager role that includes all of the features related to managing projects. You can then assign the role to resources who are project managers.

Note: A feature that is mapped to a role is counted as a license only when the role is assigned to a resource.

Roles are also used to configure workflows or designate access permissions, and do not necessarily require features for workflow purposes. For example, a role is required to commit invoices of a specific billing office.

Creating a role

1. Click **Resources** > **Role and Feature Mapping**.
2. In the Folders view, select any role.
3. Click **New**.
4. In the **Role** field, enter the name of the role.
5. In the **Description** field, enter a brief description for the role.
6. In the **Features assigned to this role** list, select the features:
   a. To search for an item, enter the search text and then click **Search**.
   b. To display the tree view, clear the **Show selected items only** check box, ensure that the search field is empty, and then click **Search**.
   c. Select one or more items.
   d. To display the selected items only, select the **Show selected items only** check box, ensure that the search field is empty, and then click **Search**.
7. Click **Save**.

Modifying a role

1. Click **Resources** > **Role and Feature Mapping**.

2. In the Folders view, select the role.
3. To edit the role:
   a. Make the necessary changes.
   b. Click **Save**.
4. To delete the role:
   a. Click **Delete**
   b. Click **OK** to confirm.

About qualifications and competencies

You can create a set of categories, qualifications, and competencies to assign to resources. This information helps project managers and resource managers to select the best resource for a task.

Qualification category

A general set of qualifications, for example Microsoft technologies or foreign languages. You can use categories for other information, such as travel preferences, or industries.

Qualification

A specific skill, for example, "SQL Server programming" or "French". Other examples include travel locations such as North America, Europe, and Asia, or specific industries such as wireless communications or mining.

Competency

The level of accomplishment for a specified qualification. Examples include product versions, or levels such as beginner, intermediate, and expert.

Creating a qualification category

1. Click **Resources** > **Qualifications**.
2. In the Folders view, select any qualification category.
3. Click **New**.
4. In the **Category** field, enter the name for the qualification category.
5. In the **Description** field, enter a description for the qualification category.

6. Click **Save**.

Modifying a qualification category

If you delete a qualification category, the qualifications and competencies under it are also deleted.

1. Click **Resources** > **Qualifications**.
2. In the Folders view, select the qualification category.
3. To edit the qualification category:
   a. Make the necessary changes.
   b. Click **Save**.
4. To delete the qualification category:
   a. Click **Delete**.
   b. Click **OK** to confirm.

Creating a qualification

You add qualifications to a qualification category.

1. Click **Resources** > **Qualifications**.
2. In the Folders view, select the qualification category that you want to add the qualification to.
3. Click **New qualification**.
4. In the **Qualification** field, enter the name for the qualification.
5. In the **Description** field, enter a description for the qualification.
6. Click **Save**.

Modifying a qualification

1. Click **Resources** > **Qualifications**.
2. In the Folders view, select the qualification.
3. To edit the qualification:

   a. Make the necessary changes.

   b. Click **Save**.

4. To delete the qualification:

   a. Click **Delete**.

   b. Click **OK** to confirm.

Creating a competency

You add competencies to a qualification.

1. Click **Resources** > **Qualifications**.
2. In the Folders view, select the qualification.
3. In the **Competencies** table, right-click and then select **Insert**.
4. In the **Competency** field, enter the name of the competency.
5. In the **Description** field, enter the description of the competency.
6. Click **Save**.

Modifying a competency

1. Click **Resources** > **Qualifications**.
2. In the Folders view, select the qualification.
3. To edit the competency:

   a. Make the necessary changes.

   b. Click **Save**.

4. To delete the competency:

   a. Click **Delete**.

   b. Click **OK** to confirm.

   c. Click **Save**.

About functions

Functions define the type of work that can be performed by a resource and can contain a set of specific qualifications and competencies. For example, the *Senior Developer* function can include the following qualifications and competencies:

- Software Development
  - .NET
  - XML
- Database Administration
  - SQL Server
  - Oracle

Primary functions are assigned to each resource to identify their main job duties within your organization, which helps project managers and resource managers to select the best resources for a project.

Creating a function

When you create a function, you select the qualifications and competencies for it.

1. Click **Resources** > **Functions**.
2. In the Folders view, click any function.
3. Click **New**.
4. In the **Function** field, enter the name for the function.
5. In the **Description** field, enter a description for the function.
6. To select qualifications and competencies:
   a. To search for an item, enter the search text and then click **Search**.
   b. To display the tree view, clear the **Show selected items only** check box, ensure that the search field is empty, and then click **Search**.
   c. Select one or more items.
   d. To display the selected items only, select the **Show selected items only** check box, ensure that the search field is empty, and then click **Search**.

7. Click **Save**.

Modifying a function

If you delete a function, the function is removed from all resources to which it has been assigned.

1. Click **Resources** > **Functions**.
2. In the Folders view, select the function.
3. To edit a function, make the necessary changes, and then click **Save**.
4. To delete a function:
   a. Click **Delete**.
   b. Click **OK** to confirm.

About user setup

You create resource profiles for the users that require access to Changepoint.

Resources are created from a workgroup and inherit some of the workgroup settings. You can also create generic resources to be used as placeholders when creating and planning engagements, projects, and tasks.

Accessing a resource in User Setup

1. Click **Resources** > **User Setup**.

   The **User Setup** tree view appears.
2. In the Folders view, do one of the following:
   - Expand the workgroups to locate the resource.
   - To search for a resource by name, click **Options** > **View** > **Search**.
3. Click the resource.

   The **User Setup** dialog box appears.

Creating a resource

You create a resource from a global workgroup or workgroup.

1. Click **Resources** > **User Setup**.

The **User Setup** tree view appears.

2. Expand the tree view to locate the global workgroup or workgroup for the new resource.
3. Right-click the global workgroup or workgroup and click **Create resource**.

   The **User Setup** dialog box appears.

4. Complete the fields as required. For more information, see "User Setup dialog, Resource information tab options" on page 46.
5. Click **Save**.
6. To continue completing the resource profile, see the following topics:
   - "Specifying user-managed information for a resource" on page 49
   - "Specifying payroll information for a resource" on page 50
   - "Specifying confidential information for a resource" on page 52
   - "Adding a new billing or cost rate for a resource" on page 54
   - "Specifying qualifications and functions for a resource" on page 55
   - "Specifying security access for a resource" on page 56
   - "Specifying organizational information for a resource" on page 56
   - "Copying values from a resource profile" on page 59

User Setup dialog, Resource information tab options

Field	Description
First name field	First name of the resource.
Middle name field	Middle name of the resource.
Last name field	Last name of the resource.
Alternate name field	Name of the resource in a different language or alphabet.
Description field	Description of the job function for the resource.

Field	Description
License list	Type of license for the resource. Options include: • **Changepoint user** for regular Changepoint resources. • **Undefined user** for generic resources.
Resource type list	Type of resource. Options include: • **Contractor** • **Full time** • **Part time** • **Temporary**
Hire date field	Date that the resource begins work.
Resource ID field	Alphanumeric identifier for the resource.
SSO credential field	Network logon name or single sign-on (SSO) credential, as required.
Email field	Business email address of the resource. An email address is required if: • your organization uses Microsoft Exchange server-side synchronization • the resource is to receive email notifications.
Web password field	Password for signing in to Changepoint.
Time zone list	Time zone used by the resource. The time zone is required for calendar synchronization between the Changepoint SQL server database and the Microsoft Exchange server, and for report scheduling.

Field	Description
Allow user to create or modify personal portals check box	When selected, the resource can create and modify personal templates.
Exempt from resource request check box	When selected, the resource can be assigned to tasks and project team entries even when resource requests are enabled for a project or engagement. This option allows you to assign tasks to generic or placeholder resources that are created for planning purposes, or any resource who you do not want to include in the resource request process.

About creating generic resources

You can create generic resources to be used as placeholders for planning purposes. You can enter qualifications and resource rates for generic resources so that resource managers and project managers can do searches and assign tasks to them.

You create a generic resource the same as a regular resource, but with the following settings on the **Resource information** tab:

- In the **License** list, select **Undefined user**
- Leave the **Email** and **Web password** fields blank

About exempting resources from resource requests

When resource requests have been enabled, there is an option in **User Setup** to exempt the resource from resource request process. This option allows you to assign tasks to generic or placeholder resources that are created for planning purposes, or to any resource who you do not want to include in the resource request process.

When resource requests are enabled for the engagement or project, you can create project team entries for exempt resources in the **Edit Project** dialog box, and task assignments for exempt resources in the project worksheet. You can also create project team entries and task assignments in the resource management worksheet.

When resource requests are enabled for tasks, you can create task assignments for exempt resources in the resource management worksheet. However, you cannot create task assignments for exempt resources in the **Task** creation or editing screen or in the project worksheet.

When you copy projects, if resource requests are required for the target project, the task assignments for the resources that are exempt from resource requests can be copied to the target project.

When you create a project from an opportunity, you can create tasks for resources that are exempt from resource requests.

Removing the exempt from resource request setting from a resource

If you remove the exempt setting for a resource, then the regular resource request rules apply when you edit a task assignment for the resource, either from the resource management worksheet or the project worksheet.

If there are existing task assignments for the resource, you can either create resource requests for the task assignments manually, or the next time that you access the task assignments in the resource management worksheet, the new resource requests will be created automatically.

Specifying user-managed information for a resource

User-managed information can be edited by resources in the **Preferences** view.

1. Access the resource in **User Setup**.
2. Click the **User-managed information** tab.
3. Complete the fields as required. For more information, see "User Setup dialog, User-managed information tab options" on page 49.
4. Click **Save**.

User Setup dialog, User-managed information tab options

Field	Description
Country list	Name of the country for the business address.
Address field	The street name and number, unit or suite number, and floor number.
City field	Name of the city.
State/Province list	The state or province.

Field	Description
ZIP/Postal code field	The ZIP or postal code.
Job title field	Job title of the resource. The job title is displayed in the **My contact info** section of the **Preferences** view, but is read-only.
Effective date of job title field	Date that the job title of the resource takes effect. This option is not displayed in the **My contact info** section of the **Preferences** view in Changepoint.
Location field	Location of the resource.
Office phone field	Business phone number.
Ext field	Business phone number extension.
Home phone field	Home phone number.
Mobile field	Mobile phone number.
Fax field	Business fax number.
Pager field	Pager number.

Specifying payroll information for a resource

1. Access the resource in **User Setup**.
2. Click the **Payroll information** tab.
3. Complete the fields as required. For more information, see "User Setup dialog, Payroll information tab options" on page 51.
4. Click **Save**.

User Setup dialog, Payroll information tab options

Field	**Description**
Base currency list	The currency in which the resource is paid.
Payroll group field	Name of the payroll group to which the resource belongs.
Cost center field	Cost center to which the resource is assigned.
First payroll end date field	The date that the first payroll period ends. This is also the first date that time submission rules apply. If the resource has been rehired or on an extended leave, you can change the payroll end date to a date in the future so that the resource does not have to enter time in the weeks they were away.
Pay schedule list	The payroll schedule for the resource. Options include: • **Bi-weekly** • **Monthly** • **Semi-monthly** • **Weekly**
Payroll lag field	Number of days after the payroll end date during which resources can enter or adjust time on their time sheets before the processing cutoff date.
Daily capacity field	Number of hours in a working day, which is used for demand and capacity calculations. The initial value is inherited from the workgroup. A value between 0 and 24 overrides the workgroup setting. When frequent changes to the workgroup setting are expected, delete the value (leave the field blank) to always use the workgroup setting.
Daily conversion factor field	Number of hours to be used to convert time records from hours to days or FTE, and back. Default value is 0, which means no value is set for the resource. A value greater than 0 overrides the system and workgroup settings.

Field	Description
Submission cycle list	Frequency in which the resource must submit the time sheet. • **Daily** • **Not applicable** – no regular time sheet submission is required • **Weekly**
Submission hours field	Minimum number of hours that the resource can submit at one time.
Allow daily time to be submitted out of sequence check box	When cleared, the resource must submit daily time sheets in chronological order. When selected, the resource can submit daily time sheets in any order.
Nonworking days check boxes	When selected, indicates that the day is a nonworking day for the resource. Nonworking days are exempt from daily submission rules and are excluded from the resource's availability.

Specifying confidential information for a resource

Confidential information is not displayed in the resource profile.

1. Access the resource in **User Setup**.
2. Click the **Confidential** tab.
3. Complete the fields as required. For more information, see "User Setup dialog, Confidential tab options" on page 53.
4. Click **Save**.

User Setup dialog, Confidential tab options

Field	Description
Vacation hours field	Number of vacation hours per year allocated to the resource.
Vacation carry over field	Number of unused vacation hours that the resource can carry over from the previous year to the next year.
Annual target hours field	Number of hours the resource is expected to work each year.
Time in-lieu field	Number of hours given to the resource in compensation for overtime.
Termination date field	Last day of employment for the resource. The resource is automatically unassigned from the workgroup on this date.
Billing and Cost Rates section	
Historical rates list	Effective dates of the different rates that have been set up for the resources since the hire date.
Hourly billing rate field	Amount that your organization bills for each hour the resource works for a customer.
Hourly cost rate field	Amount that it costs your organization for each hour the resource works.
Daily billing rate field	Amount your organization bills for each full day the resource works for a customer.
Daily cost rate field	Amount that it costs your organization for each full day the resource works.
Overtime billing rate field	Amount that your organization bills for each overtime hour the resource works for a customer.
Overtime cost rate field	Amount that it costs your organization for each overtime hour the resource works.

Field	Description
Rate 1 **Rate 2** **Rate 3** fields	Additional fields for custom reporting purposes.
Currency list	Currency for the billing rate.
Effective date field	Date that the rates take effect.
Active check box	When selected, indicates that the rates are in use. When cleared, the rates are not used in any calculations.
Comment field	Comments about rates or confidential information.
Comments history field	List of the comments and dates they were entered.

Accessing billing or cost rates for a resource

You can view the different billing or cost rates that have been set up for a resource.

1. Access the resource in **User Setup**.
2. Click the **Confidential** tab.
3. In the **Historical rates** list, select the effective date of the rate.

   The rate information is displayed in the rate fields.

Adding a new billing or cost rate for a resource

Only one billing or cost rate can be active for a given date.

1. Access the resource in **User Setup**.
2. Click the **Confidential** tab.
3. In the **Historical rates** list, select **Add new rate**.
4. In the **Billing rates** section, complete the fields as required. For more information, see "User Setup dialog, Confidential tab options" on page 53.
5. In the **Effective date** field, enter the date that the rate becomes effective.
6. To make the rate active on the effective date, select the **Active** check box.
7. Click **Apply** (beside the **Historical rates** list).

8. Click **Save**.

Specifying qualifications and functions for a resource

You can specify the qualifications and the functions of the resource. The qualifications are grouped by qualification category, and the functions that are available for selection are specific to your organization.

1. Access the resource in **User Setup**.
2. Click the **Qualifications and functions** tab.
3. In the **Primary function** list, select the primary function of the resource.
4. In the **Effective date** field, enter the date that the primary function becomes effective.
5. Expand the **Qualification** category and select the qualification for the resource.
6. To specify the level of competency for the qualification:
   a. Select the check box of the competency.
   b. In the **Years of experience** field, enter the number of years.
   c. In the **Last used** field, enter the date that the qualification was last used by the resource.
7. In the **Functions** section, select the functions of the resource.
8. Click **Save**.

About security access settings for resources

The security access that a resource has to Changepoint is controlled by a combination of the following:

- **Security features** – provide access rights to view and edit data and perform various tasks in Changepoint.
- **Roles** – are groups of security features that correspond to a specific job function or role. For example, a project manager role would include all the security features that a resource requires to create, edit, delete, and manage projects in Changepoint.
- **Workgroup access** – provides access to workgroups other than the workgroup that the resource belongs to. The access rights to a workgroup also extend to the child workgroups of the workgroup.

- **Billing office access** – provides access to engagements, companies and invoices that are associated to the billing office.

  Note: Changepoint licenses are applied when the corresponding security features are assigned to a resource, either directly or through a role, and the resource profile is saved. If the effective date is in the future, then the Changepoint licenses are applied on the effective date.

Specifying security access for a resource

1. Access the resource in **User Setup**.
2. Click the **Security access** tab.
3. In the **Roles** section, select the roles you want to assign to the resource.
4. In the **Features** section, select the features you want to assign to the resource.
5. In the **Workgroup Access** section, select the workgroups that the resource can access.
6. In the **Billing Office Access** section, select the billing office access rights for the resource.
7. Click **Save**.

Specifying organizational information for a resource

When you create a new resource profile from a workgroup or from an existing resource profile, the name of the selected workgroup or the workgroup of the existing resource is automatically applied to the new profile. If no global workgroup or workgroup is specified, the new resource is saved as an *unassigned resource*.

1. Access the resource in **User Setup**.
2. Click the **Organizational information** tab.
3. Complete the fields as required. For more information, see "User Setup dialog, Organizational information tab options" on page 57.
4. Click **Save**.

User Setup dialog, Organizational information tab options

Field	Description
Effective date field	Date when the settings specified in the **Organizational information** section come into effect. After the settings are saved, you can view the corresponding effective dates in the **Resource history**. **Note:** The resource cannot be assigned to any demand items until the effective date of the initial workgroup. If no effective date is specified, then the current date is used.
Global workgroup type-ahead field	Global workgroup to which the resource is assigned.
Workgroup type-ahead field	Workgroup to which the resource is assigned.
Reports to field	Manager for the resource.
Changepoint Administration access field	Indicates if the resource is a Changepoint administrator. • **No Access** (default setting) • **System Administrator** (if the resource has been assigned the **Changepoint Administrator** feature)
Current time approver field	Resource who approves the time sheets submitted by the resource. Default time approver comes from the resource's workgroup.
Original time approver field	Name of the original time approver, which appears only when the time approval rights have been delegated.
Delegated check box	When selected, indicates that original time approver resource has delegated their time approval rights to the current time approver.
Current expense approver field	Resource who approves the expense reports submitted by the resource. Default expense approver comes from the resource's workgroup.

Field	Description
Original expense approver field	Name of the original expense approver, which appears only if the expense approval rights have been delegated.
Delegated check box	When selected, indicates that the original expense approver has delegated their expense approval rights to the current expense approver.

Restricting the resources that a resource manager can manage in RSW

By default, resource managers can manage the demand for all resources in their workgroup. For RSW only, you can limit the resources that a resource manager can manage to a subset of the workgroup resources. You can use this functionality to control resource management without using resource requests.

Note: This restriction applies only to RSW and not to resource requests or the resource management worksheet (RMW).

1. Access the resource in **User Setup**.
2. In the **Resource Management Worksheet** section, select the **Restrict ability to manage resources in RSW to the selected resources only** check box.
3. To specify the resources that the resource can manage in RSW:
   a. To search for an item, enter the search text and then click **Search**.
   b. To display the tree view, clear the **Show selected items only** check box, ensure that the search field is empty, and then click **Search**.
   c. Select one or more items.
   d. To display the selected items only, select the **Show selected items only** check box, ensure that the search field is empty, and then click **Search**.
4. To include all resources for a workgroup, select the workgroup.
5. To include all the workgroups below a selected workgroup in the hierarchy, click the **Include children** check box.
6. To include all resources that are exempt from resource requests, select the check box.
7. Click **Save**.

Attaching a picture to a resource profile

1. Access the resource in **User Setup**.
2. Click **Attach Picture**.

   The **Attach Picture** dialog box appears.
3. Click **Browse**, choose a GIF or JPG file, then click **Open**.
4. Click **Upload**.
5. Click **OK** to confirm.

About copying values from a resource profile

You can copy values from a source resource profile to a new or existing target resource profile. Copying values ensures that consistent information is entered for resources.

You can select which of the following information is copied:

- **All configurable fields** – all configurable field values from all of the tabs.

  Note: If any of the tabs that you want to copy includes configurable fields, then you must select the **All configurable fields** check box.
- **Resource information** tab – resource type and time zone
- **User-managed information** tab – address information, work location, job title, office phone number, and fax number
- **Payroll information** tab – all field values
- **Confidential** tab – vacation carry-over and annual target hours
- **Qualifications and functions** tab – primary function, qualifications, and functions
- **Security access** tab – all information
- **Organizational information** tab – global workgroup, workgroup, resource reported to, cost center, and the current time and expense approvers of the existing resource

Copying values from a resource profile

1. Access the target resource profile by doing one of the following:
   - Create a new resource profile
   - Access the resource in **User Setup**

2. In the **User Setup** dialog box, click **Copy values**.

   The **Resource List** dialog box appears.

3. Select the source resource.

   The **Copy from <source resource>** dialog box appears.

4. Select the check boxes for the information that you want to copy to the target resource profile.

5. Click **OK**.

6. Complete the remaining fields. For more information, see "Creating a resource" on page 45.

7. Click **Save**.

About editing resources

You can edit most of the information in a resource profile. Some of the changes are recorded in the resource history. Some changes require that you specify an effective date, which can be a date in the future. You can view the resource history, and view and cancel pending changes.

About resource history

Changes to the following fields are recorded in the resource history as of the date that they are changed:

- Job title
- Cost and billing rates fields
- Qualifications and functions

Changes to the following fields are recorded in the resource history as of the effective date:

- Hire date (if left blank, the date that the resource profile is created is recorded)
- Termination date
- Global workgroup and Workgroup
- Reports to
- Current time approver
- Current expense approver

Editing a resource

1. Access the resource in **User Setup**.
2. Make the necessary changes.
3. Click **Save**.

Managing a resource's preferences

From the **User Setup** dialog box, you can access the **Preferences** view for the current resource and edit the settings. For example, you can delegate the resource's approval rights for time, expenses, invoices, and workflow.

You can edit all of the preferences for the resource in this view except for changing their password, which can be done in the **User Setup** dialog box.

1. Access the resource in **User Setup** (**Resources > User Setup**).
2. Click **Preferences**.
3. Expand the section that includes the preferences to be managed.
4. Make the required changes. For more information, see "Changing Personal Preferences" in the *User Basics User Guide* or Changepoint help.
5. Click **Save** in the section that includes the changes.

Viewing pending changes for a resource

You can view the changes to a resource profile that have effective dates set in the future. The pending changes are grouped under workgroup changes and other changes.

1. Access the resource in **User Setup**.
2. Click **View pending changes**.

   The **Pending Resource Changes** dialog box appears.

Canceling a pending change for a resource

You can cancel the pending workgroup or other change that has the latest effective date.

1. Access the resource in **User Setup**.
2. Click **View pending changes**.

   The **Pending Resource Changes** dialog box appears.

3. To cancel the workgroup change that has the latest effective date, click **Actions > Delete > Latest workgroup change**.
4. To cancel the change other than a workgroup change that has the latest effective date, click **Actions > Delete > Latest other change**.

About transferring a resource to another workgroup

To transfer a resource to another workgroups you must have access to both workgroups. The resource loses the security access rights of the source workgroup, and acquires the security access rights of the target workgroup as of the effective date of the change.

Note: If the resource has been assigned specific roles within the workgroup or in workflow processes, consider the areas that may be affected by the change.

Transferring a resource to another workgroup

1. Access the resource in **User Setup**.
2. Click the **Organizational information** tab.
3. In the **Global workgroup** and **Workgroup** lists, select the global workgroups and workgroups.
4. In the **Effective date** field, select the date.
5. Click **Save**.

About terminating resources

You terminate a resource on their resource profile. On the termination date, the resource is unassigned from their workgroup and moved to the **Unassigned Resources** workgroup folder. All of the resource information and a history of related actions and activities are maintained for reports and historical purposes.

If the resource has one or more of the following roles, you are prompted to specify replacement resources before the resource can be terminated:

- time or expense approver
- project manager of an active project
- sales representative for an active opportunity
- support desk manager

- engagement manager responsible for request workflow – If the request workflow uses the system-defined participant **Engagement manager**, you must reassign the role in all engagements to ensure that requests are routed to an active resource
- Engagement manager for a billable engagement
- Second-level invoice approver for a billable engagement
- Second-level approver for a billing office

Terminating a resource

1. Click **Resources** > **User Setup**.
2. In the Folders view, search for the resource.
3. Click **Terminate**.

   The **Terminate Resource** dialog box appears.
4. In the **Termination date** field, enter the last day of employment for the resource.
5. Click **Terminate**.
6. Click **Save**.

Deleting a resource

When you delete a resource, all of the resource information and the history of related actions and activities are permanently deleted. You can only delete resources that are terminated.

1. Terminate the resource.
2. In the **User Setup** tree view, expand the **Unassigned Resources** folder.
3. Click the resource.

   The **User Setup** dialog box appears.
4. Click **Delete**.
5. Click **OK** to confirm.

Unlocking a resource's account

If a resource exceeds the allowed number of sign in attempts, their account is locked and they can no longer sign in. You can unlock the resource's account in **User Setup**.

1. Access the resource in **User Setup**.

2. Click **Unlock account**.

About the "Forgot your password?" functionality

When a user—either a resource or a Client Portal user—forgets their password, they can click the **Forgot your password?** link in the Changepoint sign-in dialog box.

> **Note:** If the user has been locked out of Changepoint, they must contact their Changepoint administrator to have their account unlocked. Resetting their password will not unlock their account.

When a user enters their email address into the **Forgot your password?** dialog box and clicks **Reset Password**, a message confirms that password reset information has been sent. The message appears for security reasons, regardless of whether the email address is valid or not.

If the email address is a valid resource ID (email address in the **Resource ID** field) or contact email address, an email that includes a temporary password is sent to the email address. The user must use the temporary password within 24 hours or they will have to start the process again.

If the email address is not a valid resource ID or contact email address, then no email is sent and no error message appears.

About setting up default planning units

You must specify the system-level default values for daily capacity and daily conversion factor. You also specify the planning units (hours, days, or FTEs) that are available for use by resources for each entity, and the default planning units for each entity.

> **Note:** Resources can only enter time in either hours or days, and not FTEs.

The daily capacity and daily conversion factor values can also be set on workgroups and on individual resources. The value set on the resource takes priority, followed by the value set on the workgroup, and then the system-level default.

The planning units that are available to resources can be further restricted at the workgroup level.

Setting up planning units at system level

1. Click **Resources** > **Planning Units Setup**.
2. In the **Daily capacity** field, enter the number of hours in a working day.
3. In the **Daily conversion factor** field, enter the number of hours to be used to convert records from hours to days or FTEs, and back.
4. In the **Available planning units** table, do the following for each entity row:
   a. Select the check boxes for the planning units to be available for use by resources.
   b. In the **Default planning units** column, click the cell to select the default planning unit from the list.
5. Click **Save**.

Restricting or granting user setup access to a workgroup

There are two types of access to User Setup:

- Full access – resources who have full access to User Setup can create and access resources in all workgroups. However, you can restrict a resource's access to only the resources in one or more specific workgroups.
- Restricted access – resources who have restricted access must be granted access to a workgroup in order to access its resources in User Setup.

You restrict or grant access by selecting one or more workgroups for the resource. If the resource has full access, then their access is restricted to the selected workgroups. Conversely, if the resource has restricted access, they are granted access to the selected workgroups.

Note: If you select a global workgroup, access to all of the resources in its subworkgroups is restricted or granted, depending on the type of access.

1. Click **Resources** > **User Setup Restrictions**.
2. Expand the workgroups to locate the resource, and then select the resource.
3. To select a workgroup:
   a. To search for an item, enter the search text and then click **Search**.

b. To display the tree view, clear the **Show selected items only** check box, ensure that the search field is empty, and then click **Search**.

c. Select one or more items.

d. To display the selected items only, select the **Show selected items only** check box, ensure that the search field is empty, and then click **Search**.

4. Click **Save**.

Tracking security access

Changes that are made to a resource's security access can be tracked. You can then view the history of changes on the resource's profile.

1. Click **Resources** > **Security Access Tracking**.
2. Select the **Security access history tracking** check box.
3. Click **Save**.

About nonworking days

You can configure the nonworking days, such as weekend days or official holidays, that will be displayed in resources' personal calendars and the resource scheduling calendar. Nonworking days are included in various areas of Changepoint, such as: resource demand analysis, closed period setup, budgeting, financial analysis summary, project worksheet, and project resource leveling.

You can configure nonworking days that apply to the system level, global workgroup, or workgroup. Nonworking days can also be set for individual resources in resource profiles and personal calendars.

Configuring a nonworking day

1. Click **Resources** > **Nonworking Days**.
2. In the Folders view, do one of the following:
   - To configure a system-level nonworking day that applies to all workgroups, select **System**.
   - To configure the nonworking day at the global workgroup or workgroup level, select the workgroup.

3. To apply the settings to all subworkgroups of the selected workgroup, select the **Include children** check box.
4. To configure a weekly nonworking day:
   a. In the **Weekly nonworking days** section, select the nonworking day.
   b. Click **Save**.
5. To configure a specific date as a nonworking day:
   a. Right-click in the **Nonworking days** table, and then select **Insert**.
   b. In the **Date** field, enter the date.
   c. In the **Description** field, enter the description.
6. Click **Save**.

Modifying a nonworking day

You must modify and delete nonworking days at the system, global workgroup or workgroup level in which they were configured.

1. Click **Resources** > **Nonworking Days**.
2. In the Folders view, do one of the following:
   - To modify a system-level nonworking day, select **System**.
   - To modify a nonworking day at the global workgroup or workgroup level, select the workgroup.
3. To edit a weekly nonworking day:
   a. In the **Weekly nonworking days** section, select the check boxes to enable, or clear the check boxes to disable the days.
   b. Click **Save**.
4. To edit a nonworking day:
   c. In the **Nonworking days** table, make the necessary changes.
   d. Click **Save**.
5. To delete a nonworking day:

a. In the **Nonworking days** table, right-click the row, and then select **Delete**.

b. Click **OK** to confirm.

c. Click **Save**.

Setting up resource leveling

When resource leveling is enabled, the amount of planned work that has been already been assigned to a resource is taken into account when effort is being allocated to the resource.

When you enable resource leveling, you must also specify how overbooking is handled for each workgroup. There are options to warn when a resource is overbooked, or to prevent overbooking entirely.

1. Click **Resources** > **Resource Leveling Setup**.
2. Select the **Enable resource leveling** check box.
3. Click **Save**.
4. For each workgroup, select the option to warn when a resource is overbooked, or to prevent overbooking entirely.

About setting up resource demand analysis

Resource demand analysis settings can be set up for the following entities:

- Calendar entry
- Engagement
- Opportunity
- Project
- Project team
- Request type (Request types must be enabled to be included in resource demand analysis)

For each entity status, you can specify whether the demand items are:

- committed
- included in demand in the resource scheduling worksheet (RSW) and the resource management worksheet, and the histogram data in resource demand scenarios

- approved or unapproved demand for funding, or excluded from funding source totals entirely (for projects, opportunities, and request types only)

Preventing double counting of demand items for funding

When configuring approved and unapproved demand items for funding, ensure that statuses are selected and workflows are configured to prevent double counting. For example, when you create a project from an opportunity, the following sequence of events ensures that funds are not counted twice.

1. Configure an opportunity status that indicates that a project has been created from an opportunity, for example, **Project created**.
2. When a resource creates a project from an opportunity, ensure that either the resource or workflow sets the opportunity status to **Project created**.
3. Configure opportunities with the **Project created** status to be excluded from funding totals.
4. Configure the relevant project statuses to be included in the funding totals.

Setting up resource demand analysis

1. Click **Resources** > **Resource Demand Analysis Setup**.
2. In the **Entity type** field, select the entity type.
3. In each demand item row, select the options as required.
4. To specify the demand items as committed, select the **Committed** check box.
5. To include the demand items in RSW, the resource management worksheet, and histogram data, select the **Included in demand** check box.
6. For demand items for projects, opportunities, and request types, do one of the following:
   - Select the option to include the demand item as approved or unapproved demand for funding.
   - To exclude the demand item from funding totals, clear both the **Approved demand for funding** and **Unapproved demand for funding** check boxes.
7. Click **Save**.

4. Performance Management

Performance management overview

The Changepoint performance management functionality allows you to track and monitor the performance of individuals and projects in your organization.

- Individual Performance Management (IPM) – Monitor individual and team performance to ensure that the processes and business objectives of your organization are followed. Evaluate individual and team performance through graphical summaries.
- Project Portfolio Management – Measure the business value of projects and identify underperforming projects. Evaluate project and portfolio performance through graphical summaries such as score cards. Use the what-if analysis to create different scenarios and determine how the changes affect existing projects. Project portfolios (collection of projects) and rollup portfolios (collection of portfolios) can be used.
- Survey Management – Use peer and customer feedback obtained through surveys in the performance evaluation process of individuals and projects.

About individual and team performance

Performance can be measured for both individuals and teams using IPM metrics. Metrics are created from metric templates and inherit the threshold and target values from these templates. When assigning metrics to resources, you can change these values, if needed.

Metric results are generated in one of the following ways:

- System-generated – The results are generated from data within Changepoint.
- User-entered – The results are manually entered by resources (for example, the number of training sessions performed by a resource in a period) or generated from data entered or selected in configurable fields.

Managing individual and team performance involves the following steps:

1. Defining IPM reporting periods
2. Creating metric templates
3. Creating and assigning IPM metrics
4. Viewing and analyzing results

About portfolio performance

The project portfolio functionality allows you to categorize, manage and evaluate a collection of projects to determine how each project is performing in relation to defined performance targets.

You can evaluate portfolio performance by:

- using metrics to track results
- setting targets for the performance and monitoring variances
- using survey results to assess customer or peer satisfaction for a project

The analysis highlights which projects are performing well and which are underperforming. This information helps managers to make decisions about the ongoing viability of certain projects, and to redirect resources towards projects that better fit their business objectives.

Metrics are the criteria by which the performance of project portfolios and rollup portfolios are measured. Several predefined metric calculations are provided for tracking project performance based on cost, effort, and schedule. You can also create custom metric calculations to track the health and performance of projects by virtually any criteria.

> **Warning:** Custom metric calculations are not supported by your Changepoint support agreement. If you require assistance, contact your Service Delivery Group representative or client manager to arrange for consulting services.

Managing portfolio performance includes the following steps:

1. Defining metric templates
2. Creating portfolio categories
3. Creating portfolios and assigning metrics
4. Adding projects to the portfolio
5. (Optional) Create rollup portfolios
6. Viewing and analyzing results

About using survey results for performance evaluation

You can use the results of rating questions in surveys to assess the performance of resources and projects. Survey recipients rate the resource or the project identified in a rating question

and submit their feedback. The results are collected against a metric and analyzed.

Note: You can use other types of questions in custom calculations to collect performance data. For more information about custom calculations, contact your Service Delivery Group representative or client manager to arrange for consulting services.

To assess performance using survey results:

1. Create a survey that includes rating questions and prompt tags and activate the survey.
2. Create a metric template with a Customer feedback, Peer feedback, or Project template category.
3. Do one of the following:
   - To assess the performance of a resource, create an individual performance metric and assign it to the resource.
   - To assess the performance of a project, create a project portfolio with the specified project metric template and assign it to the project.

Performance management terminology

The following table lists the main concepts and terms used in the performance management modules.

Term	Definition
Targets	Targets are the values that an individual resource, team or project must achieve or work to achieve within a specified period of time. Some examples are: • the number of training sessions each resource is expected to complete every year • the revenue to be generated by a sales team • the satisfaction rating of a customer The target can be over or under a specified value. For example, if you want to generate a revenue that exceeds expectations, the target for a revenue metric would be above a specified value. Conversely, if you want to keep costs as low as possible, the target for a cost metric would be under a specified amount.
Target Duration	The target duration is the time interval (in days) against which the variance is measured. For example, if the target date is December 31, 2014, the target duration is 100 days and the current date is January 15, 2015, then the variance is 15 days.
Thresholds	The threshold is the boundary line between ranges of values that indicate acceptable and unacceptable performance. Thresholds are defined to measure variances in performance. The performance status is color-coded as follows: • Green, when the result reaches or exceeds the target. • Yellow, when the result is between targets and requires attention. • Red, when the result does not reach the target.
Actuals	Actuals is the data that is generated automatically or entered by resources.
Variance	The variance is the gap between actual data and targets. This value is compared against the threshold to determine the performance status (green/yellow/red). This variance is divided by the target duration to get a percentage, in this case 15%. This percentage is compared to the over/under values to determine the green/yellow/red status of an item.

Term	Definition
Absolute value	The absolute value of the variance is compared to the under and over values to determine the green/yellow/red status for the metric. When the **Absolute value** check box is selected, any variance over or under the thresholds is considered undesirable. For example: A budgeted cost metric is set up where the target is 100 and the actual is 80. Threshold = Under Under (green) threshold = 20% Over (red) threshold = 10% If the **Absolute value** check box is cleared, the performance indicator is green (-20/100 = -20%). If the **Absolute value** check box is selected, the performance indicator is red (20/100 = 20%). When using an absolute value, you cannot enter a negative value in the **Over** or **Under** fields.
Weighting	The percentage that represents the weighting of each metric in comparison to the other metrics. The total weighting for all metrics in a grouping must add up to 100%. The metrics in a group are automatically assigned an equal percentage, or different percentages can be assigned manually, provided they add up to 100%.

About metric calculations setup

Setting up metric calculations includes defining IPM default settings and reporting periods, and creating the metric calculations.

About IPM default settings

Individual Performance Management (IPM) calculations use the following information defined in the **IPM Default** view:

- **Reporting currency** – Currency to be used in metrics and metric results. All monetary amounts will be converted to this currency.

- **Approval lag** – The maximum time allowed for approval in order to recalculate the previous reporting period (if submitting time in one reporting period and approving it in the next reporting period). If the approval time is longer than the specified approval lag, the previous period is not recalculated.

  If the approval time is less than the approval lag, only the last period is recalculated.

  Example: The approval lag is 5 days. If a resource submits time in Q1 and the manager approves the time 3 days in the following Q2, the past period is recalculated. If the resource submits time in Q1 and the manager approves the time 6 days in the following Q2, the past period is not recalculated.

  Note: Reporting years cannot overlap. If a previous reporting period has already been defined, the start date of your new period must be the day that immediately follows the end date of the previous reporting period.

  Once the reporting periods have been saved, you can no longer change the **Start date** or **End date**. To change the reporting period duration, you must delete the reporting year and then re-create it.

Defining IPM default settings

1. Click **Resources** > **Performance Management**.

   The **Performance Management** tree view appears.

2. Expand the **General** folder.

3. Click **IPM Defaults**.

   The **IPM Default** view appears.

4. In the **Default currency** list, select the currency to be used in metrics and metric results.

5. In the **Approval lag** field, enter the number of lag days allowed to recalculate the utilization.

6. Click **Save**.

Defining an IPM reporting period

IPM reporting periods are consistent time intervals used for metric calculations. For example, if you define a fiscal year that begins September 1 and ends August 31, and then divide that

year into quarters, all metrics will be assigned, tracked and calculated within those reporting periods.

1. Click **Resources** > **Performance Management**.

   The **Performance Management** tree view appears.

2. Right-click **Reporting Periods** and select **Create period**.

   The **Reporting Period** view appears.

3. In the **IPM year** field, enter the year of the reporting period.
4. In the **Start date** field, click , and select the first day of the reporting year.

   The **End date** field automatically displays the date one year after the start date.

5. Click **Actions** > **Save**.

   The **Actions** menu for the **IPM periods** section becomes available.

6. In the **Actions** menu, do one of the following time intervals:
   - To set up monthly reporting periods, select **Create Fiscal Period** > **Monthly**.
   - To set up quarterly reporting periods, select **Create Fiscal Period** > **Quarterly**.
   - To set up semi-annual reporting periods, select **Create Fiscal Period** > **Semi-annually**.
7. Click **Actions** > **Save**.

Editing IPM periods

1. Click **Resources** > **Performance Management**.

   The **Performance Management** tree view appears.

2. Expand the **Reporting Periods** folders and select the period you want to edit.

   The **Reporting Period** view appears.

3. In the **IPM periods** section, click the row of a reporting period.
4. Make the necessary changes:
   - To rename the period, place your cursor in the **IPM period** column and enter a new name.

- To change the start or end dates, click and select a new date, ensuring there are no gaps or overlaps between the IPM periods.

5. Click **Actions** > **Save**.

About metric calculations

Individual and project performance metrics can include the following types of calculations:

- **Standard calculations** – Changepoint provides predefined calculations to track people and project performance. Standard calculations cannot be modified. For more information, see the *Performance Management User Guide*.
- **Custom calculations** – You can create custom calculations required by your organization.
- **Custom stored procedures** – You can create custom stored procedures to calculate the health of the items in a portfolio and the overall health of the portfolio.

  Warning: Custom stored procedures and calculations are not supported by your Changepoint support agreement. If you require assistance, contact your Service Delivery Group representative or client manager to arrange for consulting services.

All calculations are associated with a metric type defined in Changepoint. You cannot edit the metric types or create new metric types.

About metric types and categories

Metrics are grouped into types and categories. All metric calculations, including custom calculations, must be associated with one of the metric types (**Adoption**, **Results**, **Customer feedback**, **Peer feedback** and **Projects**). Each metric type can include one or more metric categories which determine the calculations used in metric templates.

For more information, see:

- "Adoption metric type" on page 79
- "Results metric type" on page 79
- "Customer Feedback metric type" on page 80
- "Peer Feedback metric type" on page 80
- "Project metric type (project portfolio metrics only)" on page 80

Adoption metric type

Adoption metrics allow you to monitor if and how resources in your organization conform to internal processes. For example, you can use an Adoption metric to ensure that resources actively and consistently submit their time sheets by the specified submission deadline.

Adoption metrics are used for individual and team performance only.

Category	Calculation
Process Conformance	• Approval Lag - Expenses • Approval Lag - Invoices • Approval Lag - Time • Approval Lag - Requests • Time Submission Conformance • Task Status Compliance • User-Entered Calculation (Actual) • User-Entered Calculation (Average) • User-Entered Calculation (Sum)

Results metric type

Results metrics allow you to measure the end result or outcome of objectives set within your organization for sales and utilization. For example, you can use a Results metric that defines a minimum revenue amount expected to be generated per financial quarter.

Results metrics are used for individual and team performance only.

Category	Calculation
Revenue	• Opportunity Won Result • Opportunity Won Result (Floating Target)
Utilization	• Utilization Percent (Billable by Hours/Day) • Utilization Percent (Billable, by Period Hours) • Utilization Percent (by Hours/Day) • Utilization Percent (by Period Hours) For Utilization calculations, the full day settings and the annual target hours must be specified in the resources' profiles.

Customer Feedback metric type

Customer feedback metrics allow you to measure resources and projects based on the feedback received from customers through surveys. These metrics use survey rating questions related to the resources or projects being evaluated.

Category	Calculation
Resource feedback	Customer satisfaction in regard to resources (used for individual or team performance)
Project feedback	Customer satisfaction in regard to projects (used for project portfolio performance)

Peer Feedback metric type

Peer feedback metrics allow you to measure resources and projects based on the feedback received from internal resources through surveys. These metrics use survey rating questions related to the resources or projects being evaluated.

Category	Calculation
Resource feedback	Peer satisfaction in regard to resources (used for individual or team performance)
Project feedback	Peer satisfaction in regard to projects (used for project portfolio performance)

Project metric type (project portfolio metrics only)

Project metrics allow you to evaluate the performance of projects within portfolios.

Category	Metric Calculation
Project Budgeted Billing/ Revenue	• Budgeted billing • Budgeted billing vs. estimate-to-complete billing • Budgeted billing vs. estimate-to-complete billing with (with request billing) • Budgeted billing vs. recognized revenue
Project Budgeted Cost	• Budgeted cost • Budgeted cost (with request cost) • Budgeted capital cost • Budgeted non-capital cost • Budgeted cost vs. estimate-to-completion cost
Project Budgeted Effort	• Budgeted effort • Budgeted effort (with request effort) • Budgeted effort vs. estimate-to-complete effort
Project Budgeted Schedule	• Budgeted schedule
Project Planned Billing/Revenue	• Planned billing • Planned billing vs. estimate-to-complete billing • Planned billing vs. estimate-to-complete billing (with request billing) • Planned billing vs. recognized revenue
Project Planned Cost	• Planned cost • Planned cost (with request cost) • Planned cost vs. estimate-to-complete cost
Project Planned Effort	• Planned effort • Planned effort (with request effort) • Planned effort vs. estimate-to-complete effort
Project Planned Schedule	• Planned schedule
Project User-Entered	• User-entered calculation (actual) • User-entered calculation (average) • User-entered calculation (date) • User-entered calculation (sum)

Viewing a metric calculation

1. Click **Resources** > **Performance Management**.

   The **Performance Management** tree view appears.

2. Expand the **Calculations** folder.

   Calculations are grouped by metric types: Adoption, Results, Customer feedback, Peer feedback, and Projects.

3. Expand the metric type folder to locate the calculation you want to view.

   The calculation profile appears.

   Note: To view a list of available calculations for a metric type, click the name of the metric type.

Creating a metric calculation

Calculations appear in the **Performance Management** tree view under their metric type.

1. Click **Resources** > **Performance Management**.

   The **Performance Management** tree view appears.

2. Right-click the **Calculations** folder and select **Create calculation**.

   The **Calculation** view appears.

3. In the **Calculation** field, enter a name for the metric.

4. In the **Type** list, select the metric type associated with the calculation.

5. In the **Category** list, select the calculation category.

   The categories listed depend on the selected metric type.

6. In the **Raw calculation** field, enter the name of the stored procedure that calculates the initial metric data.

7. In the **Code** field, enter a unique code or abbreviation for the calculation.

8. In the **Rollup calculation** field, enter the name of the stored procedure that calculates individual/team (IPM) or project (portfolio) data.

9. In the **Rollup portfolio calculation** field, enter the name of the stored procedure that calculates the formula for the rollup portfolio. This calculation is performed after the calculations for the included project portfolios is done.
10. Select the **User-entered** check box if the data must be entered by users.
11. In the **Unit** list, select the unit of measurement for the metric data.
12. Click **Actions** > **Calculation** > **Save**.

Editing a metric calculation

You can only edit calculations that have not been used in an assigned metric.

1. Click **Resources** > **Performance Management**.

   The **Performance Management** tree view appears.
2. Expand the **Calculations** folder.
3. Click the calculation you want to edit.

   The **Calculation** view appears.
4. Make the necessary changes.
5. Click **Actions** > **Calculation** > **Save**.

About metric templates

Metric templates define the criteria against which performance is measured. They contain information such as the calculation used to evaluate the performance of employees and projects, the targets and thresholds, or the rollup method for the data.

You must define metric templates before creating and assigning metrics to individuals, teams and projects. Metric assignments inherit the thresholds and targets from the metric template, thus ensuring a consistent assessment.

Metric results are generated in one of the following ways:

- **System-generated** – the results are generated from data within Changepoint.
- **User-entered** – the results are manually entered by resources (for example, the number of training sessions performed by a resource in a period) or generated from data entered or selected in configurable fields.

Metrics are further grouped into types and categories. For more information, see "About metric types and categories" on page 78.

Accessing a metric template

Metric templates are grouped by metric type in the **Performance Management** tree view.

1. Click **Resources** > **Performance Management**.

   The **Performance Management** tree view appears.

2. Expand the **Metric Templates** folder.

3. Expand the metric type folder.

4. Click the metric template you want to view.

   The metric template profile appears.

Creating a metric template

1. Click **Resources** > **Performance Management**.

   The **Performance Management** tree view appears.

2. Right-click **Metric Templates** and select **Create template**.

   The **Create Metric Template** dialog box appears.

3. In the **Name** field, enter the name of the metric template.

4. In the **Description** field, enter a description for the metric template.

5. Complete the required fields for the type of metric you are creating:

   - **Results** – For more information, see "Creating a Results metric template" on page 85.
   - **Adoption** – For more information, see "Creating an Adoption metric template" on page 85.
   - **Customer feedback** – For more information, see "Creating a Customer Feedback metric template" on page 86.
   - **Peer feedback** – For more information, see "Creating a Peer feedback metric template" on page 87.
   - **Project** – For more information, see "Creating a Projects metric template" on page 88.

6. Click **Save**.

Creating an Adoption metric template

Adoption metrics allow you to monitor if and how resources in your organization conform to internal processes.

1. Access the **Create Metric Template** dialog box.
2. In the **Type** list, select **Adoption**.
3. In the **Category** list, select the metric category.
4. In the **Calculation** list, select the metric calculation.

   If you chose a user-entered calculation, the **User-entered metric** check box is automatically selected and cannot be cleared.
5. In the **Rollup method** list, select the metric rollup method.
6. Do one of the following:
   - If the metric template is intended to evaluate teams, select the **Team metric** check box.
   - If the metric template is intended to evaluate individual resources, clear the **Team metric** check box.
7. Select the **Active** check box to activate the metric template.

   To store the metric template without making it available to other resources, clear the **Active** check box.
8. Enter the target and threshold values. For more information, see "Entering target and threshold values" on page 90.
9. Click **Save**.

Creating a Results metric template

Results metrics allow you to measure the end result or outcome of objectives set within your organization for sales and utilization.

1. Access the **Create Metric Template** dialog box.
2. In the **Type** list, select **Results**.
3. In the **Category** list, select the metric category.

4. In the **Calculation** list, select the metric calculation.
5. In the **Rollup method** list, select the metric rollup method.
6. Do one of the following:
   - If the metric template is intended to evaluate teams, select the **Team metric** check box.
   - If the metric template is intended to evaluate individual resources, clear the **Team metric** check box.
7. Select the **Active** check box to activate the metric template.

   To store the metric template without making it available to other resources, clear the **Active** check box.
8. Enter the target and threshold values. For more information, see "Entering target and threshold values" on page 90.
9. Click **Save**.

Creating a Customer Feedback metric template

Customer feedback metrics allow you to measure resources and projects based on the feedback received from customers through surveys. These metrics use survey rating questions related to the resources or projects being evaluated.

1. Access the **Create Metric Template** dialog box.
2. In the **Type** list, select**Customer feedback**.
3. In the **Category** list, select the metric category.
4. In the **Calculation** list, select the metric calculation.
5. In the **Survey** list, select the survey used for this metric template.

   The list displays all active surveys.
6. To include only the most recent survey results, specify the number of days to retrieve survey data for the metrics in the **Results from last days** field. For example: enter “30” for the last 30 days, including today.
7. In the **Rollup method** list, select the metric rollup method.
8. If the metric template is for evaluating teams, select the **Team metric** check box.

9. To make the metric template available for use by other resources, select the **Active** check box.
10. Enter the target and threshold values. For more information, see "Entering target and threshold values" on page 90.
11. Click **Save**.

Creating a Peer feedback metric template

Peer Feedback metrics allow you to measure resources and projects based on the feedback received from internal resources through surveys. These metrics use survey rating questions related to the resources or projects being evaluated.

1. Access the **Create Metric Template** dialog box.
2. In the **Type** list, select **Peer feedback**.
3. In the **Category** list, select the metric category.
4. In the **Calculation** list, select the metric calculation.
5. In the **Survey** list, select the survey used for this metric template.

   The list displays all active surveys.

   Note: Use the **Shift** and **Ctrl** keys according to the standard Windows conventions for multiple selections.
6. To include only the most recent survey results, specify the number of days to retrieve survey data for the metrics in the **Results from last days** field. For example: enter “30” for the last 30 days including today.
7. In the **Rollup method** list, select the metric rollup method.
8. Do one of the following:
   - If the metric template is intended to evaluate teams, select the **Team metric** check box.
   - If the metric template is intended to evaluate individual resources, clear the **Team metric** check box.
9. Select the **Active** check box to activate the metric template.

To store the metric template without making it available to other resources, clear the **Active** check box.

10. Enter the target and threshold values. For more information, see "Entering target and threshold values" on page 90.

11. Click **Save**.

Creating a Projects metric template

Projects metrics allow you to evaluate the performance of projects within portfolios.

1. Access the **Create Metric Template** dialog box.

2. In the **Type** list, select **Projects**.

3. In the **Category** list, select the metric category.

4. In the **Calculation** list, select the metric calculation.

   If you chose a user-entered calculation, the **User-entered metric** check box is automatically selected and cannot be cleared.

5. If you create a template that uses a project budget calculations, the **Revision type** list is displayed. Do one of the following:

   - To use the latest budget revision regardless of type, do not select a revision type.

   - To use the latest budget revision of a specific type when calculating a target, select the budget revision type.

6. Select the **Active** check box to activate the metric template.

   To store the metric template without making it available to other resources, clear the **Active** check box.

7. Enter the target and threshold values. For more information, see "Entering target and threshold values" on page 90.

8. Click **Save**.

Creating a user-entered metric template

User-entered metrics use the data manually entered by resources in the system, instead of data generated by the system. For example, you can use a user-entered metric to record the number

of training sessions an employee has attended. Only Adoption and Projects metrics accept user-entered data.

1. Access the **Create Metric Template** dialog box.
2. In the **Type** list, select **Adoption** or **Projects**.
3. In the **Category** list, select the metric category.

   The category is associated to the type selected in the previous field.
4. In the **Calculation** list, select the calculation associated to that metric.
5. In the **Rollup method** list, select the metric rollup method.
6. If creating an Adoption metric, do one of the following:
   - If the metric template is intended to evaluate teams, select the **Team metric** check box.
   - If the metric template is intended to evaluate individual resources, clear the **Team metric** check box.
7. If you create a template that uses a project budget calculations, the **Revision type** list is displayed. Do one of the following:
   - To use the latest budget revision regardless of type, do not select a revision type.
   - To use the latest budget revision of a specific type when calculating a target, select the budget revision type.
8. Select the **Active** check box to activate the metric template.

   To store the metric template without making it available to other resources, clear the **Active** check box.
9. Enter the target and threshold values. For more information, see "Entering target and threshold values" on page 90.
10. Click **Save**.

Creating a user-entered metric template for configurable fields

You can create user-entered metrics that use the data specified in configurable fields.

1. Access the **Create Metric Template** dialog box.
2. In the **Type** list, select **Projects**.

3. In the **Category** list, select the metric category.
4. In the **Calculation** list, select the calculation for the configurable field.
5. In the **Rollup method** list, select Average or Sum to determine how the data is calculated.
6. In the **Target** section, enable the **Project field** check box and select the configurable field that will be used as the target value from the drop-down list.

   If the check box is disabled, users assigned to the metric must enter a target date or number.
7. In the **Actual** section, enable the **Project field** check box and select the configurable field that will be used as the actual value from the drop-down list.

   If the check box is disabled, users assigned to the metric must enter a target date or number.
8. Select the **Active** check box to activate the metric template.

   To store the metric template without making it available to other resources, clear the **Active** check box.
9. Enter the target and threshold values. For more information, see "Entering target and threshold values" on page 90.
10. Click **Save**.

Entering target and threshold values

1. Access the **Create Metric Template** dialog box.
2. Complete the field and options for the metric template.
3. In the first **Target** list, do one of the following:
   - To set the target over a specified value, select **Over**.
   - To set the target under a specified value, select **Under**.
4. In the second **Target** field, specify the target value.

   The unit used depends on the value that is calculated: Units, Days, Percent, Rating, or Currency.
5. In the field below the green indicator, enter the minimum value that must be reached for the result to be considered as “on target” and acceptable.

6. In the field below the red indicator, enter the value starting where results will be considered as “off target” and unacceptable.
7. Click **Save**.

Editing a metric template

You can edit any field of a metric template if no metric has been created from this template and assigned to a resource or project. Once a metric has been created and assigned, you can only edit the name, description, activation status and thresholds of the metric template.

1. Access the metric template.
2. Click **Actions** > **Edit template**.

   The **Create Metric Template** dialog box appears.
3. Make the necessary changes.
4. Click **Save**.

Deleting a metric template

You cannot delete a metric template if a metric has been created from this template and assigned to a resource or project.

1. Access the metric template.
2. Click **Actions** > **Edit template**.

   The **Create Metric Template** dialog box appears.
3. Click **Delete**.
4. Click **OK** to confirm.

Deactivating a metric template

To preserve historical data, you can deactivate metric templates that are no longer needed, rather than deleting them.

1. Access the metric template.
2. Click **Actions** > **Edit template**.

   The **Create Metric Template** dialog box appears.
3. Clear the **Active** check box.

4. Click **Save**.

Rollup method examples

The following examples show how metrics are calculated using each rollup method:

Sum

Adds the metric data of each resource's total.

Example: Opportunity Won Value

Raw		**Metric Data**	
	Value		SUM
Resource 1	$200	Resource 1	$500
Resource 1	$300		
Resource 2	$250	Resource 2	$250
			$500 + $250
		SUM	$750

Average

Averages the metric data of each resource's total. The raw data is summed up and then averaged at summary level.

Example: Opportunity Won Value

Raw		**Metric Data**	
	Value		SUM
Resource 1	$200	Resource 1	$500
Resource 1	$300		

Raw		Metric Data	
Resource 2	$250	Resource 2	$250
			$750/2 resources
		AVG	$375

Weighted average

Averages the raw metric data of each resource's data.

For example: One sales representative team wins a large number of opportunities. Using a weighted average calculation, you can view more accurate average results for the team. The calculation takes into account the amount of realized sales, instead of the resource who realized the sales.

Example: Opportunity Won Value

Raw		Metric Data	
	Value		SUM
Resource 1	$200	Resource 1	$500
Resource 1	$300		
Resource 2	$250	Resource 2	$250
			$750/3 records
		W.AVG	$250

About IPM metrics

In IPM metrics, you define performance measurements and targets for an individual or a team. When the metric has been defined, including targets, you can assign it to resources and/or workgroups.

About accessing IPM metrics

You can access an IPM metric from the following locations:

- From an IPM metric template. For more information, see "Accessing an IPM metric from a metric template" on page 94.
- From the portlets. For more information, see Performance management portlets in the *User Basics User Guide*.

Accessing an IPM metric from a metric template

1. Access the metric template.
2. In the **Assigned metrics** section, click the name of the metric you want to view.

   The metric profile appears.

About creating IPM metrics

You can create a metric from the following locations:

- From the **New** icon in the navigation bar. For more information, see "Creating an IPM metric from the New menu" on page 95.
- From a metric template. For more information, see "Creating an IPM metric from a metric template" on page 94

Creating an IPM metric from a metric template

When you create a metric from a metric template, the metric type, category, calculation, target and threshold values defined in the metric template are automatically added to the metric.

1. Access a metric template.
2. Click **Actions** > **Assign metric**.

   The **Create Metric** dialog box displays the **General** tab.
3. Complete the fields as required. For more information, see "Create/Edit Metric dialog, General tab options" on page 95.
4. For information about completing the metric, see:
   - "Adding a target to an IPM metric" on page 96

- "Assigning an IPM metric to a resource" on page 97

5. Click **Save**.

Creating an IPM metric from the New menu

When you create a metric from the **New** menu, no metric template information is added to the metric. To include template information, create the metric from a metric template. For more information, see "Creating an IPM metric from a metric template" on page 94.

1. Click **New** > **Metric**.

   The **Create Metric** dialog box displays the **General** tab.

2. Complete the fields as required. For more information, see "Create/Edit Metric dialog, General tab options" on page 95.

3. For information about completing the metric, see the following topics:

   - "Adding a target to an IPM metric" on page 96
   - "Assigning an IPM metric to a resource" on page 97

4. Click **Save**.

Create/Edit Metric dialog, General tab options

Field	Description
Metric field	Name of the metric.
Description field	Description of the metric.
Metric data list	Type of metric data.
Category list	Category of the metric. The values in the list depend on the selected metric type.
Metric template list	Template used for the metric.
Team metric check box	When selected, makes the metric a team metric.

Field	Description
Carry forward to the next period check box	When selected, the metric assignment applies to the current and all future reporting periods. When cleared, the metric assignment only applies for one period.
Days, **Currency**, **Rating**, or **Units** fields	Unit in which the thresholds and the targets are defined, depending on the selected metric template.

Adding a target to an IPM metric

You can define multiple targets in one metric, each for a specific reporting period.

1. Access the metric.
2. Click **Actions** > **Edit metric**.

   The **Edit Metric** dialog box appears.
3. Click the **Targets** tab.
4. Click an empty row in the targets table.

   The **Add Target** dialog box appears.
5. Complete the fields as required. For more information, see "Add Target dialog box options" on page 96.
6. Click **Save**.

   The dialog box closes and the target is added to the table.
7. Click **Save**.

Add Target dialog box options

Field	Description
Period list	Reporting period for the target.
Original target field	The original target values from the metric template.
Unit field	The original target units from the metric template.

Field	Description
Current target field	New target value.
Comment field	Any relevant comment.

Assigning an IPM metric to a resource

You must define targets before assigning the metric to a resource. For more information, see "Adding a target to an IPM metric" on page 96.

1. Access the metric.
2. Click **Actions** > **Edit metric**.

   The **Edit Metric** dialog box appears.
3. Click the **Assignments** tab.
4. In the **Metric period** list, select the reporting period for the metric assignment.
5. In the **Assigned to metric** section, expand the workgroups and do one of the following:
   - To assign the metric to a resource, select the check box beside the resource.
   - To assign the metric to all resources in a workgroup, select the check box beside the workgroup. If resources are transferred (either leaving or joining the workgroup), you must manually add them to or remove them from the metric assignment.
6. Click **Save**.

About team metrics

Team metrics evaluate the results of a group of individuals. When you assign a team metric to resources, you specify both the resources assigned to the metric, and the resource whose results are used to evaluate the performance of the assigned resources.

The resources assigned to the metric are the resources who are evaluated based on the results of the team. The resources selected as inputs to the metric are the resources whose results are used as input to evaluate the assigned resources.

For example, the manager of a sales team is evaluated based on the value of opportunities that are won by the sales team. The manager is assigned to the metric, whereas the members of the sales team are selected as inputs to the metric.

Only resources assigned to the metric can view the metric in their **My Performance Chart** portlet.

Assigning an IPM team metric

You must define targets before assigning a metric to a team. For more information, see "Adding a target to an IPM metric" on page 96.

1. Access the team metric.
2. Click **Actions** > **Edit metric**

   The **Edit Metric** dialog box appears.
3. Click the **Assignments** tab.
4. In the **Metric period** drop-down list, select the reporting period for the metric assignment.
5. In the **Assigned to metric** section, expand the workgroups and do one of the following:
   - To assign the metric to a resource, select the check box beside the resource's name.
   - To assign the metric to all resources in a workgroup, select the workgroup.
6. In the **Inputs to metric** section, select the resources or workgroups whose results will be used to evaluate the assigned resources.
7. Click **Save**.

Editing an IPM metric assignment

Managers can edit metrics for individuals or teams that they manage.

1. Access a metric.
2. Click **Actions** > **Edit metric**.

   The **Edit Metric** dialog box appears.
3. Make the necessary changes. For more information, see "Create/Edit Metric dialog, General tab options" on page 95 and "Add Target dialog box options" on page 96.
4. Click **Save**.

Adjusting the weighting of IPM metrics for a resource

When several metrics are assigned to a resource, each metric is assigned an equal weighting value. You can edit each weighting provided that the total of all weightings is 100%.

1. On your home page, expand the **My Performance Chart** portlet.
2. Select a different reporting period, if required.
3. In the portlet, click the pie chart.

   The **Weightings** section appears.
4. In the **Weightings** fields, enter the weighting percentage of each metric.
5. Click **Actions** > **Save**.

5. Financial Setup

About GL account codes

General ledger (GL) account codes are used when configuring taxes, and when entering expenses and setting up invoices in Changepoint. Only the GL account codes and their descriptions are displayed in Changepoint.

If Changepoint is integrated with a third-party financial or accounting application, you must add the GL account index from the third-party application to the GL account codes in Changepoint.

GL account types

GL account type	Description
Expense balance	Used for custom interfaces only.
Expense distribution	Used for expense distribution on expense reports. This type of GL account is used when setting up expense settings.
Expense tax	Used for recoverable taxes on expense reports.
Invoice balance	Used for custom interfaces only.
Invoice distribution	Used for revenue distribution on invoices, if invoice distribution is enabled.
Invoice tax	Used for the tax portion of revenue on invoices, if invoice distribution is enabled.
Revenue account	Used to track revenue debits, and credits as part of the revenue recognition process.

Creating a GL account code

1. Click **Finance** > **GL Account Codes**.
2. Right-click in the table, and then select **Insert**.

   A new row appears.
3. In the **GL account code** field, enter the GL account number.

4. In the **Description** field, enter the description of the GL account.
5. In the **Type** list, select the GL account type. For more information, see "GL account types" on page 101.
6. In the **GL account index** field, enter the GL account index of the third-party application.
7. Click **Save**.

Modifying a GL account code

1. Click **Finance** > **GL Account Codes**.
2. Make the necessary changes in the table cells.
3. To delete a GL account code:
   a. Right-click the GL account code, and then select **Delete**.
   b. Click **OK** to confirm.
4. Click **Save**.

About cost centers

In Changepoint, cost centers are associated with workgroups, global workgroups, billing offices, and engagements. It is recommended that you create your organization's cost centers before creating the workgroups, global workgroups and billing offices.

The first cost center that you create automatically becomes the default cost center. Once you have created several cost centers, you can select another cost center as the default cost center, which will be automatically associated to workgroups for which no cost center was specified.

During the revenue recognition process, revenue transfers between cost centers may be required. For more information, see "About revenue transfers" on page 160.

You can configure a burden rate for a cost center. For more information, see "About configuring burden rates for cost centers" on page 104.

Creating a cost center

1. Click **Finance** > **Cost Centers**.
2. In the Folders view, click any cost center.

3. Click **New**.
4. Complete the fields as required. For more information, see "Cost Center view, General section options" on page 103.
5. Configure a burden rate, if required. For more information, see "Configuring a burden rate for a cost center" on page 104.
6. Click **Save**.

Cost Center view, General section options

Option	Description
Cost center field	Name of the cost center.
Description field	Description of the cost center.
Segment 2 field	Additional customer-specific segment for the cost center, typically used for integration purposes.
Segment 3 field	Additional customer-specific segment for the cost center, typically used for integration purposes.
Current default cost center field	Default cost center. Changepoint requires a default cost center to run revenue recognition.
Set as default cost center check box	When selected, the cost center is the default cost center for workgroups.

Modifying a cost center

You cannot delete cost centers that are associated with workgroups, global workgroups, billing offices, or engagements.

1. Click **Finance** > **Cost Centers**.
2. In the Folders view, select the cost center.
3. To edit the cost center:
   a. Make the necessary changes.
   b. Click **Save**.

4. To delete the cost center:
   a. Click **Delete**.
   b. Click **OK** to confirm.

Changing the default cost center

1. Click **Finance** > **Cost Centers**.
2. In the Folders view, select the cost center that you want to set as the default cost center.
3. In the **General** section, select the **Set as default cost center** check box.
4. Click **Save**.

About configuring burden rates for cost centers

You can configure burden rates for a cost center. Burden rates are applied to resource-based and billing role-based cost rates used for engagements, budgets and opportunity services to calculate the burdened cost rate.

Once a burden rate has been saved, you cannot edit it. To correct an error in a burden rate, you must create a new burden rate and deactivate the incorrect one. Burden rates cannot be deleted, but only deactivated if they are no longer used. For more information, see "Deactivating a burden rate" on page 105.

At least one burden rate per cost center must be active but you cannot have more than one active burden rate with the same effective date.

Configuring a burden rate for a cost center

1. Click **Finance** > **Cost Centers**.
2. In the Folders view, select the cost center.
3. Expand the **Burden rates** section.
4. Right-click the table, and select **Insert**.
5. In the **Burden rate (%)** cell, enter the percentage of the burden rate.
6. In the **Effective date** cell, enter the date the burden rate will be applied.
7. To activate the burden rate, select the **Active** check box.
8. Click **Save**.

Deactivating a burden rate

After a burden rate has been saved, you cannot delete it. If the burden rate is no longer used, you can deactivate it.

1. Click **Financial Management** > **Cost Centers**.
2. In the Folders view, select the cost center.
3. Expand the **Burden rates** section.
4. Click the row of the burden rate.
5. Clear the **Active** check box.
6. Click **Save**.

About currencies and exchange rates

Changepoint comes with most country currencies by default. You must enable a currency before it is available for use, except for the Canadian and US currencies. You can also add a currency if the one you want is not available.

Changepoint uses the standard ISO 3166-1 three-character currency code for currencies. If Changepoint is integrated with a third-party financial or accounting application that does not use the standard ISO currency code, you must add the currency index used in the third-party application for each currency that you enable.

Setting up exchange rates

You can set up exchange rates for each currency pair. Each exchange rate is for a specific date range. There cannot be a gap or overlap between consecutive exchange rates.

To ensure that there is always an exchange rate in effect, you can omit the end date of the current exchange rate. You can also omit the start date of the first exchange rate. If an exchange rate is not available for a currency pair, the conversion value is zero.

Adding a currency

You can enable an existing currency to make it available for use, or add a new currency.

1. Click **Finance** > **Currencies**.
2. To make the currency available for use, select the **Currency enabled** check box.
3. To add a currency:

a. Right-click in the table, and then select **Insert**

b. In the **Currency** field, enter the currency name.

c. In the **Description** field, enter a description.

d. In the **ISO currency code** field, enter the ISO 3166-1 three-character currency code.

e. In the **Currency index** field, enter the currency index of the third-party application, if applicable.

4. Click **Save**.

Accessing an exchange rate

1. Click **Finance** > **Exchange Rates**.

   The **Exchange Rates** view appears.

2. Select the source and target currencies.

   The exchange rates are displayed.

Configuring an exchange rate

1. Select **Finance** > **Exchange Rates**.

   The **Exchange Rates** view appears.

2. In the **Source currency** field, choose the source currency.

3. In the **Target currency** field, choose the target currency.

To add a new current exchange rate

1. Enter an end date for the current exchange rate.

2. Right-click below the table, and then click **Insert**.

3. In the **Start date** field, enter the start date for the exchange rate.

4. In the **End date** field, enter the end date for the exchange rate.

5. In the **Exchange rate** field, enter the exchange rate.

To add an exchange rate between existing rates

1. Change the end date for the exchange rate that is immediately before the new exchange rate.
2. Right-click the row below the exchange rate, and then click **Insert**.

   The new exchange rate is added.
3. In the **Exchange rate** field, enter the exchange rate.
4. If necessary, adjust the end date for the new exchange rate and start date of the following exchange rate.
5. Click **Save**.

Editing an exchange rate

You can edit exchange rates, including the start and end dates, provided that there is no gap or overlap between consecutive exchange rates.

1. Click **Finance** > **Exchange Rates**.

   The **Exchange Rates** view appears.
2. Select the source and target currencies.

   The exchange rates are displayed.
3. Click in the cells to make the necessary changes.
4. Click **Save**.

About taxation setup

You can define:

- Different tax calculations and tax combinations according to the location where work is performed or expenses are incurred, the billing address of the customer, and the service type or product provided.
- Different tax schedules that allow for an unlimited number of taxes to be applied to services and expenses, including support for multiple recoverable taxes.
- Work locations and a set of work codes or services that describe the type of work being performed.

Once the information is defined, the way it is applied can be controlled at the engagement, project, task, time, expense or invoice level.

Taxation setup process

To perform initial Taxation setup, follow these steps:

1. Define taxes and tax rates used in your organization, and combine them into tax schedules.
2. Define work codes that describe the type of work performed by your organization and use these work codes in tax calculations.
3. Define work locations that describe where work is performed or where expenses are incurred and use these work locations in tax calculations.
4. Define recoverable taxes for expenses. Link the expense types to the tax schedules and work locations in order to capture recoverable taxes.
5. Define expense taxation and link expenses to work locations and tax schedules for billing purposes.
6. Define service (work) taxation and link services to work codes, work locations and tax schedules for billing purposes.
7. Define product taxation and link products to work locations and tax schedules for billing purposes.

About tax rates and tax schedules

You must define all of the taxes that are applicable to your organization as *tax rates*. You then create *tax schedules*, which consist of one or more tax rates. For example, you can create a tax schedule that includes a federal tax and a regional (state or provincial) tax.

You use tax schedules to set up the taxation rules for services, expenses and products that are invoiced to customers.

Once a tax rate record has been saved, you can no longer edit it except to change its activation status.

To change a tax rate (for example, to change the percentage rate), you copy an existing tax rate record, modify the appropriate fields, and set the effective date of the new rate. The new percentage takes effect on the effective date in all tax schedules that include the rate.

Accessing a tax rate

When you access a tax rate, you can also view the tax schedules that the rate is included in, and the history of the tax rate.

The **Tax rate history** table contains tax rate records. For any date, only one record for a tax rate can be active.

1. Click **Taxation** > **Tax Rates**.
2. In the Folders view, click the tax rate that you want to view.

   The **Tax Rates** view appears.

Creating a tax rate

1. Click **Taxation** > **Tax Rates**.
2. In the Folders view, click any tax rate.

   The **Tax Rates** view appears.
3. Click **New**.
4. Complete the fields as required. For more information, see "Tax Rate Setup options" on page 109.
5. Click **Save**.

Tax Rate Setup options

Field	Description
Active check box	When selected, activates the tax rate on the effective date.
Effective date field	Date that the tax rate comes into effect. When you create a new tax rate, the field displays today's date by default.
Tax rate field	Name of the tax.
Percentage field	Percentage value of the tax.
Registration number field	Registration number for the tax. This number is usually assigned by the government and displays on invoices.

Field	Description
Expense GL account code list	Expense GL account number for the tax. Displayed on an expense report for the recoverable tax amount entered.
Invoice GL account code list	Invoice GL account number associated with the tax. Displayed on invoice distributions of tax amounts.
Tax rate ID field	Unique identifier for the tax that is used for interfacing with other systems.
Show taxes separately on Invoice check box	When selected, the individual tax amounts are displayed separately on an invoice. When cleared, the tax amounts are grouped and summarized on the invoice.

Activating and deactivating a tax rate

1. Click **Taxation** > **Tax Rates**.
2. In the Folders view, click the tax rate whose status you want to change.

   The **Tax Rates** view appears.
3. Expand the **Tax rate history** section.
4. In the **Tax rate history** table, click the tax rate record whose status you want to change.
5. Expand the **Tax rate details** section.
6. Set or clear the **Active** check box.
7. Click **Save**.

Editing a tax rate

To edit a tax rate you copy an existing tax rate record and make the changes in the copy. All of the information is copied to the new tax rate record, except for the effective date. The copied **Tax rate** and **Tax rate ID** fields cannot be edited.

To use the same effective date for the new tax rate record, you must deactivate the old tax rate record before you activate the new one.

1. Click **Taxation** > **Tax Rates**.
2. In the Folders view, click the tax rate that you want to edit.

The **Tax Rates** view appears.

3. To edit the tax rate:
   a. Expand the **Tax rate details** section.
   b. Expand the **Tax rate history** section.
   c. In the **Tax rate history** table, select the tax rate record.

      To use the same effective date for the new tax rate record, first select and deactivate the existing active tax rate record for that date.
   d. Click **Copy**.
   e. In the **Effective date** field, enter the date that the tax rate becomes effective.
   f. Complete the other fields as required.
   g. Click **Save**.

      The new tax rate appears in the Tax rate history table.
4. To delete the tax rate:
   a. Click **Delete**.
   b. Click **OK** to confirm.

Accessing a tax schedule

When you access a tax schedule, you can also view the tax rates that are included in the schedule, and the history of the schedule.

The **Tax schedule history** table contains tax schedule records. For any effective date, there can be only one tax schedule record.

1. Click **Taxation** > **Tax Schedule**.
2. In the Folders view, click the tax schedule you want to access.

   The **Tax Schedule Setup** view appears.

Creating a tax schedule

You add tax rates to the tax schedule in the order in which the taxes are applied. The first tax rate applies to the base amount only, while subsequent tax rates can be applied to the base

amount and/or previous tax rates. You can choose from the tax rates that are active and in effect on or before the effective date of the tax schedule.

1. Click **Taxation** > **Tax Schedule**.
2. Click any tax schedule.
3. Click **New**.
4. In the **Status** field, select the status for the tax schedule.
5. In the **Tax schedule** field, enter a name for the tax schedule.
6. In the **Description** field, enter a description for the tax schedule.
7. In the **Tax schedule ID** field, enter the unique identifier for the tax schedule. This ID is used for interfacing with other systems.
8. Expand the **Tax schedule history** section.
9. Right click in the **Tax schedule history** table and select **Insert**.
10. In the **Effective date** field, enter the date the tax schedule comes into effect.
11. Expand the **Tax rates** section.
12. To add the initial tax rate that is to be applied to the base amount only:
    a. Right click in the **Tax rates** table, and then select **Insert**.
    b. In the **Tax rate** list, select the tax rate.
    c. In the **Applies to** list, select *Applies to base amount*.
13. Click **Save**.

You can add more tax rates to the tax schedule. For more information, see "Adding a tax rate to a tax schedule" on page 112.

Adding a tax rate to a tax schedule

1. Click **Taxation** > **Tax Schedule**.
2. Click the tax schedule.
3. Expand the **Tax rates** section.
4. To add a tax rate:

   a. In the Tax rate history table, select the appropriate entry.
   b. Right click in the **Tax rates** table, and then select **Insert**.
   c. In the **Tax rate** list, select the tax rate that is to be applied.
   d. In the **Applies to** list, select either *Applies to base amount* or a tax rate.
5. Click **Save**.

Copying a tax schedule

You can create a new tax schedule by copying data from an existing tax schedule. All of the information is copied from the source to the target tax schedule, except for the effective date.

1. Click **Taxation** > **Tax Schedule**.
2. Click the tax schedule.
3. To copy the tax schedule:
   a. Right click in the **Tax schedule history** table, and then select **Copy**.
   b. In the **Effective date** field, enter the date the tax schedule comes into effect.
4. Click **Save**.

Removing a tax rate from a tax schedule

You cannot remove a tax rate from a tax schedule if the tax schedule is active, or if it is the only tax rate in the tax schedule.

1. Access the tax schedule.
2. In the Tax schedule history table, select the tax schedule whose rate you want to remove.
3. In the Tax rate table, select the tax rate you want to remove.
4. Right click the tax rate, then select **Delete**.

About editing tax schedules

Once a tax schedule is active, the only change you can make is to change its status to **Inactive**.

To effectively edit a tax schedule, you must create a new tax schedule with a different effective date.

Activating or deactivating a tax schedule

You cannot edit an active tax schedule, except to change its status to **Inactive**.

1. Access the tax schedule.
2. Expand the **Tax schedule detail** section.
3. Do one of the following:
   - To activate the tax schedule, in the **Status** list, select **Active**.
   - To deactivate the tax schedule, in the **Status** list, select **Inactive**
4. Click **Save**.

Deleting a tax schedule

You can only delete a tax schedule that has the **Draft** or **Inactive** status.

1. Access the tax schedule.
2. Click **Delete**.
3. Click **OK** to confirm.

About work codes and work locations

Work codes define the type of work performed by your organization. Different types of work can have different taxation rules. For example, consulting work may be nontaxable. It is recommended that you create a work code for each taxation rule. Work codes are grouped under work code categories.

Work locations define where the work is performed or invoiced to, or where expenses are incurred. Depending on taxation rules, a work location can be a country, region or specific address. You must set up a work location for each location that has a specific taxation rule and where your organization performs work. Work locations are grouped under work location groups.

Creating a work code category

1. Click **Taxation** > **Work Codes**.
2. In the Filters view, select a work code category.

   The **Work Code Category Setup** view appears.

3. Click **New**.
4. In the **Work code category** field, enter a name for the work code category.
5. In the **Description** field, enter a description for the work code category.
6. In the **Work code category ID** field, enter the unique identifier for the work code category that is used for interfacing with other applications.
7. Click **Save**.

Editing a work code category

1. Click **Taxation** > **Work Codes**.
2. In the Filters view, select the work code category.
3. To edit the work code category:
   a. Make the necessary changes.
   b. Click **Save**.
4. To delete the work code category:
   a. Click **Delete**.
   b. Click **OK** to confirm.

Creating a work code

You must create a work code under a work code category.

1. Click **Taxation** > **Work Codes**.
2. In the Filters view, select the work code category.
3. The **Work Code Category Setup** view appears.
4. In the **Work codes** table, right-click and then select **Insert**.
5. In the **Work code** field, enter a name for the work code.
6. In the **Description** field, enter additional information about the work code.
7. In the **Work code ID** field, enter the unique identifier for the work code that is used for interfacing with other systems.
8. Click **Save**.

Editing a work code

1. Click **Taxation** > **Work Codes**.
2. In the Filters view, select the work code category or work code.
3. To edit the work code, make the necessary changes in the **Work codes** table.
4. To delete the work code:
   a. Right-click the row and then select **Delete**.
   b. Click **OK** to confirm.
5. Click **Save**.

Creating a work locations group

Work locations are grouped under work location groups. You must first create a work location group before creating work locations.

1. Click **Taxation** > **Work Locations**.
2. Click a work location group folder.

   The **Work Locations Group Setup** view appears.
3. Click **New**.
4. In the **Work location group** field, enter a name for the work location group.
5. In the **Description** field, enter a description.
6. In the **Work location group ID** field, enter the unique identifier for the work location group that is used for interfacing with other applications.
7. Click **Save**.

Editing a work location group

1. Click **Taxation** > **Work Locations**.
2. Click the work location group.

   The **Work Locations Group Setup** view appears.
3. To edit the work location group, make the necessary changes.
4. To delete the work location group:

   a. Click **Delete**.

   b. Click **OK** to confirm.

5. Click **Save**.

Creating a work location

You must create a work location under a work location group.

1. Click **Taxation** > **Work Locations**.
2. Click the work location group.

   The **Work Location Group Setup** view appears.

3. In the **Work locations** table, right-click and then select **Insert**.
4. In the **Work location** field, enter the name for the work location.
5. In the **Description** field, enter the description.
6. In the **Work location ID** field, enter the unique identifier that is used for interfacing with other applications.
7. To enter the address for the work location:

   a. Click in the **Address** field. The **Address** dialog box appears.

   b. Enter the address, and then click **Save**.

8. Click **Save**.

Editing a work location

1. Click **Taxation** > **Work Locations**.
2. Click the work location group or work location.

   The **Work Locations Group Setup** view appears.

3. To edit a work location, make the necessary changes in the **Work locations** table.
4. To delete a work location:

   a. Right-click the row and then select **Delete**.

   b. Click **OK** to confirm.

5. Click **Save**.

About taxation rule settings

After you set up work codes, work locations, tax rates and tax schedules, you use them to set up taxation rules for expenses, billing and recoverable taxes.

You set up taxation rules in the following components:

- Expense taxation – rules for taxes on expenses.
- Service taxation – rules for taxes on services (both billable time and fixed fees).
- Product taxation – rules for taxes on products.
- Recoverable tax – rules for recovering taxes on expenses.

Order of setup

You set up the general taxation rules first, and then set up the exceptions for specific situations. For example, if all expenses except for rail travel have a value-added tax applied, you set up all expense categories with the value-added tax schedule, and then set up the rail travel expense type with no tax schedule.

The most specific matching setup is used

When billing is processed, if more than one setup could apply, the most specific matching setup is used and the appropriate taxation setup is applied to the expense, service or product.

Taxation rules apply only to the components currently in the category

When you set up or modify taxation rules for a component category (for example, an expense category), and for **All** components (expenses), the rules apply only to components that are in the category at the time. If you add a component later you must set up new taxation rules for it.

Selecting a tax schedule

In the **Tax schedule** list in the **Tax schedule** table, only tax schedules that have an effective date on or before the effective date entered are available for selection.

Example of taxation for expenses

In the following example, USA and Canada are work location groups, and each state and province is a work location within its group.

Expense Category and Type	Incurred-in Location	Bill-to Location	Tax Schedule
All categories and types	All work location groups	All work location groups	TS1
All categories and types	Canada work location group	USA work location group	TS2
Meals and entertainment category / Meals	California work location	California work location	TS3
All categories and types	USA work location group	USA work location group	TS4

- For meal expenses that are incurred in California and billed to California, tax schedule TS3 is used.
- For accommodation expenses that are incurred in California and billed to California, tax schedule TS4 is used.
- For meal expenses that are incurred in Maine and billed to Canada, tax schedule TS1 is used.

Creating a recoverable tax

A recoverable tax setup specifies the tax schedules for tax on a type of expense that is recoverable at a work location.

1. Select **Taxation** > **Recoverable Taxes**.

   The **Recoverable Taxes** tree view appears.

2. Click any folder.
3. Click **New**.
4. Complete the **Expense category**, **Expense type**, **Work location group**, and **Work location** fields as required. For more information, see "Recoverable Tax Setup options" on page 120.
5. In the **Tax Schedules** table, right-click and then select **Insert**.

6. Complete the **Effective date** and other fields in the table as required. For more information, see "Recoverable Tax Setup options" on page 120.

7. Click **Save**.

Recoverable Tax Setup options

Field	Description
Expense category list	Category of the expenses for which taxes can be recovered.
Expense type list	Expense type for which taxes can be recovered.
Work location group list	Work location group that includes locations where taxes can be recovered.
Work location list	Work location where taxes can be recovered.
Tax Schedule section	
Effective date field	Date that the recoverable tax becomes effective.
Tax schedule list	Tax schedule that includes the taxes that can be recovered.
Enabled check box	When selected, resources can manually enter tax amounts when creating expenses, even if the **Auto-calculate tax** check box is also selected.
Auto-calculate check box	When selected, taxes are automatically calculated based on the expense amount and the recoverable tax percentage.
Active check box	When selected, activates the recoverable tax on the effective date.

Editing a recoverable tax setup

You can only edit the values in the Tax Schedules table.

Because a recoverable tax consists of a tax schedule that is applied to a specific combination of expense type and work location , if you change the expense type or work location, you are adding a new recoverable tax.

Note: You cannot delete a recoverable tax after it has been saved.

If the tax you want to edit is active, you can do one of the following:

- add a new tax with a different effective date
- to retain the effective date of the tax , you can do one of the following:
  - deactivate the tax , then edit it, then reactivate it
  - deactivate the tax , then add a new tax with the same effective date, then activate the new tax

1. Select **Taxation** > **Recoverable Taxes**.

   The **Recoverable Taxes** tree view appears.

2. Expand the tree view and select the tax.

   The taxation criteria and the tax schedule table appear.

3. To add a new tax, right-click in the **Tax schedule** table, and then select **Insert**.
4. To deactivate a tax:
   a. Select the tax.
   b. Clear the **Active** check box.
   c. Click **Save**.
5. In the **Tax schedule** section, make the necessary changes. For more information, see "Recoverable Tax Setup options" on page 120.
6. Click **Save**.

Creating an expense taxation setup

An expense tax specifies the tax schedules for a type of expense that is incurred at a work location and billed to the same or a different location.

1. Select **Taxation** > **Expense Taxation**.

   The **Expense Taxation** tree view appears.

2. Click any folder.
3. Click **New**.

4. Complete the **Bill-to location group** and **Bill-to location**, **Incurred-in location group** and **Incurred-in location**, **Expense category** and **Expense type** fields as required. For more information, see "Expense Taxation Setup options" on page 122.
5. In the **Tax Schedules** table, right-click and then select **Insert**.
6. Complete the **Effective date** and other fields in the table as required. For more information, see "Expense Taxation Setup options" on page 122.
7. Click **Save**.

Expense Taxation Setup options

Area/Field	Description
Bill-to location group list	Work location group that applies to the company being billed.
Bill-to location list	Work location of the company being billed.
Incurred-in location group list	Work location group that applies to the location where expenses are incurred.
Incurred-in location list	Work location where expenses are incurred.
Expense category list	Expense category that the taxation applies to.
Expense type list	Expense type that the taxation applies to.
Tax Schedule section	
Effective date field	Date that the taxation becomes effective for the expense.
Tax schedule list	Tax schedule associated with this expense taxation setup. If the expense is nontaxable, select blank.
Active check box	When selected, activates the expense taxation on the effective date.
Strip matching check box	When selected, recoverable taxes that match the billing tax schedule are removed from the expense amount.

Area/Field	Description
Strip all check box	When selected, all recoverable taxes are removed from the expense amount.
Recalculate check box	When selected, discards the recoverable tax amounts that are removed from the expense amount and calculates a new tax amount. When cleared, the recoverable tax amounts that were removed from the expense are included in the tax total on the invoice.

Editing an expense taxation setup

An expense tax setup specifies the tax schedules for taxes for a type of expense that is incurred at a work location and billed to the same or a different location.

You can only edit the values in the Tax Schedules table.

Because an expense taxation setup is a specific combination of bill-to and incurred-in options, if you edit the bill-to or incurred-in options, you would be creating a new expense taxation setup.

Note: You cannot delete an expense taxation setup after it has been saved.

If the tax you want to edit is active, you can do one of the following:

- add a new tax with a different effective date
- to retain the effective date of the tax , you can do one of the following:
  - deactivate the tax , then edit it, then reactivate it
  - deactivate the tax , then add a new tax with the same effective date, then activate the new tax

1. Select **Taxation** > **Expense Taxation**

   The **Expense Taxation** tree view appears.

2. Expand the tree view and select the tax.

   The taxation criteria and the tax schedule table appear.

3. To add a new tax, right-click in the **Tax schedule** table, and then select **Insert**.

4. To deactivate a tax:

a. Select the tax.

b. Clear the **Active** check box.

c. Click **Save**.

5. In the **Tax schedule** section, make the necessary changes. For more information, see "Expense Taxation Setup options" on page 122.

6. Click **Save**.

Creating a service taxation setup

A service tax specifies the tax schedules for a type of service (work code) that is carried out at a work location and billed to the same or a different location.

1. Select **Taxation** > **Service Taxation**.

   The **Service Taxation** tree view appears.

2. Click any folder.

3. Click **New**.

4. Complete the fields as required. For more information, see "Service Taxation Setup options" on page 124.

5. In the **Tax Schedules** table, right-click and then select **Insert**.

6. Complete the **Effective date** and other fields in the table as required. For more information, see "Service Taxation Setup options" on page 124.

7. Click **Save**.

Service Taxation Setup options

Field	Description
Bill-to location group list	Work location group that applies to the company being billed.
Bill-to location list	Work location of the company being billed.
Incurred-in location group list	Work location group that includes the locations where the services are performed.

Field	Description
Incurred-in location list	Work location where the services are performed. If you select **All**, then the taxation rule applies to every location in the work location group.
Work code category list	Work code category that includes the services.
Work code list	Work code that includes the services.
Tax Schedule section	
Effective date field	Date that the tax schedule becomes effective for service taxation.
Tax schedule list	Tax schedule associated with this service taxation. If the service is nontaxable, select blank as the tax schedule.
Active check box	When selected, activates the service taxation on its effective date.

Editing a service taxation setup

You can only edit the values in the Tax Schedules table.

If the tax schedule has been activated, you create a new tax schedule with a different effective date. To use the same effective date for the new tax schedule, you must deactivate the existing tax schedule before activating the new tax schedule.

Note: You cannot delete a service taxation setup after it has been saved.

If the tax you want to edit is active, you can do one of the following:

- add a new tax with a different effective date
- to retain the effective date of the tax , you can do one of the following:
  - deactivate the tax , then edit it, then reactivate it
  - deactivate the tax , then add a new tax with the same effective date, then activate the new tax

1. Select **Taxation** > **Service Taxation**

   The **Service Taxation** tree view appears.

2. Expand the tree view and select the tax.

   The taxation criteria and the tax schedule table appear.

3. Expand the **Tax schedule** section.

4. To add a new tax, right-click in the **Tax schedule** table, and then select **Insert**.

5. To deactivate a tax:

   a. Select the tax.

   b. Clear the **Active** check box.

   c. Click **Save**.

6. In the **Tax schedule** section, make the necessary changes. For more information, see "Service Taxation Setup options" on page 124.

7. Click **Save**.

Creating a product taxation setup

A product tax specifies the tax schedule for a type of product that is produced at a work location and billed to the same or a different location.

When you set up taxation rules for a product category, the taxation rules apply only the products that are in the category at the time. You must set up new taxation rules for any products added later.

1. Select **Taxation** > **Product Taxation**.

   The **Product Taxation** tree view appears.

2. Click any folder.

3. Click **New**.

4. Complete the fields as required. For more information, see "Product Taxation Setup options" on page 127.

5. In the **Tax Schedules** table, right-click and then select **Insert**.

6. Complete the **Effective date** and other fields in the table as required. For more information, see "Product Taxation Setup options" on page 127.

7. Click **Save**.

Product Taxation Setup options

Field	Description
Bill-to location group list	Work location group that applies to the company for which products are billed.
Bill-to location list	Work location of the company for which products are billed.
Ship-to location group list	Work location group where the products are shipped. If you select **All**, then the taxation setup applies to all work location groups.
Ship-to location list	Work location where the products are shipped.
Product category list	Category of the product. Only products located directly in the product category are considered. Subcategories and their contents are excluded.
Product list	Product.
Tax schedule section	
Effective date field	Date when the tax schedule becomes effective for the taxation setup.
Tax schedule list	Tax schedule for the taxation setup. If the products are nontaxable, select blank as the tax schedule.
Active check box	When selected, activates the taxation setup on the effective date.

Editing a product taxation setup

You can only edit the values in the Tax Schedules table.

Note: You cannot delete a product taxation setup after it has been saved.

If the tax you want to edit is active, you can do one of the following:

- add a new tax with a different effective date
- to retain the effective date of the tax , you can do one of the following:
  - deactivate the tax , then edit it, then reactivate it

- deactivate the tax , then add a new tax with the same effective date, then activate the new tax

1. Click **Taxation** > **Product Taxation**.

   The **Product Taxation** tree view appears.

2. Expand the tree view and select the tax.

   The taxation criteria and the tax schedule table appear.

3. To add a new tax, right-click in the **Tax schedule** table, and then select **Insert**.

4. To deactivate a tax:

   a. Select the tax.

   b. Clear the **Active** check box.

   c. Click **Save**.

5. In the **Tax schedule** section, make the necessary changes. For more information, see "Product Taxation Setup options" on page 127.

6. Click **Save**.

Troubleshooting taxation setup

The tax schedule is not available for selection in the taxation setup view

Only the tax schedules that have an effective date that is on or before the effective date of the taxation setup are available for selection.

About fiscal years and periods

You can create a single fiscal period setup, or different fiscal periods for different billing offices. At least one billing office must be created before you can set up fiscal years and fiscal periods.

You first create and save a fiscal year, and then divide the year into fiscal periods. The default length of a fiscal year is one year, but you can make it shorter. The fiscal period intervals can be weekly, monthly, quarterly, or semi-annually. For weekly fiscal periods only, you can select the day of the week that the fiscal periods start on.

Accessing a fiscal year

1. Select **Finance** > **Fiscal periods**.
2. Expand the billing office folders to locate the fiscal year that you want to view.
3. Select the fiscal year.

   The **Fiscal Period Setup** view appears.

Creating a fiscal year and periods

You must create and save the fiscal year before you can add fiscal periods to it.

1. Select **Finance** > **Fiscal Periods**.

   The **Fiscal periods** tree view appears.
2. Click any billing office folder.

   The **Fiscal Period Setup** view appears.
3. In the **Billing office** list, select the billing office for which you want to create the fiscal year.
4. In the **Fiscal year** field, enter a name for the fiscal year.
5. In the **Start date** field, enter the date when the fiscal year starts.
6. Change the end date to an earlier date, if necessary.
7. Click **Save**.
8. To create fiscal periods:
   a. To specify a different day than Sunday for *weekly fiscal periods* to start on, select the day in the **Start day (weekly periods only)** field.
   b. Right-click in the **Fiscal periods** table, and then select the fiscal period interval.
   c. The fiscal periods appear.
   d. You can edit the names and start and end dates of the fiscal periods, except for the dates that coincide with the start and end dates of the fiscal year.
9. Click **Save**.

Editing a fiscal year and periods

Before a fiscal year has been divided into fiscal periods, you can change any of the field values.

After a fiscal period interval has been selected, then you cannot change the start or end date for the fiscal year. However, you can change the names and start and end dates for the fiscal periods, provided that there is no gap or overlap between fiscal periods.

> **Note:** You cannot delete a fiscal period or change the fiscal period intervals. Instead, you must delete the fiscal year and create a new one. Also, you cannot delete a fiscal year once it has been used in Changepoint.

1. Access the fiscal year.

   The **Fiscal Period Setup** view appears.

2. Make the necessary changes.
3. To delete the fiscal year, click **Delete**.
4. Click **Save**.

About closed periods

You can configure closed periods to prevent resources from performing actions (such as create, edit, submit, approve, and commit) on entity records within that period. Closed periods prevent changes to revenue recognition and financial results after a specific date.

A closed period consists of a cutoff date and an optional grace period. The cutoff date is the last date that resources can perform actions on the entity records that are dated on or prior to the cutoff date. The grace period is the number of working days after the cutoff date that resources can continue to perform the actions on entity records that are dated on or prior to the cutoff date.

> **Note:** Unlike nonworking days that are set up at the system level or for workgroups, nonworking days that are set up in user setup or the resource calendar are counted as working days in the grace period.

You can configure closed periods at the system level, or for specific billing offices. Closed periods for billing offices override the system-level closed periods.

The entities for which you can configure closed periods are:

- expenses

- invoices and credit notes
- materials
- revenue recognition records
- time (includes task time, request time, and time adjustments)

You can set up different closed periods for the different entity types, and different cutoff dates and grace periods for each action.

Accessing a closed period

1. Select **Finance > Closed Periods**.

   The **Closed Periods** view displays the closed periods defined at system level.

2. To access the closed periods for a billing office:

   a. In the **Level** list, select **Billing office**.

   b. In the **Billing office** type-ahead field, enter the billing office.

      The closed period table displays the closed periods for the billing office.

Configuring a closed period

1. Click **Finance > Closed Periods**.
2. To set up a closed period for all of Changepoint, select **System** in the **Level** list.
3. To set up a closed period for a specific billing office:

   a. In the **Level** list, select **Billing office**.

   b. In the **Billing office** type-ahead field, select the billing office.

4. If there are no rows in the table, right-click in the table, and then click **Insert**.
5. In the **Cutoff date** cell, enter the date that the closed period begins.
6. For each action of each entity type that the closed period applies to, do one of the following:

   - To set up a cutoff date without a grace period, enter 0.
   - To set up a cutoff date with a grace period, enter the number of days for the grace period.

7. Click **Save**.

Editing a closed period

1. Click **Finance** > **Closed Periods**
2. In the **Level** list, select **System** or the **Billing office**.
3. Make the necessary changes.
4. To delete a closed period:
   a. Right-click the closed period, and then select **Delete**.
   b. Click **OK** to confirm.
5. Click **Save**.
6. Click **OK** to confirm.

About billing offices

Billing offices set the basic rules for all associated engagements and business transactions. The rules define, for example, the default cost center, billing rates and cost rates for resources or billing roles, invoice approval process, and so on.

Some of these default settings can be overridden in Changepoint when creating engagements or invoices. However, you can restrict the changes that can be made in Changepoint.

About specifying cost centers for billing offices

When a resource creates an engagement, that resource can select either the cost center of the billing office or the cost center associated with the workgroup of the engagement manager, to be the cost center for the engagement. When revenue is recognized, it is assigned to the cost center selected on the engagement, unless revenue transfers are enabled.

Accessing a billing office

1. Click **Finance** > **Billing Offices**.
2. In the Folders view, select the billing office.

   The **Billing Office** view appears.

Creating a billing office

You can also create a billing office by copying all the information from an existing billing office. For more information, see "Copying a billing office" on page 149.

1. Click **Finance** > **Billing Offices**.
2. In the Folders view, click any billing office.
3. Click **New**.
4. Expand the **General** section.
5. Complete the fields as required. For more information, see "Billing Offices view, General section options" on page 133.
6. Complete the remaining sections. For more information, see:
   - "Configuring billing office settings" on page 135
   - "Configuring invoice approval settings" on page 141
   - "Creating a billing role" on page 142
   - "Configuring invoice numbering" on page 142
   - "Configuring the engagement workflow" on page 146
   - "Granting access to a billing office" on page 146
   - "Creating a reason for a write-off or a write-up" on page 147
   - "Specifying default project plan editors" on page 148
7. Click **Save**.

Billing Offices view, General section options

Option	Description
Billing office name field	Name for the billing office.
Base currency list	Default currency for the billing office, which is used for triangulation and aggregate reports.

Option	Description
Cost center list	Default cost center for the billing office.
Remit-to address list	Default remit-to address, which appears on all invoices of engagements under the billing office.
Payment terms list	Payment terms for invoices of engagements under the billing office. The payment terms are printed on all invoices associated with the billing office.
Available for selection when creating/editing an engagement or an opportunity check box	When selected, the billing office is available for selection for engagements and opportunities in Changepoint.

Configuring logos for invoices

For each billing office, you can configure a logo to appear on the invoices for the billing office.

Note: If you later change the logo settings, the change will be applied only to new invoices and invoices in draft status.

1. The image file for the logo must be placed on the Changepoint web server. For more information, see the *Changepoint Installation Guide*.
2. Access the billing office.
3. Expand the **Settings** section.
4. In the **Logo path** field (in the **Invoice logo** subsection), enter the path and filename for the logo, but exclude the default folder. For example, if the image file is located at: C:/Changepoint/Images/invoicelogo.jpg, enter: /Images/invoicelogo.jpg.
5. Select the horizontal alignment option for the logo.
6. Select the vertical alignment of the logo in the invoice.
7. Click **Save**.

Configuring billing office settings

You can configure settings to control certain actions that resources can perform on engagements associated with the selected billing office or on invoices related to these engagements.

1. Access the billing office.
2. Expand the **Settings** section.
3. Select the options for the billing office. For more information, see "Billing Offices view, Settings section options" on page 136.
4. Click **Save**.

Setting default time entry restriction settings for all projects in a billing office

1. Ensure that time entry restrictions have been enabled (**Time and Expenses** > **Time Control**).
2. Access the billing office for editing.
3. Click the **Settings** tab, and go to the **Time entry restrictions** section.
4. To prevent resources from entering time entries that are not within the planned dates for the project, task, and/or task assignment, in the **Restrict time entries to within the planned dates for** option, select the applicable entity check boxes.
5. To prevent resources from entering time entries when the planned effort for the project, task, and/or task assignment is exceeded, in the **Restrict time entries to within the planned effort for** option, select the applicable entity check boxes.
6. Click **Save**.

Billing Offices view, Settings section options

Financial settings

Option	Description
Allow revenue to be recognized for this billing office check box	When selected, revenue recognition is enabled for engagements.
Allow revenue recognition to calculate negative amounts for PPC-based items check box	When selected, negative revenue amounts are allowed for the **Physical Percent Complete** revenue recognition methods. Negative revenue amounts typically occur when the percent complete drops, due to either inaccurate project plans or an increase in scope that requires an increase in planned effort.
Prevent resources from desubmitting time entered for engagements under this billing office check box	When selected, resources cannot desubmit time entered for engagements and the **Lock desubmitted time** check box is not displayed on engagements.
Prevent resources from transferring expenses between engagements under this billing office check box	When selected, resources cannot transfer or reassign expenses from one engagement to another and the **Lock time and expense transfer** check box is not displayed on engagements.
Prevent resources from transferring time between projects check box	When selected, resources cannot transfer time between projects of engagements and the **Lock time and expense transfer** check box is not displayed on engagements.
Prevent resources from transferring time between tasks on the same project check box	When selected, resources cannot transfer time from one task to another within the same project.

Resource management

Option	Description
Allow soft-bookings check box	When selected, soft-bookings are enabled for resources for engagements under this billing office.
Enable resource requests and restrictions for all engagements under this billing office check box	When selected, resource requests are enabled for all engagements under this billing office. Project managers cannot assign resources directly to tasks, but must submit a resource request that will be reviewed by a resource manager.
Allow the task assignment restrictions to be overridden at engagement-level check box	When selected, the resource manager of the engagement's staffing workgroup can override task restrictions and allow users to assign tasks to resources other than the engagement's projected resources.

Engagement settings

Option	Description
Allow resources to create billable engagements initiatives under this billing office check box	When selected, resources can create billable engagements.
Prevent resources from entering discounted or negotiated rates for engagements created under this billing office check box	When selected, resources cannot enter discounted or negotiated rates for engagements and must use standard rates.

Option	Description
Display the [Force fixed fee selection] option on engagements created under this billing office check box	When selected, the **Force fixed fee selection** check box is available on engagements and selected by default when creating fixed fee engagements. This ensures that resources specify a fixed fee when creating tasks for projects of fixed fee engagements, and when creating a fixed fee request processing rule for the engagement. If your organization plans to use the **Effort expended** method for revenue recognition, the **Force fixed fee selection** check box must be selected so that billable time on tasks can be linked to fixed-fee deliverables.
Allow engagements created under this billing office to be enabled for audit check box	When selected, resources can enable auditing for engagements.

Invoice settings

Option	Description
Invoice format list	Format used for invoices.
Draft invoice message field	Standard message to appear on all draft invoices. For example, “Draft only”.
Enable invoice approval check box	When selected, approval levels can be configured for invoices.
Enable two-level approval check box	When selected, a second-level approver can be specified.
Enable two-level approval on contract overage check box	When selected, the second-level approval is restricted to invoices that exceed the contract amount set for the engagement.
Enable two-level approval for write-offs/ups check box	When selected, the second-level approval is restricted to invoices that include write-offs on billable time.

Option	Description
Prevent override of two-level invoice approval at engagement level check box	When selected, resources are prevented from changing the second-level invoice approval setting on engagements.
Second-level approver list	Resource selected as the second-level approver.
Prevent resources from entering tax adjustments on invoices check box	When selected, the option to prevent tax changes on invoices is displayed on engagements. The creator of the engagement can select this option to prevent resources from adjusting tax amounts on invoices.
Prevent resources from writing up amounts on invoices check box	When selected, resources cannot create write-ups for time, expenses, or products on invoices.
Prevent resources from entering total adjustments on invoices check box	When selected, resources cannot adjust invoices.
Prevent resources from changing invoice dates check box	When selected, resources cannot edit invoice dates after those invoices have been saved.
Prevent resources from distributing invoices to GL accounts check box	When selected, resources cannot distribute invoice amounts to GL accounts.
Prevent resources from adding additional items to invoices check box	When selected, resources cannot include additional items on invoices.
Allow resources to select different invoice formats from the invoice profile check box	When selected, resources can select different invoice formats on the invoice profile.

Option	Description
Prevent resources from changing the payment due dates check box	When selected, resources cannot edit payment due dates in invoices of engagements.
Allow resources to override the invoice posting date on invoices that are not in draft status check box	When selected, resources can change the posting date on invoices associated with this billing office, provided that these invoices are not in draft status.
Allow resources to change item description on invoices check box	When selected, resources can edit the description for time, expenses, requests and products oninvoices associated with this billing office.

Project settings

Option	Description
Force the entry of the project value on the Project dialog box once a project is completed check box	The project value is an optional search criteria for resources. When selected, resources must specify a project value (greater than zero) in order to mark a project as completed.
Allow resources to create material records using products that are not in engagements check box	When selected, resources can create materials using products that are not specified on the engagement.

Time entry restrictions

Option	Description
Restrict time entries to within the planned dates for [project, task, task assignment] check boxes	Prevents resources from entering time for dates that are outside of the planned start and planned finish dates of the selected options. The selected options become the default settings for the projects created under the engagements for the billing office.
Restrict time entries to within the planned effort for [project, task, task assignment] check boxes	Prevents resources from entering time when the total time entered for the selected options exceeds the planned effort. The selected options become the default settings for the projects created under the engagements for the billing office.

About invoice approval settings

You can set up an approval workflow for invoices of engagements associated with a specific billing office.

You can have Engagement managers approve the invoice related to their engagements.

You can also add a second-level approver and configure restrictions for this approval.

Resources selected as second-level approvers must have access rights to the billing office. For more information, see "Granting access to a billing office" on page 146.

Configuring invoice approval settings

1. Access the billing office.
2. Expand the **Settings** section.
3. To enable approval for all invoices, in the **Invoice settings** section, select the **Enable invoice approval** check box.
4. To configure two-level approvals:
   a. Select the **Enable two-level approval** check box.
   b. In the **Second-level approver** field, select an approver.

5. To restrict the second-level approval to invoices that exceed the contract amount set for the engagement:
   a. Select the **Enable two-level approval on contract overage** check box.
   b. In the **Second-level approver** field, select an approver.
6. To restrict the second-level approval to invoices that include write-offs on billable time:
   a. Select the **Enable two-level approval on write-offs** check box.
   b. In the **Second-level approver** field, select an approver.
7. To prevent resources from changing the second-level invoice approval setting on engagements, select the **Prevent engagement level override of two-level invoice approval** check box.
8. Click **Save**.

Creating a billing role

The function selected for a billing role becomes the default function for projected resources in engagements in Changepoint.

1. Access the billing office.
2. Expand the **Billing Roles** section.
3. Right-click in the table, and then select **Insert**.
4. In the **Billing role** cell, enter a name for the billing role.
5. In the **Function** cell, select the function to be associated with the billing role.
6. Click **Save**.

Configuring invoice numbering

You define the numbering scheme for the invoice number that replaces the temporary draft invoice number when an invoice is committed.

1. Access the billing office.
2. Expand the **Invoice numbering** section.
3. Select one of the following options:

- To create a numbering scheme, select the **Use numbering scheme** option and define the numbering scheme. For more information, see "Billing Office Details, Invoice numbering options" on page 143.
- To use a stored procedure created for invoice numbering, select the **Use custom stored procedure** option and select the appropriate custom stored procedure in the **Auto-numbering stored procedure** list. For more information, see "Requirements for auto-numbering stored procedures" on page 308.

4. Click **Save**.

Billing Office Details, Invoice numbering options

You can choose to leave one or more of the part A, part B, or part C fields blank. For an example of invoice numbering, see the "Invoice numbering example" section on page 144.

Field	Description
Starting value field	Initial value for part A, B or C of the number. Starting values are limited to five characters. Only numeric values can be incremented. The maximum value is determined by the number of digits. For example, if you enter “000,” the maximum value is “999.” When the maximum value has been reached, the value is reset to the starting value.
Separator text fields and options	Character or space that separates the parts of the number. • No separator • Use space • Character

Field	Description
Increment options	Increments the starting value. Options are: • **Never** – The value remains constant. • **Every time** – The value increases by one each time an invoice is committed. • **Annually** – The value increases by one on the date selected. • **On part B rollover** – When the value in part B reaches its maximum value, part B is reset to its starting value, and part A increases by one. • **On part C rollover** – When the value in part C reaches its maximum value, part C is reset to its starting value, and part B increases by one.
Reset numbering on rollover of previous part check box	When selected, causes the part to be reset when the previous part reaches its maximum value. **Note:** If either **On part B rollover** or **On part C rollover** options is selected, the **Reset numbering on rollover of previous part** setting is ignored.
Next rollover date field	Date on which the part number is set to change annually. This is usually the first day of the new fiscal year.
Draft invoice number string field	Alphanumeric text that is the prefix for the draft invoice number printed on all draft invoices.
Allow invoice number override list	If Yes is selected, invoice numbers can be overwritten manually for the billing office.

Invoice numbering example

The following settings generate invoice numbers that always begin with CAN and the current year, and end with a number based on the sequence in which invoices are committed. A hyphen is used to separate the number parts.

For example: CAN-2014-00001, CAN-2014-00002, CAN-2014-00003, and so on.

Example 2: Resetting numbering on rollover of previous part

If part A is “CAN”, part B has the starting value “2014” and increments annually, part C is set at 00000 and the next rollover date is set to 1/1/2015, then on January 1, 2015 the record number resets to CAN-2015-00000.

About engagement workflows

Engagements go through a process workflow that is defined for each billing office.

You can do the following:

- Specify the status options to be used in the workflow
- Change the sequence of status options in the workflow
- Specify at what stage in the workflow invoices can be generated for billable engagements
- Specify the roles that are allowed to change the status of an engagement in the workflow.

Note: If you select more than one role, only one of the roles is required to commit invoices and credit notes.

Configuring the engagement workflow

1. Access the billing office.
2. Expand the **Workflow** section.
3. In the **Roles allowed to commit invoices and credit notes** section, select one or more roles that a resource must be assigned in order to commit invoices and credit notes.
4. The workflow statuses are listed in order in the **Engagement workflow status and sequence** table. To change the workflow sequence, select the status row and then click the up or down arrow.
5. To allow the invoices to be created for billable engagements that are in the selected status, select the **Billable** check box.
6. To exclude a status from the engagement workflow, select the **Not used** check box.
7. Select one or more required roles that resources must have to assign the selected status to an engagement. If no role is selected, all resources can assign the status.
8. Click **Save**.

Granting access to a billing office

You must grant resources specific access to billing offices either directly or through roles. Resources must have access to a billing office to access the engagements, companies, and invoices that are associated to the billing office, generate invoices in batches, and view data from the billing office in reports.

1. Access the billing office.
2. Expand the **Billing office access** section.
3. To grant access to roles, select the roles in the **Roles required to access the billing office, generate invoice in batches, and view data in reports** list.
4. To grant access to resources, in the **Resources allowed to access this billing office, including batch invoice processing, data entry, reporting and visibility** list:
   a. To search for an item, enter the search text and then click **Search**.

b. To display the tree view, clear the **Show selected items only** check box, ensure that the search field is empty, and then click **Search**.

c. Select one or more items.

d. To display the selected items only, select the **Show selected items only** check box, ensure that the search field is empty, and then click **Search**.

5. Click **Save**.

About creating reasons for write-offs and write-ups

You can define reasons for writing off or writing up amounts on invoices for engagements associated with the billing office.

You can also specify if the reason affects the calculation of resource utilization in Changepoint (such as in portlet or reports). For example, if a resource has entered 40 billable hours and 8 hours are written off using a reason that affects utilization, then the number of utilized hours for the resource is 32.

Creating a reason for a write-off or a write-up

1. Access the billing office.
2. Expand the **Write-Offs/Ups** section.
3. Right-click in the table, and then select **Insert**.
4. Enter the reason.
5. To adjust the resource utilization amount for the write-off or write-up, select the **Affects utilization** check box.
6. Click **Save**.

Modifying a reason for a write-off or write-up

1. Access the billing office.
2. Expand the **Write-Offs/Ups** section.
3. To edit the reason:

   a. Make the necessary changes.

   b. Click **Save**.

4. To delete the reason:

a. In the table, right-click the reason, and then click **Delete**.

b. Click **OK** to confirm.

c. Click **Save**.

Specifying default project plan editors

You can specify individual resources or all resources in a workgroup as default project plan editors for projects that are created under the billing office.

1. Access the billing office.
2. Expand the **Project plan editors** section.
3. To select a resource:
   a. To search for an item, enter the search text and then click **Search**.
   b. To display the tree view, clear the **Show selected items only** check box, ensure that the search field is empty, and then click **Search**.
   c. Select one or more items.
   d. To display the selected items only, select the **Show selected items only** check box, ensure that the search field is empty, and then click **Search**.
4. Click **Save**.

Modifying a billing office

Revenue recognition is not automatically enabled for existing engagements under a billing office and must be enabled in the **Engagement** dialog box.

1. Access the billing office.
2. To edit the billing office:
   a. Make the necessary changes.
   b. Click **Save**.
3. To delete the billing office:
   a. Click **Delete**.
   b. Click **OK** to confirm.

Copying a billing office

You can create a new (target) billing office by copying all the information from an existing (source) billing office. Once the target billing office is saved, you can make the necessary edits.

1. Access the source billing office.
2. Click **Copy billing office**.
3. Enter the name of the target billing office.
4. Make the necessary changes.
5. Click **Save**.

About billing rates for billing offices

You create billing rates for a billing office to be used in engagements and opportunities associated with the billing office, and for tasks assignments of projects associated with the engagements. These rates can be overridden on the engagements.

You must first create the required billing roles, and then configure the billing rates for them.

You can set up billing rates in different currencies for a billing role. You can also set up several billing rates in the same currency for a billing role, but only one rate per currency can be active at the same time.

Creating a billing rate for a billing office

You can create billing rates grouped by currency or by billing role.

1. Click **Finance** > **Billing office**.
2. Expand the billing office, and then click **Rates**.
3. In the **Billing role** section, select either **Use the billing role cost rate** or **Use the resource cost rate**.
4. To configure the rates by currency:
   a. In the **View by** list, select **Currency**.
   b. In the **Currency** list, select the currency for the billing role.

   The existing rates for the selected currency are displayed.
5. To configure the rates by billing role:

a. In the **View by** list, select **Billing role**.

b. In the **Billing role** list, select the billing role.

The existing rates in all currencies for the selected billing role are displayed.

6. Right-click in the table, and then select **Insert**.
7. Complete the fields as required. For more information, see "Rates view, Billing role section options" on page 151.
8. Click **Save**.

About billing role-based and resource-based cost rates

On engagements, billing rates and cost rates can be set up for pairs of billing roles and resources, billing roles only, and/or resources only. When the billing role and resource on a task assignment match a billing role and resource pair on the engagement, then the engagement cost rate specified for the pair is used for invoicing and reporting on the task assignment.

The billing role-based or resource-based option determines which cost rate to use when there is no matching pair on the engagement.

If the billing role-based option is enabled:

- the cost rate of the matching billing role on the engagement is used
- if there no billing role specified on the engagement nor on the task assignment, but there is a matching resource, then the cost rate for the resource on the engagement is used
- if neither the billing role nor the resource matches, then the cost rate is 0 because there is no billing role-based cost rate available.

If the resource-based option is enabled:

- the cost rate of the matching resource on the engagement is used
- if there is no matching resource on the engagement, then the resource's cost rate from user setup is used.

Rates view, Billing role section options

Option	Description
Use the billing role cost rate option **Use the resource cost rate** option	Specifies whether the cost rates for billing roles or the cost rates for resources are used for invoicing and reports if there is no matching billing roleand resource pair on the engagement.
View by list	Specifies whether the billing rates are listed by billing role or currency.
Billing role list	Billing role for the rates. Available only when **Billing role** is selected in the **View by** list.
Currency list	Currency for the rates. Available only when **Currency** is selected in the **View by** list.
Hourly billing rate column	Standard hourly rate at which your organization bills a customer for a resource assigned the associated billing role. The standard rate can be overridden with a negotiated rate on an engagement.
Hourly cost rate field	Amount per hour it costs your organization to provide a resource.
Daily billing rate field	Standard daily rate at which your organization bills a customer for a resource assigned the associated billing role.
Daily cost rate field	Amount per day it costs your organization to provide a resource, if not specified elsewhere.
Effective date field	Date that the billing rate is effective.
Active check box	When selected, the billing rate is active and available for selection.
Comments field	Comments.

Option	Description
Update engagements list	Statuses of engagements that are updated when a billing rate is updated.
Update opportunities list	Option for selecting whether all unlocked opportunities are updated when a billing rate is updated, or just the ones for which no outcome has been selected.

About editing billing rates for billing offices

Creating or editing a billing rate can affect data in engagements and opportunities. If you activate a new billing rate, which deactivates the previously active rate, an email notification is sent to the engagement managers and sales representatives. The following rules apply:

- You can edit and delete billing rates until they are copied into an engagement.
- The options for automatically updating billing rates must be selected in the engagement.
- Only unlocked records are updated. An exception report appears if there are locked records that are not updated.
- If the negotiated billing rate for an opportunity is different from the standard rate, the standard rate is not updated.
- If a billing rate is changed to inactive, another rate is used that has the same currency, billing role, billing office and the closest effective date.

Editing a billing rate for a billing office

1. Click **Finance** > **Billing office**.
2. Expand the billing office, and then click **Rates**.
3. In the **Billing role** section, select either **Use the billing role cost rate** or **Use the resource cost rate**.
4. To configure the rates by currency:
   a. In the **View by** list, select **Currency**.
   b. In the **Currency** list, select the currency for the billing role.

   The existing rates for the selected currency are displayed.
5. To configure the rates by billing role:

a. In the **View by** list, select **Billing role**.

b. In the **Billing role** list, select the billing role.

The existing rates in all currencies for the selected billing role are displayed.

6. Make the necessary changes. For more information, see "Rates view, Billing role section options" on page 151.

7. Click **Save**.

Setting up daily rate conversions

You can invoice customers in days instead of hours by setting up time intervals in hours that correspond to fractions of a day. For example, to invoice customers to the nearest quarter day, you can divide an eight hour day into four time periods of two hours each.

Engagement managers and sales representatives are notified by email as soon as new rates are saved.

1. Click **Finance** > **Billing office**.

2. Expand the billing office, and then click **Rates**.

3. In the **Daily Rate Conversion Table** section, right-click in the table and then click **Insert**.

4. In the **Rate from (hour)** cell, enter the minimum number of hours for the time interval. The zero in the initial time interval cannot be changed.

5. In the **Rate to (hour)** cell, enter the maximum number of hours for the time interval.

6. In the **Day** cell, enter the fraction of a day in decimal format, that is to be invoiced for hours that fall within the time interval.

7. Click **Save**.

Modifying daily rate conversions

You cannot delete time intervals that are used in engagements.

1. Click **Finance** > **Billing office**.

2. Expand the billing office, and then click **Rates**.

3. Expand the **Daily Rate Conversion Table** section.

4. To edit a daily rate conversion, make the necessary changes in the table.

5. To delete the conversion rate:

   a. Right-click the row, and then select **Delete**.

   b. Click **OK** to confirm.

6. Click **Save**.

About billing setup

Creating a remit-to address

Remit-to addresses are available for selection when you create or edit billing offices, and when resources create or edit engagements, and invoices.

1. Click **Finance** > **Remit-to Addresses**.
2. In the Folders view, select an existing address.

   The remit-to address appears.

3. Click **New**.
4. In the **Location name** field, enter the name of the office or location.
5. In the **Address** fields, enter the address.
6. In the **Description** field, enter a description.
7. Click **Save**.

Modifying a remit-to address

1. Click **Finance** > **Remit-to Addresses**.
2. In the Folders view, select the address.
3. To edit the address:

   a. Make the necessary changes.

   b. Click **Save**.

4. To delete the address:

   a. Click **Delete**.

   b. Click **OK** to confirm.

Creating a payment term statement for invoices

You can set up the payment term statements that appear on invoices, and the number of days for the due date calculation.

1. Click **Finance** > **Payment Terms**.
2. Right-click in the table, and then select **Insert**.
3. In the **Payment terms** field, enter the payment terms.
4. In the **Days to due date** field, enter the number of days after the invoices date that the payment is due.
5. Click **Save**.

Modifying a payment term statement

1. Click **Finance** > **Payment Terms**.
2. To edit the payment term:
   a. Make the necessary changes.
   b. Click **Save**.
3. To delete the payment term:
   a. Click **Delete**.
   b. Click **OK** to confirm.

Adding a custom invoice format

1. The invoice format file must first be created and then saved to the Changepoint web server. For more information, see the *Changepoint Installation Guide*.
2. Click **Finance** > **Invoice Formats**.
3. Right-click in the table, and then select **Insert**.
4. In the **Format** field, enter the name of the invoice format.
5. In the **ASP path** field, enter the path, excluding the Changepoint root portion, but including the file name. For example:

   ```
   /core/report/<file name.asp>
   ```

6. Click **Save**.

Modifying a custom invoice format

You cannot delete a custom an invoice format if it has been selected in the settings of a billing office. You must first select a different format for the billing office.

1. Click **Finance** > **Invoice Formats**.
2. To edit the format:
   a. Make the necessary changes.
   b. Click **Save**.
3. To delete the format:
   a. Click **Delete**.
   b. Click **OK** to confirm.

Setting up batch invoicing

1. Click **Finance** > **Batch Invoicing Setup**.
2. Select the statuses that resources can choose from when they generate invoices in batches.
3. Click **Save**.

Funding and scenario setup

You can set up demand analysis to show a total picture of demand, from an effort, cost or revenue perspective. The settings affect the outcome of the scenario comparison calculations and funding information in Changepoint.

1. Click **Finance** > **Funding and Scenario Setup**.
2. Select the options as required. For more information, see "Funding and scenario setup view options" on page 157.
3. Click **Save**.

Funding and scenario setup view options

Option	Description
Billing office list	Billing office whose fiscal periods are used when precalculating and storing scenario comparison and funding information. Once amounts have been calculated for the default fiscal periods for scenario comparison purposes or for funding source allocation (source budget or distribution of entity amounts), the default fiscal periods can no longer be changed.
Data to use for revenue and cost information option	Data that is used when calculating revenue and cost information for scenario comparisons and funding information. Options are: • Planned • Forecast • Budgeted **Note:** The budget revision and the budget revision type that are used for the calculations are specified in the budget settings. For more information, see "About budget settings" on page 161.
Multiply opportunity forecast by probability check box	When selected, revenue for opportunities is calculated based on the service forecast revenue, multiplied by the probability set on the opportunity.
Chart template list	List of the scenario comparisons chart templates that can be deleted.

About revenue recognition

The revenue recognition process identifies and records revenue for completed work. The completed work may be for projects that are still in progress as well as for completed projects and engagements.

To enable revenue recognition, you must complete the following steps.

1. Configure revenue type GL account codes for each type of revenue to be recognized.
2. Configure cost centers for revenue recognition.
3. Configure revenue recognition.

4. Create adjustment reason codes to be used when making adjustments to recognized revenue.
5. Configure revenue recognition batch numbering.
6. Enable revenue recognition for billing offices.

You can set up departments to share revenue. Revenue transfers are initiated when resources work on projects with a default cost center other than their own. The default calculations for revenue transfers are set in the **Revenue Recognition** view, but can be overridden at the global workgroup or workgroup level.

Revenue recognition options are specified in engagements in Changepoint. Each engagement can use a combination of revenue recognition methods.

Configuring revenue recognition

1. Click **Finance** > **Revenue Recognition**.
2. Select the revenue recognition options. For more information, see "Revenue Recognition view options" on page 159.
3. Click **Save**.

Revenue Recognition view options

Option	Description
Enable revenue transfer check box	When selected, enables revenue transfers between cost centers during the revenue recognition process. Options are: • **Transfer labor multiplier** – Revenue transfers are based on the specified percentage of resources' cost rates. • **Transfer revenue percentage** – Revenue transfers are based on the specified percentage of the revenue.
Allow override of GL accounts in engagement check box	When selected, resources can override the default GL accounts that are specified on engagements for revenue recognition. When cleared, all engagements must use the default GL accounts. For more information, see "Configuring default GL accounts for revenue types" on page 161.
Time and expense cutoff option	Cutoff for recognizing revenue for time and expenses. Options are when the time and expense revenue exceeds the maximum recognizable revenue for time or expenses, or both. The cutoff is based on the maximum values set on the engagement.
Revenue cost center option	Cost center to be used for comparison for revenue recognition. Options are the cost center for the engagement manager or the billing office.
Exchange rate date for currency conversion option	Date to determine the exchange rate for currency conversions. Options are: • **Date of the tentative run** • **End of week**
Last currency exchange calculation performed on field	Date of the last currency exchange calculation for revenue recognition.
Last tentative revenue recognition performed on field	Date of the last tentative revenue recognition process.

About revenue transfers

You can set up revenue transfers between cost centers as part of the revenue recognition process. Revenue transfers are automatically initiated when the cost center for a resource's workgroup is different from the cost center of the engagement on which the resource is working.

You can select one of the following revenue transfer options:

- **Transfer labor multiplier** – Revenue transfers are based on the specified percentage of resources' cost rates (labor multiplier). For example, if the hourly cost rate for a resource is $75 and the percentage is 110%, the transfer amount is calculated as follows:

  (75 * 1.1) * Number of recognizable hours

- **Transfer revenue percentage** – Revenue transfers are based on a percentage of the revenue, which is based either on the billing rate or the cost rate, depending on what is specified on the engagement.

  For example:

  - The engagement uses billing rates for revenue recognition. If the hourly billing rate for a resource is $150 and the labor multiplier is 110%, the transfer amount is calculated as follows:

    (150 * 1.1) * Number of recognizable hours

  - The engagement uses cost rates for revenue recognition. If the hourly cost rate for a resource is $75, the engagement labor multiplier is 115%, and the transfer labor multiplier is 110%, the transfer amount is calculated as follows:

    ((75 * 1.15) * 1.1) * Number of recognizable hours

  Note: If the **Labor multiplier** field on the **Revenue** tab of the **Engagement** dialog box is selected, all revenue for the engagement is calculated based on cost rates and therefore revenue transfers cannot be based on billing rates. Transfer amounts will be calculated as follows: Cost rate * Labor multiplier for the engagement

You can override the default revenue transfer settings for individual workgroups, if required. For more information, see "Overriding the default revenue transfer settings for a workgroup" on page 34.

Configuring default GL accounts for revenue types

You can set up the default GL debit and credit account for each revenue type. The default GL accounts appear in the revenue recognition options of engagements. If GL accounts cannot be overridden on engagements, then default GL accounts must be set up.

1. Click **Finance** > **Revenue Type GL Account Codes**.
2. In each revenue type row, select the default GL debit and credit accounts.
3. Click **Save**.

Creating the list of adjustment reasons

You can create the list of reasons that resources can select from when adjusting recognized revenue in Changepoint.

1. Click **Finance** > **Adjustment Reason Codes**.
2. Right-click in the table, and then select **Insert**.
3. In the **Adjustment reason** column, enter the reason.
4. Click **Save**.

Modifying the list of adjustment reasons

1. Click **Finance** > **Adjustment Reason Codes**.
2. To edit a reason, make the necessary changes.
3. To delete a reason:
   a. Right-click the row, and then select **Delete**.
   b. Click **OK** to confirm.
4. Click **Save**.

About budget settings

Budget settings are used to configure the following:

- request types and fields for budget contingency amounts
- default budget item types

- budget revision and budget revision type to be used when funding source calculations are budget-based
- default dates for budget exchange rates for budget items and actual amounts
- default setting for replacing past amounts with actual amounts

About budget item types

Budget item types are used to categorize budget items (fixed fees, products, services, and expenses) for reporting purposes. For example, you can categorize budget items as capital or non-capital costs, or as internal labor or contractor work.

You can exclude budget item types from budget totals, for example, to separate the invoiced amounts from the revenue recognition amounts. If a budget item type is excluded from budget totals, the budgeted cost, effort and revenue amounts of budget items of that type are displayed in Changepoint, but the amounts are excluded from the totals.

Creating a budget item type

1. Click **Finance** > **Budget Item Types**.
2. Right-click in the table, and then select **Insert**.
3. In the **Description** field, enter a description for the budget item type.
4. To exclude the amounts for budget items of this type from budget totals, select the **Exclude from budget totals** check box.
5. Click **Save**.

Modifying a budget item type

When a budget item type is used in a budget, you cannot change the option to include or exclude it from budget totals. You cannot delete budget item types that are used in budgets or that are defined as default budget types.

1. Click **Finance** > **Budget Item Types**.
2. To edit the budget item type, make the necessary changes.
3. To delete a budget item type:
   a. Right-click the row, and then select **Delete**.
   b. Click **OK** to confirm.

4. Click **Save**.

Configuring default budget item types

You can specify default budget item types for budgets items.

Note: Changing a default budget item type applies only to new budget items created after the changes are saved.

1. Click **Finance** > **Budget Settings**.
2. Expand the **Default budget item types** section.
3. For each budget item:
   a. Select the budget item type to be used as the default.
   b. To allow resources to select a different budget item type, select the **Allow override** check box.
4. Click **Save**.

Configuring request types for budget contingency

You can specify the type of requests that resources can associate with budget items for budget contingency.

Changes to these settings apply only to budgets, budget revisions, and request selections that are created after the changes are saved.

1. Click **Finance** > **Budget Settings**.
2. Expand the **Contingency** section.
3. In the **Request type for budget contingency** list, select the request type that is used to determine budget contingency.
4. In the **Request field for budget contingency** list, select the request field that determines the amount of the budget contingency.
5. Click **Save**.

Specifying the budget revision for calculations

You can specify the revision type to be used for calculations and whether the amounts from the latest budget revision or latest frozen budget revision are used to calculate the following

amounts:

- earned value
- funding source demand/actual amounts
- physical percent complete (only when the **Physical percent complete - Cost** revenue recognition method is selected)

  Note: Changes to the revision type and revision option apply only to calculations performed after the changes are saved.

1. Click **Finance** > **Budget Settings**.
2. Expand the **Revision type for calculations** section.
3. In the **Revision type** list, select the revision type to be used for calculations.
4. In the **Revision to use** section, do one of the following:
   - To use the latest budget revision, select **Latest revision**.
   - To use the latest frozen budget revision, select **Latest frozen revision**.
5. Click **Save**.

Configuring the default date for budget exchange rates

You can specify default date options (current date, record date or specific date) for the budget exchange rates for budget item types and actual amounts.

Note: Changes to these settings apply only to new budgets that are created after the changes are saved.

1. Click **Finance** > **Budget Settings**.
2. Expand the **Default dates for budget exchange rates** section.
3. For each exchange rate, select the date option to be used as the default.
4. Click **Save**.

Configuring the default setting for replacing past amounts with actuals

Changes to these settings apply only to new budgets that are created after the changes are saved.

1. Click **Finance** > **Budget Settings**.

2. Expand the **Default setting for replacing past amounts with actuals** section.
3. Select the option to be set as the default option for all budgets.
4. Click **Save**.

6. User Interface Management

Changing the standard Changepoint terminology

Variables for the following standard terms are used throughout the Changepoint application interfaces and in system messages:

- Company
- Engagement
- Global workgroup
- Invoice
- Product
- Product category
- Resource
- Workgroup

You can change the values for the variables to the terms that are used by your organization. For example, you can change the term *Resource* to *Employee*, or the term *Workgroup* to *Department*. There are singular and plural versions of each term, and the first letter of each term is in uppercase.

> **Note:** This procedure applies to English only. To change the terminology for the other supported languages, you must edit the PCIDs. For more information, see "About user interface strings and PCIDs" on page 199.

1. Click **User Interface** > **Terminology**.
2. In the **Category** list, select **SingularTitle**.
3. In the **Field label** field, enter the new term.
4. Click **Save**.
5. Repeat this procedure for the term in the **PluralTitle** category.

Changing the default address types for companies and contacts

You can change the field labels for the default address types (Main, Billing, Shipping) for companies and contacts.

Note: This procedure applies to the English field labels only. To change the labels in the other supported languages, see "About user interface strings and PCIDs" on page 199.

1. Click **User Interface** > **Terminology**.
2. In the **Category** list, select **Address**.
3. In the **Field label** field, enter the new label.
4. Click **Save**.

About configurable fields

Configurable fields are user-defined fields that you can add to entity dialog boxes and profiles. There is a default set of code, text, and lookup fields for each entity type in Changepoint

You can create additional configurable fields, over and above the default configurable fields, for the following entities:

- budgets and budget items (for more information, see "About configurable fields for budgets and budget items" on page 169.)
- customers
- engagements (for more information, see "About configurable fields for engagements" on page 170)
- expenses and expense reports
- funding sources
- opportunities
- products
- projects
- requests
- resources
- resource requests
- tasks

Warning: Regarding the task configurable fields, do not change the field type for task text 1, 2, or 3 fields, and do not use entity records for the values for task code 1, 2, or 3 fields. These fields are used by the Microsoft Project integration.

You can create configurable fields that are code (drop-down list), text, numeric, date, or calculated fields.

By default, configurable fields display in the **Configurable fields** tab or section on the entity profile and dialog boxes, but you can set them up to display in any tab or section.

Code fields (drop-down lists)

Code fields are used to create drop-down lists. Before you enable a code field, you must define the values to be available in the drop-down list. You can add values manually, or base them on the values from other fields (entity-based).

Text fields

By default, text fields accept alphanumeric values. However, you can configure text fields to be date or numeric fields in metadata.

Calculated fields

You can create calculated fields, whose values are based on formulas. You can set up a calculated field to display survey rating results.

Lookup fields

Lookup fields are the standard Changepoint drop-down lists. You can change the label of a lookup field and its values, but not its other properties.

About configurable fields for budgets and budget items

If configurable fields are created for budgets, budget items, opportunities, or projects, note the following information, and advise your users as required.

Parent entity triggers for conditional properties or values

For the budget entity only, you can create parent entity (budget level) triggers for conditional properties or values for budget item configurable fields. For example, you can create a condition for a budget services configurable field called "Reason for change" that makes the field mandatory when the budget revision type is "Change request."

Validation of conditional values and properties on budget item configurable fields

In order to avoid negatively affecting performance, conditional values and properties for budget item configurable fields are not validated when the budget items are initially displayed in the budget dialog box. Only the rows that are subsequently selected or edited by a resource are validated. For example, if a budget item configurable field has a condition to hide it, the value will be displayed when the budget item tab is initially accessed. However, the value will disappear if a resource selects (clicks) or edits a budget item that meets the condition.

Similarly, if a resource changes a budget level configurable field value, which causes a budget item field to become mandatory, be hidden, or display different values, only the rows that a resource selects or edits will be revalidated for the new condition.

When budget item fields fail validation based on conditional values and properties, resources can filter the view to display only the affected budget items in the budget tab by clicking the icon.

Shared configurable field values are not copied into budgets

The values for configurable fields that are shared between budgets and other entities are not copied into a budget when the entity is copied into the budget. Resources must enter values for configurable fields manually under the following circumstances:

- When the budget is created from an opportunity or project.
- When a budget service configurable field is shared with a task assignment configurable field, and the task assignment is copied to the budget.

About configurable fields for engagements

Configurable fields for engagements are different from configurable fields for the other entities.

The starting point for creating a configurable field for an engagement is from a billing office. The configurable field then appears on all engagements for the billing office.

When you create a code or text configurable field for a billing office, the numbering of the configurable fields starts at Code 1 or Text 1 and increments by one for each subsequent configurable field that is created. When you create a configurable field for a different billing office, the numbering also starts at Code 1 or Text 1.

Warning: The configurable fields that have the same number behave as separate fields in their respective billing offices, but the metadata settings are shared. Some of the metadata settings, such as **Field** type, cannot be changed once a value has been saved for the configurable field. The other metadata settings can be changed from any billing office, but the change will apply to all of the configurable fields with the same number.

To create a configurable field for engagements

1. Click **Finance** > **Billing Offices**.
2. Expand the billing office.
3. Select a configurable field.
4. Click **New code field** or **New text field**. Complete the code or text configurable field as per the instructions for the configurable fields for the other entities.

About the default configurable fields

The following entities have only default configurable fields with limited options:

- activities
- contacts
- knowledge items
- portfolios
- portfolio items
- time (code fields only)

Each of these entities has only three configurable text fields and three configurable code fields, except for time, which has three configurable code fields only. When enabled, these fields display in the **Configurable fields** tab or section on the entity profile pages and dialog boxes. You cannot create additional configurable fields for these entities.

Enabling a default configurable field

Note: Create the drop-down list values for configurable code fields before you display the fields in the interface.

1. Click **User Interface** > **Configurable Field Settings**.
2. In the **Category** list, select the entity for the configurable field, and then click **Load List**.

3. Select the default text or code field.
4. To specify the field label, do one of the following:
   - In the **Field label** field, enter the field label.
   - In the **PCID** field, enter the PCID. When you enter a PCID, its text string appears in the **Field label** field.
5. To display the field on the interface, clear the **Not used** check box.
6. To make the field a required field, select the **Mandatory** check box.
7. To allow multiple values to be selected (code fields only), click the **Multi-selection enabled** check box.
8. To set a default value, in the **Default values** field, enter the value.
9. Click **Save**.

Creating a configurable text field

1. Click **User Interface** > **Configurable Field Settings**.
2. In the **Category** list, select the entity that you are creating the field for, and then click **Load List**.
3. Select a configurable field.
4. Click **New text field**.
5. Complete the fields as required. For more information, see "Configurable Field Settings view options" on page 173.
6. To make the text field a calculated field, see "About creating calculated fields" on page 188.
7. Click **Save**.

Creating a configurable code field

1. Click **User Interface** > **Configurable Field Settings**.
2. In the **Category** list, select the entity that you are creating the field for, and then click **Load List**.
3. Select a configurable field.

4. Click **New code field**.
5. Complete the fields as required. For more information, see "Configurable Field Settings view options" on page 173.
6. To use entity records for the drop-down values:
   a. Select the **Entity-based** check box. The **Entity-Based Settings** section appears.
   b. In the **Entity type** list, select the entity. A SQL statement that selects records for the entity appears.
   c. To filter the entity records, in the **Filter** field, enter the SQL clause for the filter criteria.

   Note: It is preferable to use WHERE clauses rather than JOIN clauses in the SQL clause. WHERE clauses are removed when the values are displayed in the user interface, which permits the values to be displayed (for example, in profile pages) regardless of the filter conditions. JOIN clauses are not removed and therefore the filter conditions will apply to the values.

   d. To apply conditional properties or values to the fields, click **Conditional Properties/Values**. The **Conditional Properties/Values** dialog box appears. For more information, see "Setting up conditions to control the values of a configurable field" on page 183.
   e. To allow resources to view and select from all entity records, clear the **Perform access checks on values** check box.
7. Click **Save**.
8. To specify the drop-down values manually, see "Creating drop-down list values for configurable code fields" on page 182.

Configurable Field Settings view options

For information about the **Access** section, see "Restricting access to a configurable field" on page 179.

Shared Fields section

Option	Description
Use field properties check box	When selected, the current field is a shared field. The field label and other settings from the source field that is specified in the **Field name** list are copied to the current field.
Entity type list	Available for shared fields only. The entity of the source field.
Field name list	Available for shared fields only. Source field whose settings are used for the current field.
Field label field	The name of the field that appears on the user interface.
PCID field	PCID whose translated strings are used instead of the field label.

Settings section

Option	Description
Not used check box	When selected, the field is not displayed on the user interface, and cannot be used in calculated field formulas.
Mandatory check box	When selected, the resource must enter a value for the field.
History tracking check box	When selected, changes to the field are tracked and can be viewed in the history view of the entity profile.
Show by default on expense report check box	Available for expense entity fields only. When selected, the expense configurable fields are displayed (not hidden) by default on expense reports.
Available for opportunity analysis check box	Available for opportunity entity fields only. When selected, the field is available for opportunity analysis.
Multi-selection enabled check box	Available for code fields only. When selected, resources can select more than one value for the field.

Option	Description
Entity-based check box	Available for code fields only. When selected, the field values come from the specified entity.
Conditional properties/values check box	Available when the **Entity-based** check box is selected. When selected, indicates that conditional properties or values apply to the configurable field.
Referenced in conditional expressions check box	Read-only field that when selected, indicates the configurable field is used in a conditional expression of another configurable field.

Entity-Based Settings

Note: This section is displayed only when the **Entity-based** check box is selected.

Option	Description
Entity type list	The entity whose values are used for the field values.
Basic SQL statement field	SQL statement that selects the entity records that are used for the field values.
Filter field	SQL clause that filters the entity-based field values.
Perform access checks on values check box	By default, access checks are performed so that the user can select from only the entity records that they have access to. To allow resources to select from all entity records, you can clear the check box.
Default value list	The values that appear in the field by default, but can be changed by resources. To select more than one default value, you must first select the **Multi-selection enabled** check box. **Note:** For a default value to be saved, the field must be displayed in the user interface (that is, not hidden), and the resource must have access to the configurable field.

Metadata Settings

Option	Description
Minimum field	For text fields, the minimum number of characters for the field. For numeric and date fields, the minimum value for the field.
Maximum field	For text fields, the maximum number of characters. For numeric and date fields, the maximum value for the field.
Field type options	Available for text fields only. Options are: • Text • Numeric • Date **Note:** The field type cannot be changed after a value has been saved in the field in Changepoint.
Number of rows displayed in edit mode field	Available for text fields that have the **Text** field type. Number of rows of text that are displayed in the field. If the maximum number of characters for the field is greater than 255, then the number of rows must be greater than 1. The maximum number of rows is 20. In all cases, if there is more text than can be displayed in the rows, a scroll bar appears.
Field is hidden from the user check box	Available for text fields only. When selected, the field is not displayed on the user interface, but can be used in calculated field formulas.

Calculated Field Settings

Note: This section is displayed only when the **Numeric** field type is selected.

Option	Description
Calculated check box	When selected, a value is calculated for this field based on settings that you specify.
Survey responses within the last [ ] days field	Available only when the **Calculated** check box is selected. The survey results from only the last specified number of days are included.
Formula field	Formula for the calculated field.
Calculate every [ ] days option	When selected, the value is calculated at the interval specified.
Calculate only if the entity has been changed option	When selected, the value is calculated when the entity has been changed.
Calculate each time the entity is saved option	When selected, the value is calculated when the entity record is saved.

Request Settings

Option	Description
Available for planning request screening check box	Available for request entity fields only. When selected, the field is included in planning request screening when the request type is selected.
This field will be available for the following request types list	Available for request entity fields only. Request types that the field appears on. If no request types are specified, the field appears on all requests.

Creating a shared configurable field to be used for multiple entities

If you want to use the same configurable field on more than one entity, you first create the configurable field for one entity (source field). You then create a configurable field for each of the other entities (target fields), but for each target field you select the option to base the target field on the source field.

The following settings from the source field are copied to the target field:

- Field label
- Use configurable field label
- Not used
- Field type (text, number or date)
- Multi-selection enabled
- Entity-based
- Entity type
- Security access

Note: To change these settings, you must edit the source field.

1. Create and enable the source configurable field on one of the entities.
2. For each of the remaining entities:
   a. Create the target configurable field.
   b. Select the **Use field properties (entity type and field name)** check box.
   c. In the **Entity type** list, select the entity type for the source configurable field.
   d. If the entity is an engagement, in the **Billing office** list, select the billing office.
   e. In the **Field** list, select the source field.
   f. Complete the remaining fields as required.

About restricting access to configurable fields

By default, all resources who have view access to an entity that contains a configurable field can view the field, and all resources who have edit access to the entity can view and edit the field. However, you can restrict view and/or edit access to a configurable field to specific resources, workgroups, or roles.

If you restrict view access and do not restrict edit access, then the selected resources, workgroups or roles have view-only access to the configurable field. Other resources can still edit and view the configurable field.

If you restrict edit access and do not restrict view access, then the selected resources, workgroups or roles can edit and view the configurable field. Other resources can only view the configurable field.

If you restrict both view access and edit access, then:

- resources, workgroups and roles selected for view access can view the configurable field
- resources, workgroups and roles selected for edit access can view and edit the configurable field
- the field is hidden from all other resources, workgroups and roles

For request-related configurable fields, you can also specify whether Client Portal users have view and edit access to the fields.

Restricting access to a configurable field

1. Click **User Interface** > **Configurable Field Settings**.
2. In the **Category** list, select the entity type of the configurable field, and then click **Load List**.
3. Select the configurable field.
4. Expand the **Access** section.
5. To restrict view (or edit) access, click the **Restrict view (or edit) access to the selected workgroups, resources, and/or roles** check box.
   a. To search for an item, enter the search text and then click **Search**.
   b. To display the tree view, clear the **Show selected items only** check box, ensure that the search field is empty, and then click **Search**.
   c. Select one or more items.
   d. To display the selected items only, select the **Show selected items only** check box, ensure that the search field is empty, and then click **Search**.
6. To include all the workgroups below a selected workgroup in the hierarchy, click the **Include children** check box.
7. For request-related configurable fields, the following options are also available:

- To enable Client Portal users to view the configurable field, select the **Allow view access for Client Portal users** check box.
- To enable Client Portal users to edit the configurable field, select the **Allow select access for Client Portal users** check box.

8. Click **Save**.

To allow specific resources to edit a configurable field while all other resources can only view the field

1. Restrict edit access to the specific resources, workgroups and roles as required.
2. Ensure that view access is not restricted.

To allow specific resources to edit a configurable field and prevent all other resources from viewing the field

You can restrict edit access to a configurable field so that only the selected resources, workgroups and roles can view and edit the field, and the field is hidden from all other resources.

1. Create a “dummy” role, which is a role without any features assigned to it.
2. Restrict edit access to the specific resources, workgroups and roles as required.
3. Restrict view access to the dummy role, which effectively prevents all other resources from viewing the field.

Editing a configurable field

Configurable fields cannot be deleted, but you can hide them so that they no longer appear on the user interface.

Note: After data has been saved for a configurable field, some options cannot be changed, for example, the field type.

1. Click **User Interface** > **Configurable Field Settings**.
2. In the **Category** list, select the entity of the configurable field, and then click **Load List**.
3. Select the configurable field.
4. Make the necessary changes.
5. Click **Save**.

About using entity records as values for drop-down lists

You can use entity name records as values for configurable code fields. For example, you can set up project names as the values for a configurable field. By default, all of the entity name records are included. However, you can filter the records by entering an SQL statement. In all cases, only the records that the resource has view or edit access to are displayed in the drop-down list for the configurable code field.

The following guidelines for SQL statements apply:

- Column names must be fully qualified, that is, they must include the table names. For example: TableName.ColumnName (Resources.ResourceId).
- Only one complete SELECT statement is allowed in the filter. You cannot use a UNION followed by a new SELECT statement.

  Note: After a value for the configurable code field has been saved in Changepoint, you cannot change the entity type or filter for the field.

You can also apply conditional logic to the values. For more information, see "Setting up conditions to control the values of a configurable field" on page 183.

About modifying values for standard drop-down (lookup) lists

You can create, modify, and delete the values for the standard Changepoint lookup lists. For more information, see "Creating drop-down list values for configurable code fields" on page 182.

Creating project types

You can configure project types by creating values for the standard **CPProjectType** field that is in the **Project lookups** category.

To change the field label, click **User Interface > Configurable Field Settings**.

Creating project phases

If project workflow has been enabled, you must configure project phases. The **Project phase** field is in the **Task lookups** category. You configure project phases by creating them as drop-down list values for the standard **Project phase** field.

The current project phase is determined for each project based on a numeric prefix in the project phase name. Therefore, you must add a prefix consisting of a number and a period before the phase name, for example:

- 01. Design
- 02. Code
- 03. Test

  Tip: Ensure that all numeric prefixes include the same number of digits as the highest phase number so that the project phases sort correctly.

Creating drop-down list values for configurable code fields

You can manually create values for configurable code fields. The values can apply to the system level, global workgroup, or workgroup.

If the configurable code field is for an entity that is included in performance metrics (company, opportunity, product, project, requests and task fields), then you must specify a number for the numeric equivalent, which is used as part of the metric calculations of a project's overall score or health assessment. The same number can be used for more than one code value.

1. Click **User Interface** > **Configurable Field Values**.
2. In the **Level** type-ahead field, do one of the following:
   - To make the values available to all resources, select **System**.
   - To make the values available to resources in a global workgroup or workgroup, select the workgroup.
3. In the **Category** list, select the entity that the code field belongs to.
4. In the **Code type** list, select the code field.
5. Right-click in the table, and then select **Insert**.
6. In the **Value** field, enter the value.
7. In the **Numeric equivalent** field, enter the number that is to be used for metric calculations for the code value.
8. To set a value as the default value, select the **Default** check box.
9. Click **Save**.
10. You can set up conditional values and properties for additional configurable fields (not default configurable fields). For more information, see "Setting up conditions to control the

values of a configurable field" on page 183 and "Setting up conditions to control the properties of a configurable field" on page 184.

Modifying drop-down list values

You can modify or delete the values in the standard Changepoint lookup lists or for configurable code fields. When you delete a value, it is removed from the table, but the history of the value is retained.

Changes and additions to the values in drop-down lists can be applied at the system level, or to a specific global workgroup or workgroup.

1. Click **User Interface** > **Configurable Field Values**.
2. In the **Level** type-ahead field, select the level that the values apply to (system or the workgroup).
3. In the **Category** list, select the entity type or lookup.
4. In the **Code field** list, select the code field.
5. To edit the values:
   a. Make the necessary changes.
   b. Click **Save**.
6. To delete a value:
   a. Right-click the row and then select **Delete**.
   b. Click **OK** to confirm.
   c. Click **Save**.

Setting up conditions to control the values of a configurable field

You can set up conditions to control the values of a configurable code field. For example, you can set up a condition that determines the values that are available for a configurable field based on the resource who is editing the field.

Warning: If your organization uses Microsoft Project Integration functionality, do not apply conditional values to TaskCode1, 2, or 3.

1. Do one of the following to access the configurable code field values:

- If the drop-down list values were created manually, access the configurable field in **User Interface > Configurable Field Values**.
- If the drop-down values are entity-based, access the values in **User Interface > Configurable Field Settings**.

2. Click **Conditional Properties/Values**.

   The **Conditional Properties/Values** dialog box appears.

3. To create a formula, click **Conditional formulas**. For more information, see "Creating a conditional formula for a configurable field" on page 185.
4. In the **Conditional values** section, right-click in the table, and then select **Insert**.
5. In the **Conditional formula** list, select the formula.
6. In the **Selected values** cell, select the values that are available when the condition in the formula is met.
   a. To search for an item, enter the search text and then click **Search**.
   b. To display the tree view, clear the **Show selected items only** check box, ensure that the search field is empty, and then click **Search**.
   c. Select one or more items.
   d. To display the selected items only, select the **Show selected items only** check box, ensure that the search field is empty, and then click **Search**.
7. To change the order of the formulas, select the formula and then click the up or down arrows.
8. Click **Save**.

Setting up conditions to control the properties of a configurable field

You can set up conditions to control the properties of a configurable field (whether the configurable field is required, read-only, or hidden) based on the value of a trigger field. For example, you could set up a condition on a configurable text field called **Description** so that it becomes a required field when a value of **High** is selected for a configurable code field (trigger field) called **Risk**.

1. Do one of the following to access the configurable field:
   - For a configurable text field, click **User Interface > Configurable Field Settings**.

- For a configurable code field that uses entity records for its values, click **User Interface > Configurable Field Settings**.
- For a configurable code field that has values that were created manually, click **User Interface > Configurable Field Values**.

2. Click **Conditional Properties/Values**.

   The **Conditional Properties/Values** dialog box appears.

3. To create a new formula, click **Conditional formulas**. For more information, see "Creating a conditional formula for a configurable field" on page 185.
4. In the conditional properties table, right-click and then select **Insert**.
5. In the **Conditional formulas** list, select the formula.
6. Select the check boxes for the properties to be applied to the configurable field when the condition in the formula is met.
7. To change the order of the formulas, select the formula and then click the up or down arrows.
8. Click **Save**.

Creating a conditional formula for a configurable field

You must first create one or more expressions, and then use the expressions to create a conditional formula. For some entities, there are resource-based variable fields that you can use to specify resources, for example:

- Editor – resource who is editing the entity
- Initiator – resource who initiated the request
- Project Manager
- Account Manager

When you use a resource-based field in an expression, you can filter resources based on resources, roles, or workgroups.

1. Access the configurable field.
2. Click **Conditional Properties/Values**.
3. Click **Conditional formulas**.

The **Conditional Formulas** dialog box appears.

To create an expression

1. In the **Step 1** section of the dialog box, in the **Expression** field, enter the name of the expression.
2. In the **Field name** list, select the trigger field to use in the expression.
3. If the trigger field is a resource-based variable, in the **Filter type** list, select **Resource**, **Role** or **Workgroup**.
4. In the **Condition** list, select the condition for the selected field or filter type.
5. In the **Value** field, enter the value that will be tested against the condition.
6. To select an entity-based value:
   a. To search for an item, enter the search text and then click **Search**.
   b. To display the tree view, clear the **Show selected items only** check box, ensure that the search field is empty, and then click **Search**.
   c. Select one or more items.
   d. To display the selected items only, select the **Show selected items only** check box, ensure that the search field is empty, and then click **Search**.
7. Click the **Save** button that is below the **Value** field.

To create a conditional formula

1. In the **Step 2** section of the dialog box, in the **Formula name** field, enter the name of the formula.
2. To add an expression to the formula, double-click the expression in the expressions table.
3. To insert an operator, spaces, or brackets, click the corresponding buttons.
4. To use an existing conditional formula, select one in the **Existing formulas** list.
5. To view the entire formula, click the **Display expanded formula** check box.
6. To test the formula, click the **Test Formula** button.
7. Click **Save**.
8. To create another formula, click **New formula**.

Modifying the conditions for a configurable field

1. Do one of the following to access the configurable field:
   - For a configurable text field, click **User Interface** > **Configurable Field Settings**.
   - For a configurable code field that uses entity records for its values, click **User Interface** > **Configurable Field Settings**.
   - For a configurable code field that has values that were created manually, click **User Interface** > **Configurable Field Values**.
2. Click **Conditional Properties/Values**.

   The **Conditional Properties/Values** dialog box appears.
3. Make the necessary changes.
4. To change the order in which the conditional formulas are applied, select the formula, and then click the up or down arrow.
5. To clear all settings and start over
   a. Click **Remove all**.
   b. Click **OK** to confirm
6. Click **Save**.

To edit a conditional formula

1. Click **Conditional formulas**.

   The **Create Conditional Formula** dialog box appears.
2. To edit an expression:
   a. In the expressions table, select the expression.
   b. In the **Step 1** section, make the necessary changes.
   c. Click the **Save** button that is below the **Value** field.
3. To edit the formula:
   a. In the **Existing formulas** list, select the formula.
   b. To expand the formula, select the **Display expanded conditional formula** check box.

c. Make the necessary changes.

4. Click **Save**.

About creating calculated fields

A calculated field is a configurable text field whose field type you change to numeric, and to which you add a formula to display data or survey results. Calculated fields appear as read-only fields in Changepoint.

Warning: If you create a formula in a calculated field that results in a divide by zero error, the error does not appear on the user interface, but is listed in the SQL server log and the value (if any) is deleted.

About calculated fields in the resource management worksheet

If you plan to use the resource management worksheet (RMW), do not use the option that calculates the value when the entity is saved for calculated fields based on effort. The values for calculated fields are not calculated when demand is edited manually or reassigned in the RMW.

About displaying survey results in a calculated field

You can set up a calculated field to display survey results. To be available for selection for a calculated field, the survey must be active, include ratings, and be associated with the same entity as the calculated field. You associate a survey with an entity by specifying the entity in a prompt tag when you send the survey.

You can include only the most recent survey responses by specifying the number of days before the current date that survey responses are to be included. However, if there are no survey results during this period, then the field value will be zero (0). In case this happens, consider creating another field for which no limit is set so that you can compare the results of the two fields.

When you select a survey for a calculated field, the survey name appears beside the field in Changepoint.

Creating a calculated field

1. Create a configurable text field.
2. For the **Field type** option, select **Numeric**.
3. Select the **Calculated** check box.

4. To include only recent survey responses, in the **Survey responses within the last [ ] days** field, enter the number of days.

5. In the **Formula** field, enter the formula. To add a field, stored procedure, or survey, right-click in the **Formula** field, and then select the item.

   For more information, see "Rules for formulas for calculated fields" on page 189.

6. Select an option to specify when the field value is to be calculated:

   - **Calculate every x days**, and then enter the number of days
   - **Calculate only if the entity has been changed**

   Note: For the previous two options, the calculations are performed by a scheduled job. Therefore the values are not immediately available.

   - **Calculate each time the entity is saved** – Calculates the field value each time the entity record is saved.

   Note: Use this option only when the data that is being calculated is based on the data fields from the same entity. Keep in mind that frequent and/or complex calculations can adversely affect system performance.

7. Click **Save**.

Rules for formulas for calculated fields

The rules for creating formulas for calculated fields are:

- You can use the following items in the formula:
  - numeric fields associated with the selected entity type
  - code fields that have numeric equivalents defined
  - other calculated fields
  - surveys
  - stored procedures
- Ensure that there is only one numeric result after the formula is executed.

- All operands in the formula must be from the same entity. The exception is for opportunity, for which you can also use operands from OpportunityDetails or OpportunityServices child entities, configurable code or text fields, or a survey.
- No aggregation functions are allowed against parent entities. However, you must aggregate child entities such as OpportunityDetails or OpportunityServices.
- Pure numbers or calculation expressions must combine both numbers and operands from the menu.
- No current configurable text fields are allowed in the formula.
- If the formula includes other calculated fields, ensure that the field name for the calculated field comes after the field names in the formula. Calculated fields are processed in order, based on a string comparison of the field names. For example, these calculated fields would be calculated in the following order: RequestText1,RequestText123, RequestText35, RequestText4.

  Note: Do not use the **WorkingDays** field in calculations for fields in the projects or tasks entities. The **WorkingDays** field is no longer used in rollup calculations and therefore will not provide accurate results.

All entity fields example

```
RequestText11+(RequestCode6+RequestText3)/2
```

You can create simple math formulas by selecting a field and then adding operators.

Opportunity fields, example 1

```
SUM(OPPORTUNITYDETAILS.AdjustedPrice*OPPORTUNITYDETAILS.Qty)
```

Opportunity fields, example 2

```
SUM(OPPORTUNITYSERVICES.NegotiatedCostRate*Opportunityservices.Qty) *
TITLEDEFINITION.OpportunityCode1
```

If you use fields from OpportunityDetails or OpportunityServices, then you must also use an aggregation function. However, you cannot use both tables in the same formula. Instead, you do the following:

1. Create a calculated field for OpportunityDetails.
2. Create a calculated field for OpportunityServices.
3. Create a third calculated field that uses both calculated fields.

Using a SQL statement in a calculated field formula

While it is possible to use a SQL statement in a formula for a calculated field, note the following warning.

Warning: SQL statements in formulas for calculated fields are not supported within the terms of your Changepoint support agreement. If you require assistance, contact your Changepoint Canada ULC account manager to arrange for chargeable consulting services.

About using a stored procedure in a calculated field formula

The following rules apply to stored procedures for calculated fields:

- The stored procedure name must begin with `CPCALC_`.
- The stored procedure must have at least two parameters:
  - input: entityid
  - output
- Only one output parameter of a numeric datatype (int, decimal) is allowed.
- The entityid must be the first parameter. The entity IDs are: Budget – use RevisionId (see below), CustomerId, EngagementId, OpportunityId, ProductId, ProjectId, RequestId, ResourceId, ResourceRequestId, TaskId.

  Note: For budgets, configurable fields are specific to a budget revision, and therefore you must use RevisionId instead of the entityid.
- The output parameter must be the last parameter.

The following rules apply to creating the formula:

- Only the custom stored procedures that comply with the rules are available in the formula menu for selection.
- There is no restriction on the number of custom stored procedures in a formula.
- Stored procedures in a formula must be enclosed in parentheses ().
- All parameters except for entityid and output must be replaced with actual data before saving the formula.

Stored procedure example

The following is a simple stored procedure to calculate the number of requests associated with a project:

```
CREATE PROCEDURE [dbo].[CPCALC_project1]
@PROJECTID UNIQUEIDENTIFIER,
@PARA_VAR INTEGER output
AS
select @PARA_VAR =count(1) FROM RequestEntity Where EntityId=@PROJECTID
GO
GRANT EXECUTE ON [CPCALC_project1] TO [CPACCESS]
GO
```

Configurable field layout

By default, configurable fields are displayed on the **Configurable fields** tab of the edit dialog box of the relevant entity. Configurable fields and the default **Configurable fields** tab appear on the entity profile only after a value has been saved for the configurable field.

However, you can control the layout of configurable fields as follows:

- change the order of fields in the **Configurable fields** tab or section
- create groups for configurable fields, and add the groups to any of the default tabs or sections for the relevant entity
- change the order and layout of fields in a group
- change the order of the groups (although all groups appear at the top of the tab or section)

There are separate formats for the edit dialog box or view and profile. Therefore, if you want a group to appear in both, you have to create the group in both formats.

Note: Only the configurable fields that are configured to be displayed in the user interface are available to be added to a group.

Creating a configurable field group

You can create configurable field groups for arranging the configurable fields for an entity.

Note: You can create configurable field groups on the main Budget entity only and not the budget sub-items (Budget expenses, fixed fees, products, and services).

1. Click **User Interface** > **Configurable Field Layout**.
2. Expand the entity, and then do one of the following:

- To add the group to the entity profile, expand **Profile**.
- To add the group to the edit dialog box or view, expand **Edit screen**.

3. Expand the section that you want to add the group to, and then select any configurable field group.
4. Click **New**.
5. To specify the group name, do one of the following:
   - Enter the name of the group in the **Group name** field.
   - To use a PCID for the group name, enter the PCID in the **PCID** field.
6. Expand the **Layout** section.
7. In the **Layout style** option, select either **Single column** or **Two columns**.
8. To add configurable fields to the group, drag the fields from the **Display in the configurable field section** list to the **Display in this group** list.
9. To change the order that the fields are displayed in the group, drag the fields to the desired positions in the **Display in this group** list.
10. To add a header to the group, see "Adding a header to a configurable field group" on page 193.
11. Click **Save**.

About headers for configurable field groups

You can add a header to a configurable field group. The header can include text, for example, to explain the configurable fields in the group. You can also insert a link to a website or to files on a network drive. The supported protocols are http://, https://, ftp://, and file://.

Note: Only Internet Explorer supports links to network folders.

In Changepoint, an icon appears, which resources click to expand or collapse the header.

When a resource clicks a link in the header, the link opens in a new window.

Adding a header to a configurable field group

1. Click **User Interface** > **Configurable Field Layout**.
2. Expand the entity to locate and then select the configurable field group.

3. Expand the **Group header** section.
4. In the **Group header** field, enter the text for the header.
5. To insert a link in the header text:
   a. In the **Group header** field, place the cursor in the text where you want to insert the link.
   b. Click **Add Link** button. The text "`ÿLINKÿ`" is inserted.
   c. Replace `ÿLINKÿ` with:

```
ÿlink text=URLÿ
```

For example:

```
ÿChangepoint website=http://www.changepoint.comÿ
```

6. In the **Number of lines to display** field, enter the number of lines to allow for the header text on the user interface. The maximum number is 20, but if the header text exceeds the number of lines, a scroll bar appears.
7. To display the header as expanded by default, select the **Show when the section is loaded** check box.
8. Click **Save**.

Rearranging the configurable field groups in a tab or section

1. Click **User Interface** > **Configurable Field Layout**.
2. Expand the entity and then select **Edit screen** or **Profile**.
3. To move a group, drag the group to the desired position within a section, or to a different section.
4. Click **Save**.

Rearranging the configurable fields in the Configurable Fields tab or section

You can change the order of the configurable fields in the default **Configurable Fields** tab or section of an edit dialog box or entity profile.

1. Click **User Interface** > **Configurable Field Layout**.

2. Expand the entity, format type, section, and then select any configurable field group.
3. In the **Display in the configurable fields section** list, drag the fields to the desired positions.
4. Click **Save**.

About metadata settings for fields

You can configure metadata settings on fields, including:

- making fields required, editable, and/or hidden
- specifying the minimum and maximum number of characters or values for fields
- specifying how duplicate values are handled

  Note: For system read-only fields, the only settings the only settings that can be changed are the page content ID, and the option to hide the field. Also, you cannot configure metadata settings for password fields.

Configuring metadata settings

1. Click **User Interface** > **Metadata**.
2. In the Folders view, expand the entity and then select the field.
3. Complete the fields as required. For more information, see "Modify Metadata Settings section options" on page 195.
4. Click **Save**.

Modify Metadata Settings section options

Option	Description
Entity type field	The entity of the field.
Field name field	The name of the field.
Field label field	Text string for the PCID.

Option	Description
PCID field	PCID containing the strings used in the metadata checking message.
Field is required and the user must enter data check box	When selected, the field is mandatory. If the field is a check box, it is displayed as selected and noneditable.
Field is not editable check box	When selected, the field is displayed, but is noneditable.
Field is not editable once the initial value has been saved check box	When selected, the field becomes noneditable after a value has been saved.
Locked after first check check box	Available for check boxes only. When selected, the check box becomes noneditable after it has been selected and saved.
Field is hidden from the user check box	When selected, the field is not displayed in Changepoint. **Note:** Do not hide a required field unless there is a default value for it. If you hide a required check box, the check box becomes selected by default.
System maximum field	Maximum number of characters that you can set for the field in the **Maximum** field. Zero (0) means a limit has not been set, or is not applicable.
Minimum field	Depending on the field type, either the minimum number of characters that can be entered in the field, or the minimum value for the field.
Maximum field	Depending on the field type, either the maximum number of characters that can be entered in the field, or the maximum value for the field. For configurable text fields, the maximum number of characters is 20,000.

Option	Description
Check for duplicates option	Options include: • **Do not check for duplicates** • **Warn if duplicates exist** – if the current value is the same as an existing value, a warning message appears, but the record can be saved • **Warn if match on similar entry** – if the current value has a few of the same characters or values as an existing value, a warning message appears, but the record can be saved • **Reject entry if duplicates exists** – if the current value is the same as an existing value, a message appears, and the record cannot be saved.
Duplicate check performed on field	Database table that is checked for duplicate values.
Number of rows displayed in edit mode field	Available for configurable text fields only. Number of rows of text that are displayed in the field. If the maximum number of characters for the field is greater than 255, then the number of rows must be greater than 1. The maximum number of rows is 20. In all cases, if there is more text than can be displayed in the rows, a scroll bar appears.

About hiding fields on the Changepoint user interface

You can hide standard and configurable fields, rows of fields, sections and entire tabs of entity dialog boxes by setting metadata. The general guidelines for hiding fields and tabs are as follows:

- To hide a standard or configurable field, you must set the field as hidden. For more information, see "Hiding a field" on page 198.

  Note: You can also hide configurable fields by setting the field as hidden on the configurable field itself. For more information, see "Editing a configurable field" on page 180.

- To hide a row of fields, you must set all fields that are displayed on the same row as hidden, including fields that may not currently be displayed based on conditional logic.

- To hide a section or tab, you must set all standard and configurable fields on the tab as hidden, including fields that may not currently be displayed based on conditional logic.
- To hide a configurable field group, you must set all configurable fields in the group to hidden. The header for a configurable field group is displayed only when the group is displayed.
- Supplemental text that provides additional information in a section or tab is not controlled by metadata, but is hidden automatically when the section or tab is hidden.

  Warning: Make sure to carefully test the results of your settings in the Changepoint user interface.

Exceptions

There are some exceptions to the general rules. For example, hiding only one field for certain entity types hides all fields on the entity dialog box.

Also, there are some metadata items that control items other than a field. For standard Changepoint items, the field label text that is in parentheses indicates that the item is something other than a field. For example, for the budget entity, there are metadata items for each of the budget dialog box tabs, such as **Fixed fees (tab)**, each of which hides the corresponding tab or section.

For the Project entity, the field label for the **Competition** field is **Competition (tab)**, which indicates that the item being controlled by the metadata settings is the entire tab. However, if there are any configurable fields in the **Competition** tab, you must hide each one separately.

About hiding mandatory fields

If you hide a mandatory field, note the following:

- you must define a default value for the field, otherwise resources will not be able to save the associated record
- if the field is a check box, it will be set as selected by default
- if the field is a configurable field, you must use the setting on the configurable field to set it as mandatory

Hiding a field

This procedure applies to both standard Changepoint fields and configurable fields.

1. Click **User Interface** > **Metadata**.

2. Expand the entity and then select the field.
3. Select the **Field is hidden from the user** check box.
4. Click **Save**.

About user interface strings and PCIDs

The user interface strings for Changepoint and Report Designer are available in the supported languages. Each string and all of the translated versions of the string are mapped to a unique identifier called a *PCID* (page content ID).

The PCIDs and the translated versions of the strings in the supported languages are stored in the Changepoint database, and can be edited.

The language that is displayed in the user interface is controlled by the browser application, unless Changepoint has been configured to display in only one of the supported languages.

For a list of supported languages and browsers, see the *Changepoint Product Architecture and Technology Matrix*.

You can do the following:

- Enter translated versions of new strings in the supported languages.
- Edit the default text in the user interface strings to match the terminology that is used by your organization.
- Create custom PCIDs for custom items, such as configurable fields, reports, sections, and so on.

You must obtain the PCIDs for text strings from your database administrator or whoever is administering the PCIDs in your organization.

Entering a translated user interface string

1. Click **User Interface** > **Strings and PCIDs**.
2. In the **Search by** list, select **PCID**.
3. In the **Search for** field, enter the PCID of the translated string.
4. In the **Language** list, select **All languages**.
5. Click **Search**.
6. In the **String** field, enter the text for the string.

7. In the **Context** field, enter the location of the string in the user interface.
8. Click **Save**.

Editing a user interface string

You can edit the user interface strings for all of the standard Changepoint fields and configurable fields that have a PCID.

Warning: Do not edit PCID 90898 because it a system placeholder.

1. Click **User Interface** > **Strings and PCIDs**.
2. To search by PCID:
   a. In the **Search by** list, select **PCID**.
   b. In the **Search for** field, enter the PCID.
3. To search by a text string:
   a. In the **Search by** list, select **String text**.
   b. In the **Search for** field, enter the text.
4. Click **Search**.
5. Make the necessary changes.
6. Click **Save**.

Creating a custom PCID

You can create custom PCIDs, which you can use for configurable fields, in custom report fields, and so on. Custom PCIDs are automatically assigned numbers in the range from 300000 to 399999.

When you create a custom PCID, you first enter the string text in one language only. The same text is saved for all of the supported languages. After you save the custom PCID, you can then enter the translated strings for the other supported languages.

1. Click **User Interface** > **Strings and PCIDs**.
2. Right-click in the table, and then select **Insert**.
3. In the **String** field, enter the text for the string.
4. In the **Context** field, enter the location of the string in the user interface.

5. Click **Save**.

   The custom PCID does not automatically appear in the list. You must search for it to view it.

6. You can enter the text strings for the other languages. For more information, see "Entering a translated user interface string" on page 199.

About custom sections and section items

Changepoint has a set of default sections and section items that are displayed in the menu bars in Changepoint and Changepoint Administration.

You can do the following:

- create custom sections and section items
- change the order of the sections in the menu bar
- change the order of section items in a section
- edit the section and section items, except for the default section names

About editing a default section or section item name

The best practice is to edit the default user interface strings for the corresponding PCIDs of the default section or section item name. You can obtain the PCIDs for the default sections and section items in the **Custom Sections** view (**User Interface > Custom Sections)**. For more information, see the "Editing a user interface string" section on page 200.

Creating a custom section

1. Click **User Interface** > **Custom Sections**.
2. Depending on where you want to add the custom section, in the Folders view expand either **Changepoint** or **System administration** and select any section.
3. Click **New**.
4. To enter the name of the custom section, do one of the following:
   - If you created a PCID for the custom section name, enter the PCID in the **PCID** field.
   - Enter the name in the **Section name** field.
5. In the **Section key** field, enter a code for the section.

6. Click **Save**.

Modifying a custom section

You can change the name of a custom section only.

1. Click **User Interface** > **Custom Sections**.
2. In the Folders view, select the custom section.
3. To edit the section:
   a. In the **Section name** field, enter the new name.
   b. Click **Save**.
4. To delete the section:
   a. Click **Delete**.
   b. Click **OK** to confirm.

Adding a custom section item

You can add a custom section item to a default section or custom section.

1. Click **User Interface** > **Custom Sections**.
2. In Folders view, select the section that you want to add the section item to.
3. Click **New section item**.
4. To enter the name of custom section item, do one of the following:
   - If you created a PCID for the custom section item, enter the PCID in the **PCID** field.
   - Enter the name in the **Section item name** field.
5. In the **Section item key** field, enter a code for the section item.
6. In the **URL** field, enter the URL for the section item.
7. To open the section item in a new window, select the **Open in new window** check box.
8. Click **Save**.

Modifying a custom section item

You can edit custom section items except for the section item key.

1. Click **User Interface** > **Custom Sections**.
2. In the Folders view, expand the sections and then click the custom section item.
3. To edit the section item:
   a. Make the necessary changes.
   b. Click **Save**.
4. To delete the section item:
   a. Click **Delete**.
   b. Click **OK** to confirm.

Changing the order of sections and section items

You can change the order of sections in the menu bars, and the order of the section items within a section. The order can be alphabetical or you can specify the order.

1. Click **User Interface** > **Custom Sections**.
2. In the Folders view, select any section.
3. Click **Reorder**.

   The **Reorder Sections** dialog box appears.
4. Select the sort order for the sections and section items, and then click **OK**.

   If you selected **Custom**, a second **Reorder Sections** dialog box appears.
5. To move a section or section item, click the item and then click the up or down arrow until the item is in the desired position.
6. Click **Save**.

Controlling access to a custom section item

You control access to a custom section item by selecting one or more security features and specifying whether one or all of the selected security features are required to access the custom section item.

1. Click **User Interface** > **Custom Sections**.
2. In the Folders view, select the custom section item.

3. Expand the **Access control** section.
4. In the **Security features required to access this section item** section, select the option to specify whether one or all of the features are required to access the custom section item.
5. Expand the security feature categories, and then select the check boxes of the features that are required.
6. Click **Save**.

About portlets

Portlets are typically added to a portal and can contain data, charts, reports, and links to entities or web sites. Portlets are organized into the following categories:

- system-defined – Portlets installed with Changepoint. You cannot delete system-defined portlets.
- user-defined – Portlets created by users (system administrators or resources).
- Changepoint-wide – User-defined portlets that have been made available to all resources.

Changepoint portlets and other specifically-enabled pages can be rendered directly in a browser or third-party portal solutions such as IBM WebSphere, CA CleverPath, and Microsoft SharePoint. For more information, see the *Changepoint Installation Guide*.

Creating a portlet

You can create a user-defined portlet.

1. Click **User Interface** > **Portlet Management**.
2. In the **Category** list, select the category and click **Search**.
3. In the Folders view, click any portlet.
4. Click **New**.
5. Do one of the following:
   - In the **Portlet name** field, enter the name of the portlet.
   - To use a PCID, enter the PCID for the label in the **PCID** field.
6. In the **General** tab, do one of the following:
   - In the **URL** field, enter the URL of the content that you want to include in the portlet.

Warning: Do not use URLs that contain a `target="_top"` property. This property opens the link in the top window in Changepoint, which unloads the home page and terminates the session.

- To include a Cognos report or other content, in the **Cognos report** list, select the Cognos report or other content for the portlet.

  The **URL** field displays the URL of the portlet content.

7. To show (or hide) the Cognos toolbar in the Cognos report when displayed in the portlet, select (or clear) the **Display Cognos toolbar** check box.
8. To display the portlet closed by default in the portal, select the **Closed by default** check box.
9. To make the portlet available to all resources, select the **Changepoint-wide** check box.
10. To make the portlet refresh automatically:
    a. Select the **Auto-refresh** check box.
    b. In the **Refresh interval** field, enter the number of minutes after which the portlet is refreshed.
11. To set the portlet as mandatory, select the **Mandatory in personal portals** check box.

    Note: The portlet is made mandatory on new portals only. Existing portals are not affected.
12. In the **Security access** tab, select the roles, features or workgroups that can access the portlet. For more information, see "Controlling access to a portlet" on page 206.
13. Click **Save**.

About controlling access to a portlet

You can control access to portlets as follows:

- system-defined portlets – All resources can access system-defined portlets by default, but you can restrict access to specific workgroups.
- user-defined portlets – Only the resource who creates a user-defined portlet can access it by default. However, you can make a user-defined portlet available to all resources by making it a Changepoint-wide portlet.

- Changepoint-wide portlets – All resources can access these portlets by default, but you can restrict access to specific roles, features, and/or workgroups.

Controlling access to a portlet

1. Click **User Interface** > **Portlet Management**.
2. In the **Category** list, select the category and click **Search**.
3. In the Folders view, select the portlet.
4. To grant access to a user-defined portlet, in the **General** tab, select the **Changepoint-wide** check box.
5. Expand the **Security Access** section.
6. To restrict access to specific roles, in the **Restrict access to the following roles** section, select the roles.
7. To restrict access to specific features, in the **Restrict access to the following features** section, select the features.
8. To restrict access to specific workgroups, in the **Restrict access to the following workgroups** section, select the workgroups.
9. Click **Save**.

Modifying a portlet

1. Click **User Interface** > **Portlet Management**.
2. In the **Category** list, select the category of the portlet, and click **Search**.
3. In the Folders view, select the portlet.
4. To edit the portlet:
   a. Make the necessary changes.
   b. Click **Save**.
5. To delete the portlet:
   a. Click **Delete**.
   b. Click **OK** to confirm.

Exporting a portlet

If a portlet was created in Report Designer, you can export it as an XML file which you can then import into another application. The file has the same format as a Report Designer report.

1. Click **User Interface** > **Portlet Management**.
2. In the **Category** list, select the category of the portlet and click **Search**.
3. In the Folders view, select the portlet.
4. Click **Export portlet**.

Importing a report into a portlet

You can import a report that was created in Report Designer into a portlet.

1. Click **User Interface** > **Portlet Management**.
2. In the **Category** list, select the category of the portlet, and click **Search**.
3. In the Folders view, select the portlet.
4. Click **Import report**.

About portals

Portals appear on the home page in Changepoint, and contain one or more *portlets*. Portals that are created in Changepoint Administration are classified as system-defined. Resources cannot edit system-defined portals, but they can use them as a starting point to create personal portals with different portlets and layouts. There is an option on the resource profile to control whether a resource can create personal portals.

You can make a portal display in the home page of all resources by making it a default portal, or restrict access to a portal to specific resources, roles, and/or workgroups. You can also force resources to use a default portal by setting it as mandatory.

You can set up Cognos content to be displayed in a portal.

Creating a portal

1. Click **User Interface** > **Portal Management**.
2. In the Folders view, select a portal.
3. Click **New**.

4. Do one of the following:
   - In the **Portal name** field, enter a name for the portal.
   - If you have created a PCID for the portal name, enter it in the **PCID** field.
5. To make the portal display in the home page of all resources who have access to it, select the **Default for users** check box.
6. To prevent resources from replacing the portal or removing it from their home page, select the **Mandatory** check box.
7. To display a Cognos report or other content in the portal, select it in the **Cognos item** list.
8. To show (or hide) the Cognos toolbar in the Cognos item when displayed in the portal, select (or clear) the **Display Cognos toolbar** check box.
9. To add portlets:
   a. Expand the **Portlets** section.
   b. Select the check boxes for the portlets.
   c. To display the portlet as closed by default in the portal, select the **Closed by default** check box.
10. Click **Save**.

Restricting access to a portal

By default, portals are available to all resources. However, you can restrict access to a portal to specific resources, global workgroups, workgroups, and/or roles.

1. Click **User Interface** > **Portal Management**.
2. Select the portal.
3. Expand the **Access** section.
4. Select the **Restrict access to the following Changepoint resources** check box.
5. To restrict access to a global workgroup or workgroup:
   a. Expand the **Resources** folder, and then select the check box for the workgroup.
   b. To extend the access rights to all workgroups under the workgroup, select the **Include children** check box.

6. To restrict access to a resource, expand the **Resources** folder, and then select the check box for the resource.
7. To restrict access to a role, expand the **Roles** folder, and then select the check box for the role.
8. Click **Save**.

Modifying a portal

1. Click **User Interface** > **Portal Management**.
2. Select the portal.
3. To edit the portal:
   a. Make the necessary changes.
   b. Click **Save**.
4. To delete the portal:
   a. Click **Delete**.
   b. Click **OK** to confirm.

About prioritizing default portals

The order in which default portals are created determines their priority values. The first default portal is assigned the highest priority value of 1, and additional default portals are assigned incremented priority values that decrease in priority. However, you can change the priority values.

The mandatory default portal with the highest priority automatically appears in the home page of the resources who have access to the portal.

If there are no mandatory default portals, then the default portal with the highest priority automatically appears in the home page of the resources who have access to the portal.

Prioritizing default portals

1. Click **User Interface** > **Portal Management**.
2. In the Folders view, select any portal.
3. Click **Prioritize default portals**.

The **Prioritize Default Portals** dialog box appears.

4. Drag the portals into the order of priority that you want. The highest priority is at the top of the list.
5. Click **Save**.

Configuring the portal layout

By default, the portlets are displayed in a single pane layout, but you can chose another layout from a list of custom layouts that include two to four panes. After you select a new layout, you can move the portlets to the various panes.

1. Click **User Interface** > **Portal Management**.
2. Select the portal.
3. Click **Actions** > **Arrange layout**.

   The **Portal Layout** window appears.

To change the pane layout

1. Click **Custom layout**.

   The **Custom Layout** dialog box appears.
2. Click the desired layout design.
3. Click **Save**.

To rearrange the portlets

Drag the portlets to another position within a pane, or to another pane. An orange outline appears when you point to a position where the portlet can be dropped.

To sort portlets into alphabetical order

Click **Alphabetical**. If the portal includes multiple panes, the portlets are sorted alphabetically in each of the panes.

To resize the panes in a portal

1. Point to the space between the panes until the cursor changes to a double-ended arrow.
2. Drag the arrow to the desired position.

To revert to the default layout

Click **Default layout**.

Setting a default language for the user interface

By default, resources can select which of the supported languages is displayed in the user interface by specifying their language preference in their browsers.

However, you can set up the user interface to display in only one of the supported languages, regardless of the language preference that resources select. The language setting applies to Changepoint, Changepoint Administration, and Report Designer.

Note: For a list of supported languages and browsers, see the *Changepoint Product Architecture and Technology Matrix*.

1. Click **User Interface** > **Language Setup**.
2. In the list of languages, select the language.
3. Click **Save**.

Configuring display options for Changepoint

By default, the create and edit functionality in Changepoint is displayed in tabbed dialog boxes. You can change the dialog boxes of most entities to views that are displayed inline with sections that can be expanded and collapsed. You can also allow resources to override the setting and set their own display preferences.

1. Click **User Interface** > **Display Options**.
2. For each entity type, do one of the following:
   - To display dialog boxes, select **Tabbed**.
   - To display inline views, select **Inline**.
3. To allow users to change the settings in Changepoint, select the **Allow users to override the display options in their Preferences view** check box.
4. Click **Save**.

About setting up links to custom help

You can set up links from entity profiles and dialog boxes to custom documents or online help (custom help) that has been developed by your organization. These links are in addition to the

standard Changepoint online help.

The links are available on:

- Entity profiles:
  - at the top of the profile (entity level)
  - on each section of the profile
- Dialog boxes and inline views for creating/editing entities (edit screens):
  - at the top of the edit screen (entity level)
  - on each dialog box tab or inline view section

To set up the link, you must specify the following:

- URL of the custom help, including the protocol. The supported protocols are: http://, https://, ftp://, mailto://, and file://.
- Tool tip text to be displayed when a resource points to the custom help icon. You can enter text or a PCID if a PCID has been created for the tooltip.

Setting up a link to custom help

1. Click **User Interface** > **Custom Help**.
2. In the row that contains the entity, format type, and section, select the **Configured** check box.
3. To enter the tooltip text, do one of the following:
   - Enter the PCID in the **PCID** field.
   - Enter the text in the **Title** field.
4. In the **URL** field, enter the URL to the custom help.
5. Click **Save**.

Modifying a link to custom help

You can only edit the PCID, tooltip text, or URL of a custom help link. If a link is no longer used, you must disable it.

1. Click **User Interface** > **Custom Help**.

2. Make the necessary changes directly in the cells.
3. To disable a link, clear the **Configured** check box.
4. Click **Save** to confirm.

About adding items to the Actions menu

You can add submenu headers and items to those headers to the **Actions** menu of the profile page of the following entities:

- Campaign
- Competitor
- Contact
- Customer
- Engagement
- Invoice
- Opportunity
- Product
- Project
- Project portfolio
- Request
- Resource requests
- Resources
- Support item

You configure the submenu item to perform some actions such as: open a web page, or specified files or documents in an application. Initially all resources have access to the submenu item but you can restrict access to the submenu item by resources, roles, workgroups, or security features. By default the submenu headers and items appear at the bottom of the **View** section of the **Actions** menu in the order that they are created. You can change the order in which the submenu headers and items appear, but you cannot move them from the bottom of the **Actions** menu.

Adding a submenu header to the Actions menu

1. Click **User Interface** > **Actions Menu Integration**.
2. Select the entity.
3. If the **Reorder Submenu Headers** view appears, click **New submenu** header.
4. Do one of the following:
   - In the **PCID** field, enter the PCID for the submenu header. The string for the PCID appears in the **Name** field.
   - In the **Name** field, enter the name of the submenu header.
5. Click **Save**.

Rearranging the order of submenu headers

By default, the submenu headers appear at the bottom of the **Actions** menu in the order that they were created. You can put them in a specific order or sort them in alphabetical order.

1. Click **User Interface** > **Actions Menu Integration**.
2. Click the entity.

   If at least one submenu header exists for the entity, the **Reorder Submenu Headers** view appears.
3. To specify the order:
   a. In the **Sort by** field, click **Custom**.
   b. In the **Submenu headers** field, drag the submenu headers to the desired position.
   c. Click **Save**.
4. To rearrange the submenu headers in alphabetical order:
   a. In the **Sort by** field, click **Alphabetical**.
   b. Click **Save**.

   Note: The submenu headers are not rearranged in the current view, but are rearranged into alphabetical order in the **Actions** menu.

Editing a submenu header in the Actions menu

You can edit the PCID or name of a submenu header, but you cannot change the entity that it belongs to. You can change the order of the submenu items under a header.

When you delete a submenu header, all of its action items are also deleted.

1. Click **User Interface** > **Actions Menu Integration**.
2. Expand the entity and then select the submenu header.
3. Make the necessary changes.
4. Click **Save**.
5. To delete the submenu header:
   a. Click **Delete**.
   b. Click **OK** to confirm.

Adding a submenu item to a submenu header

1. In Changepoint Administration, click **User Interface** > **Actions Menu Integration**.
2. Expand the entity and then select the submenu header.
3. Click **New submenu item**. For more information, see "Submenu Item view, General options" on page 216.
4. Complete the fields as required.
5. For Intelligent Forms, in the **Parameter** field, you must enter the ID of the form project, which you obtain from the initial view of the form project in Infiniti Manage.
   a. To search for an item, enter the search text and then click **Search**.
   b. To display the tree view, clear the **Show selected items only** check box, ensure that the search field is empty, and then click **Search**.
   c. Select one or more items.
   d. To display the selected items only, select the **Show selected items only** check box, ensure that the search field is empty, and then click **Search**.
   e. To automatically include the sub-items of the selected items, select the **Include children** check box.

6. Click **Save**.

Submenu Item view, General options

Option	Description
PCID field	PCID for the submenu item.
Name field	Name of the submeu item.
URL field	Location of the application or web page.
Parameter field	Parameters for the URL.
Open in new window check box	When selected, the submenu item opens in a separate browser window.

Specifying the URL and parameters for a submenu item

The following entity-based parameters are available:

- Entity ID
- Entity Name
- Resource ID
- Resource Name
- Session ID

The information in the **URL** and **Parameters** fields is concatenated to form the URL for the submenu item. Therefore, no spaces are allowed in either of the fields except in the parameter placeholder names. When using parameters, note the following:

- you must add a question mark (?) to the URL as required by the protocol
- you must use an ampersand (&) to separate the parameters

Example URL:

```
http://www.xyz.xyz?
```

Example parameters:

```
id=885c076d-86ee-4458-9299-d5b754a7b0c8&Gen=true&CPGUID=ÿEntity IDÿ&sno=ÿSession
IDÿ&rid=ÿResource IDÿ&NW=false&portal=1
```

Note: The URL is not validated when you enter it. You must test the URL by accessing the submenu item from the **Actions** menu of the entity.

Rearranging the order of submenu items

By default, the submenu items appear in **Actions** menu under the submenu header in the order that they were created. You can put them in a specific order or sort them in alphabetical order.

1. Click **User Interface** > **Actions Menu Integration**.
2. Expand the entity, and then select the submenu header.
3. To specify the order of submenu items:
   a. In the **Sort by** field, click **Custom**.
   b. In the **Submenu item** field, drag the submenu items to the desired position.
   c. Click **Save**.
4. To rearrange the submenu items in alphabetical order:
   a. In the **Sort by** field, click **Alphabetical**.
   b. Click **Save**.

Editing a submenu item in the Actions menu

1. Click **User Interface** > **Actions Menu Integration**.
2. Expand the entity and submenu header, and then select the submenu item.
3. Make the necessary changes.
4. Click **Save**.
5. To delete the actions item:
   a. Click **Delete**.
   b. Click **OK** to confirm.

7. Time and Expenses

Specifying when time records become actual time

You can specify when time records are considered to be actual time in availability calculations and reports. The options are:

- when time is entered in the time sheet
- when time is submitted for approval
- when time has been approved

You can change the setting either before any time records have been entered, or after all existing time records have been approved.

1. Click **Time and Expenses > Time Control**.
2. From the **Actual time options**, select one of the options.
3. Click **Save**.

About restricting time for projects

You can restrict resources to entering time only when the time entry complies with one or both of the following conditions:

- date of the time entry is within the planned start and planned finish dates of the project, task or task assignment
- total amount of time entered for the task or task assignment is within the total planned effort of the project, task or task assignment

You can set default settings for the time entry restrictions on the following entities:

- billing offices – for projects for the billing office engagements
- projects – for the tasks and task assignments for the project
- tasks – for the task assignments for the task

The default settings are automatically applied to new entities, but can be overridden on individual projects, tasks, and task assignments. The options selected on task assignments take priority over task settings, which take priority over the project settings.

About setting or changing time entry restrictions when there are existing projects

The time entry restriction settings are not automatically applied to projects, tasks, and task assignments that exist when you enable or change the settings. Therefore you must manually apply the settings to existing entities as follows:

- To restrict time entries based on project planned data, enable the setting on each project.
- To restrict time entries based on task planned data, enable the setting on each task.
- To restrict time entries based on task assignment planned data, enable the setting on each task assignment.

You must first enable time entry restrictions in **Time and Expenses > Time Control** and then specify the settings on the entities.

Enabling time entry restrictions

1. In Changepoint Administration, click **Time and Expenses > Time Control**.
2. Select the **Enable time entry restrictions** check box.
3. Click **Save**.

You set the default options for these settings on billing offices for all projects for the engagements of the billing office.

About non-project time

You can create non-project time items for tracking time that is not related to requests or project tasks, such as vacation, legal holidays, sick leave, administrative tasks, and training.

You can create non-project time items that are available to all resources (system level), or to the resources in a specific global workgroup, or workgroup.

You can specify if the non-project time is included in personal vacation time or resource utilization. You can also specify a specific time approver for the non-project time item, which overrides the resources' time approvers. In this case, you must also specify a resource to approve the time of the time approver.

Creating a non-project time item

1. Click **Time and Expenses > Non-Project Time**.
2. In the Folders view, do one of the following:

- Select **System.**
- Select the global workgroup or workgroup that contains the non-project time item.

3. Right-click in the table, and then select **Insert**.
4. Complete the fields as required. For more information, see "Non-Project Time section options" on page 221.
5. Click **Save**.

Non-Project Time section options

Option	Description
Non-project time field	Name of the item.
Description field	Description of the item.
Non-project date field	Specific date that resources are restricted to enter time on for the item.
Personal vacation check box	When selected, the item is counted as personal vacation time and is included in the **Personal Vacation Time** report.
Utilization eligible check box	When selected, the time for this item is included in resource utilization. For example, work-related training.
Include children check box	When selected, resources that belong to subworkgroups of the selected workgroup can enter time.
Enable second level approval check box	When selected, the usual time approvers for resources do not approve time records for the time item. Instead, all time records for the time item must be approved by the resources specified in the **Time approver** field and **Secondary approver** field.
Time approver type-ahead field	Resource who approves the time records for the item.
Secondary approver type-ahead field	Resource who approves the time records for the item for the resource specified in the **Time approver** field.

Modifying a non-project time item

If you delete a non-project time item, it is no longer available in the time sheet, but existing time records are not affected.

1. Click **Time and Expenses** > **Non-Project Time**.
2. In the Folders view, do one of the following:
   - Select **System.**
   - Select the global workgroup or workgroup that contains the non-project time item.
3. To edit the non-project time item:
   a. Make the necessary changes. For more information, see "Non-Project Time section options" on page 221.
   b. Click **Save**.
4. To delete the non-project time item:
   a. Right-click the item row, and then select **Delete**.
   b. Click **OK** to confirm.
   c. Click. **Save**.

About setting up expenses

You set up expenses by completing the following steps:

1. Create the general categories for expenses, for example, meals, travel, and telephone. For more information, see "Creating an expense category" on page 222.
2. Add GL account codes to each expense category. For more information, see "Adding GL account codes to an expense category" on page 223.
3. Within each category, create the types of expenses. For example, within the "Automobile" category, you could create types for "Mileage" and "Car rentals". For more information, see "Creating an expense type" on page 224.

Creating an expense category

1. Click **Time and Expenses** > **Expenses**.
2. In the Folders view, click any **Expenses** folder.

3. Click **New**.
4. Complete the fields as required. For more information, see "Expense Category view, General section options" on page 223.
5. Click **Save**.
6. Add GL account codes to the expense category. For more information, see "Adding GL account codes to an expense category" on page 223.

Expense Category view, General section options

Option	Description
Expense category field	Name of the expense category.
Description field	Description of the expense category.
Reimbursable check box	When selected, expenses are reimbursable.
Segment 1 of revenue recognition GL debit account list	Default debit GL account code to use when recognizing revenue
Segment 1 of revenue recognition GL credit account list	Default credit GL account code to use when recognizing revenue.
Budget burden rate field	Total percentage for the default burden rate for budget expense items. For example, to add 18%, enter 118.
Allow override check box	When selected, resources can change the default burden rate on budget expense items.

Adding GL account codes to an expense category

You can associate GL accounts with specific workgroups for both billable and unbillable expenses.

When setting up an engagement, resources can choose to have engagement expenses associated with the expense GL account of the workgroup associated with the engagement manager, project manager, or resource.

The expense GL account is displayed on expense reports, and can be used to export expense information for use in third-party accounting applications.

1. Click **Time and Expenses** > **Expenses**.
2. In the Folders view, click the expense category.
3. Click **GL accounts**.
4. Right-click in the **GL Accounts** table, and then select **Insert**.
5. In the **Workgroup** cell, select the workgroup to associate with the GL account codes.
6. In the **Billable** cell, select the GL account code associated with billable expenses for the workgroup.
7. In the **Unbillable** cell, select the GL account code associated with unbillable expenses for the workgroup.
8. Click **Save**.

Modifying an expense category

1. Click **Time and Expenses** > **Expenses**.
2. In the Folders view, click the expense category.
3. To edit the expense category:
   a. Make the necessary changes.
   b. Click **Save**.
4. To delete the expense category:
   a. Click **Delete**.
   b. Click **OK** to confirm.

Creating an expense type

You can further classify expenses by creating expense types within expense categories. You can specify expense limits that are applied to expenses of the same type on an expense report.

For each expense type, you can configure whether attachments are mandatory, based on a threshold amount.

1. Click **Time and Expenses** > **Expenses**.
2. In the Folders view, click the expense category for the new expense type.
3. Click **New expense type**.
4. Complete the fields as required. For more information, see "Expense type view, General section options" on page 225.
5. Click **Save**.

Expense type view, General section options

Option	Description
Expense category list	Category of the expense type.
Expense type field	Name of the expense type.
Default currency list	Default currency. If you do not select a default currency, the resource's base currency is used.
Enable currency check box	When selected, resources can change the currency.
Default quantity field	Default quantity.
Fixed quantity check box	When selected, prevents resources from changing the default quantity. For example, an expense type for car rentals typically have a fixed value of "1".
Default unit cost field	Default unit cost. For example, a standard amount per mile or kilometer for car mileage.
Fixed unit cost check box	When selected, prevents resources from changing the default unit cost.

Option	Description
Expense limit list	Limit type. The options are: • **Average daily limit** – The total amount for all line items in the expense report, divided by the number of days that the expenses were incurred on. • **Daily limit** – The total amount for all line items in the expense report for one day. • **Per line limit** – The line item total. • **Per report limit** – The total amount for all line items in the expense report for that expense type. • **Per unit limit** – The unit price entered for the line item.
Maximum amount field	Limit amount. If no amount is specified, there is no limit on the amount.
When the expense limit has been reached field	Determines what happens when an expense report is submitted that contains an expense that exceeds the limit: • warn the resource, but allow the expense to be submitted. The expense report is flagged to indicate that the expense limit has been reached. • reject the expense report
Attachment threshold field	When an expense for the expense type exceeds the value in this field, an attachment is mandatory.
Attachment threshold currency list	Currency of the attachment threshold amount.
Attachment required check box	When selected, attachments are mandatory for the request type.

Modifying an expense type

1. Click **Time and Expenses** > **Expenses**.
2. In the Folders view, expand the expense category.
3. Click the expense type.
4. To edit the expense type:
   a. Make the necessary changes.

   b. Click **Save**.

5. To delete the expense type:

   a. Click **Delete**.

   b. Click **OK** to confirm.

Enabling expense attachments

You can allow resources to add attachments to expense items and/or expense reports.

1. Click **Time and Expenses** > **Expense Attachments**.
2. To enable attachments on expense items, select the **Expenses** check box.
3. To enable attachments on expense reports, select the **Expense reports** check box.
4. Click **Save**.

About creating expense advances

You can create expense advances for expenses. The advances directly integrate with the resource's expense reports for approvals and workflow.

If the advance amount is higher than the incurred expense, the resource can return the difference. If the advance amount is less than the incurred expense, the finance department reimburses the difference to the resource. After you save an advance, you can only either edit the comments, or delete the advance.

Creating an expense advance

1. Click **Time and Expenses** > **Expense Advances**.

   The **Expense Advances** view appears.

2. Right-click in the table, and then select **Insert**.
3. In the **Resource** list, select a resource.
4. In the **Date** field, select the date of the advance.
5. In the **Currency** field, select the currency of the advance.
6. In the **Amount** field, enter the advance amount.
7. Click **Save**.

Viewing expense advances

You can view all of the expense advances that are currently issued for all resources.

1. Click **Time and Expenses > Expense Advances**.

   The **Expense Advances** view appears.

Editing an expense advance

You can edit the comment for an advance, or delete an advance provided that it has not been added to an expense report.

1. Click **Time and Expenses > Expense Advances**.

   The **Expense Advances** view appears.

2. Edit the comment directly in the cell.

3. To delete an advance:

   a. Right-click the row, and then select **Delete**.

   b. Click **OK** to confirm.

4. Click **Save**.

8. Knowledge Management

About knowledge management

Resources can store and share information by saving files or links to repositories as knowledge items. Knowledge items are grouped into knowledge categories and subcategories.

You can set up check-in and checkout controls and/or legal disclaimers on the category that apply to its knowledge items. You can also restrict access to knowledge item attachments by setting up the knowledge item approval workflow.

Configuring a legal disclaimer for knowledge items

You can configure a legal disclaimer so that resources have the option in Changepoint to enable a legal disclaimer on individual knowledge items.

1. Click **Knowledge > Legal Disclaimer**.
2. Select the **Enable legal disclaimer** check box.
3. In the **Legal disclaimer text** field, enter the message to be displayed.
4. Click **Save**.

About knowledge categories

Knowledge categories and subcategories allow resources to group knowledge items of the same type and therefore facilitate searches in the knowledge database. You can define an unlimited number of knowledge categories and subcategories.

For each knowledge category, you can do the following:

- Enable version control – You can enable version control for a knowledge category. Each time that a knowledge item in the category is updated, a new version of a knowledge item is saved.
- Limit the number of versions that are kept – By default, there is no limit to the number of versions of knowledge items that are stored, but you can set a limit.
- Enable check-in and checkout controls – you can enable controls that ensure that only one resource at a time can edit the knowledge item.
- Create subcategories – the settings for a parent category apply to the knowledge items in the subcategories.

Creating a knowledge category

1. Click **Knowledge** > **Knowledge Categories**.
2. In the Folders view, select an existing category.
3. Click **New**.
4. In the **Category** field, enter the name of the category.
5. To enable version control:
   a. Select the **Enable version control** check box.
   b. In the **Number of versions retained** field, enter the number of knowledge item versions you want to keep. The default value for this field is 0, which means that there is no limit.
6. To enable check-in/checkout control, select the **Enable check-in/checkout controls** check box.

Modifying a knowledge category

1. Click **Knowledge Management** > **Knowledge Categories**.
2. Select the knowledge category.
3. To edit the knowledge category:
   a. Make the necessary changes.
   b. Click **Save**.
4. To delete the knowledge category:
   a. Click **Delete**.
   b. Click **OK** to confirm.

Creating a knowledge subcategory

1. Click **Knowledge** > **Knowledge Categories**.
2. Select the knowledge category.
3. In the **Subcategories** table, right-click and then select **Insert**.
4. In the **Subcategory** cell, enter the name of the subcategory.

5. Click **Save**.

Modifying a knowledge subcategory

1. Click **Knowledge** > **Knowledge Categories**.
2. Select the knowledge category.
3. To edit a knowledge subcategory, make the necessary changes.
4. To delete a knowledge subcategory:
   a. Right-click the subcategory row, and then select **Delete**.
   b. Click **OK** to confirm.
5. Click **Save**.

About knowledge subscriptions

Knowledge subscriptions are groups of knowledge categories and subcategories and roles that control access to knowledge items. Resources who have the roles specified for a subscription automatically have access to, and can create and post knowledge items in, the knowledge categories and subcategories that are specified in the subscription.

If you do not set up subscriptions, then all resources can post knowledge items and access all knowledge items in Changepoint.

Changepoint is shipped with one default subscription that is accessible to all resources.

Configuring a knowledge subscription

1. Click **Knowledge** > **Knowledge Subscriptions**.
2. In the Folders view, select any existing subscription.
3. Click **New**.
4. In the **Subscription** field, enter a name for the subscription.
5. In the **Description** field, enter a description for the subscription.
6. In the **Knowledge categories included in the subscription** list box, expand the categories and select the subcategories.

7. In the **Roles required to automatically receive this subscription** section, select the roles.
8. Click **Save**.

Modifying a knowledge subscription

1. Click **Knowledge** > **Knowledge Subscriptions**.
2. Select the knowledge subscription.
3. To edit the knowledge subscription, make the necessary changes, and then click **Save**.
4. To delete the knowledge subscription, click **Delete**.

About approval workflow for accessing knowledge item attachments

You can set up a restrictions so that resources must request approval before they can download a knowledge item attachment. You must enable the restrictions and then specify the approvers (participants). Participants can be resources, system-defined participants (creator of the knowledge item) or roles.

You can set up any number of participants for the workflow, and specify the order in which approvals are sent to participants.

When all participants have approved the request, a notification appears in the **My Reminders** portlet of the resource, who can then download the attachment from there. If an access request is rejected, the workflow is stopped, and a notification appears in the **My Reminders** portlet of the resource.

Setting up the approval workflow for knowledge item attachments

You can set up an approval workflow for resources to access knowledge items attachments. You must specify the participants in the workflow, and the order in which the approval request is sent to the participants.

1. Click **Knowledge** > **Knowledge Item Workflow**.
2. Select the **Restrict access to knowledge item attachments** check box.
3. Right-click in the table, and then select **Insert**.

4. In the **Participant** type-ahead field, select the resource, system-defined participant, or role that will approve the access to the knowledge item attachment.
5. In the **Dependent** column, specify the number that represents the order in the approval workflow for the participant.
6. Click **Save**.

Modifying the approval workflow for knowledge items

1. Click **Knowledge** > **Knowledge Item Workflow**.
2. To edit a participant, make the necessary changes in the table cells.
3. To delete a participant:
   a. Right-click the row, and then select **Delete row**.
   b. Click **OK** to confirm.
4. Click **Save**.

Configuring team folders

You can do the following with team folders:

- change the team leader to any resource who is a team member of the team folder
- close a team folder, so that it cannot be accessed in Changepoint
- reopen a closed team folder

1. Click **Knowledge** > **Team Folders**.
2. To change the team leader, select a new team leader in the **Team leader** list.
3. To close a team folder, select the **Closed** check box.
4. To reopen a closed team folder, clear the **Closed** check box.
5. Click **Save**.

9. Opportunity Management

About sales methodology

You can configure the statuses of opportunities in your organization's sales cycle. For each opportunity status, you configure the probability (as a percentage) of winning the opportunity when it reaches the status. The win probability increases as the opportunity advances in the sales cycle.

If opportunity workflow is enabled, the statuses that are available in the opportunity sales cycle are determined by the workflow definitions. If workflow is not enabled, all of the statuses are available in the opportunity sales cycle.

Creating an opportunity status

1. Click **User Interface** > **Sales Methodology**.
2. Right-click in the table, and then select **Insert**.
3. In the **Opportunity status** field, enter the status.

   Tip: To make the status list appear in the order of the opportunity sales cycle, enter a prefix before the status name (for example, A-, B-, C-, or 1., 2., 3.).
4. To automatically update the probability value when an opportunity reaches the status, select the **Update probability** check box.
5. To allow resources to change the probability value, select the **Override allowed** check box.
6. In the **Probability (%)** field, enter the percentage of the probability of the opportunity being won when it reaches the status.
7. Click **Save**.

Modifying an opportunity status

1. Click **User Interface** > **Sales Methodology**.
2. To edit a status:
   a. Make the necessary changes.
   b. Click **Save**.
3. To delete a status:

a. Right-click the row, and then select **Delete**.

b. Click **OK** to confirm.

10. Request Management

About request management

The Changepoint request management functionality allows your organization to effectively track, route and manage various requests submitted by external contacts or internal staff. Use request types, request categories, approval workflow, and assignment queues to route requests to resources for action and resolution.

Resources who work on a request can enter time against the request, and the request time can then be billed to the customer for whom the request was initiated.

To set up the request management process:

1. Create the required support desks. For more information, see "Creating a support desk" on page 238.
2. Create additional request types, if required. For more information, see "Creating a request type" on page 242.
3. Create the request categories and subcategories for the request types. For more information, see the "Creating a request category or subcategory" section on page 245.
4. Create the request priorities. Request priorities are defined in the **Configurable Field Values** view where you can create drop-down list values for the **Request priority** code type of the **Request lookups** category. For more information, see "Creating drop-down list values for configurable code fields" on page 182.
5. Configure the queues and request routing criteria for support desks. For more information, see the "Creating a request queue" section on page 247.
6. Create configurable fields for requests if required. For more information, see "About configurable fields" on page 168.
7. Configure additional user interface fields for requests if required. For more information, see "Setting up the display of additional information on the Request dialog box" on page 250.
8. Configure request workflows. For more information, see "About workflow management" on page 391.

About support desks

Requests are organized and tracked through support desks. When you create a support desk, you can set up the following:

- Select the support desk manager who is responsible for support items, the escalation of requests, and request approvals depending on how the request workflow is configured. Support desk managers can view all requests in the **Open Requests** tree view in Changepoint.
- Specify a grace period for customers for when support is provided beyond the time limit specified in the engagement service level agreement (SLA) in Changepoint.
- Set up the billing increments in minutes that will be billed to a customer, even if the entire period of time has not been used.
- Enable a warning message that displays when the resource who is assigned to a request is not available. The warning summarizes the total time of the resource's appointments and task assignments entered in the resource's calendar for the current day.
- Set up the numbering scheme for requests created under a support desk. For more information on request numbering, see "Setting up the request numbering scheme" on page 239.
- Restrict view and/or edit access to requests created under a support desk. For more information, see "Restricting access to support desk requests" on page 239.

Creating a support desk

1. Click **Requests** > **Support Desks**.
2. In the Folders view, select any support desk.
3. Click **New**.
4. In the **Support desk** field, enter the name of the support desk.
5. In the **Support desk manager** list, select the resource who is responsible for managing the support desk.
6. In the **Grace period** field, enter the number of minutes of free support time that is given to the customer if the provided support continues beyond the time limit specified in the engagement SLA.

7. In the **Minimum increment** field, enter the minimum number of minutes that is billed to the customer, even if the entire amount of time has not been used.
8. To display a warning message when the resource who is assigned to a request is not available, select the **Display warnings about the availability of resources when assigning requests** check box.
9. Configure the request numbering scheme. For more information, see "Setting up the request numbering scheme" on page 239.
10. Set up the security access for the support desk. For more information, see "Restricting access to support desk requests" on page 239.
11. Click **Save**.

Setting up the request numbering scheme

When a request is created, it is assigned a number that is unique to the support desk. You can define the numbering format for requests, or you can use custom stored procedures for request numbering.

1. Click **Requests** > **Support Desks**.
2. In the Folders view, select the support desk.
3. Expand the **Request numbering** section.
4. Select one of the following options:
   - To create a numbering scheme, select the **Use numbering scheme** option and enter the appropriate information in the numbering scheme section. For more information, see "Numbering scheme options" on page 310.
   - To use a custom stored procedure, select the **Use custom stored procedure** option and select the appropriate stored procedure in the **Auto-numbering stored procedure** list. For more information, see "Requirements for auto-numbering stored procedures" on page 308.
5. Click **Save**.

Restricting access to support desk requests

By default, all resources have view and edit access to a support desk request. However, you can restrict view and edit access to specific resources, roles, and/or workgroups.

1. Click **Requests** > **Support Desks**.
2. In the Folders view, select the support desk
3. Expand the **Security access** section.
4. To restrict view access:
   a. Select the **Restrict view access to the following resources** check box.
   b. To select resources, expand the **Resources** folder and select the global workgroup, workgroups and/or resources who will have view access.
   c. To select roles, expand the **Roles** folder and select the roles who will have view access.
   d. To extend access rights to the workgroups under the selected workgroup, select the **Include children** check box.
5. To restrict edit access:
   a. Select the **Restrict edit access to the following resources** check box.
   b. To select resources, expand the **Resources** folder and select the global workgroup, workgroups and/or resources who will have edit access.
   c. To select roles, expand the **Roles** folder and select the roles who will have edit access.
   d. To extend access rights to the workgroups under the selected workgroup, select the **Include children** check box.
6. Click **Save**.

Restricting both view and edit access to support desk requests

When you restrict edit access to resources and workgroups, any view access restrictions that you may have set are automatically removed. Similarly, when you restrict edit access to roles, all view access restrictions for roles are removed. The result is that all resources by default still have view access.

To restrict both edit and view access to the same resources and workgroups, you can use this workaround.

1. Create a dummy role without any features assigned to it.
2. Restrict edit access to the resources and workgroups.

3. Restrict view access to the dummy role, which effectively prevents all resources with view access only from accessing the support desk requests. The result is that only the resources who have edit access can view the support desk.

Modifying a support desk

1. Click **Requests** > **Support Desks**.
2. In the Folders view, select the support desk.
3. To edit the support desk:
   a. Make the necessary changes.
   b. Click **Save**.
4. To delete the support desk:
   a. Click **Delete**.
   b. Click **OK** to confirm.

About the standard request types

Request types are used to identify the different kinds of requests that can be created and processed in Changepoint. Changepoint is installed with a standard set of request types but you can create additional request types.

Request type	Description
Bug report	Problem or defect found in a product. Example: • Error message in an application • Application failure
Change request	Change to a product, a project, a process, a resource assignment, and so on. Example: • Upgrade to new release • Increase security access to a shared application
Feature request	New feature or enhancement for an existing product, for example to improve software or hardware functionality.

Request type	Description
Support request	Request for support. Example: • Set up access rights for a new employee • Increase space on a network location
Work request	Request to initiate new work. Example: Create a custom application

Creating a request type

1. Click **Requests** > **Request Types**.
2. In the Folders view, click a request type.
3. Click **New**.
4. Expand the **General** section.
5. In the **Unique identifier** field, enter a unique identifier (maximum of three alphanumeric characters) for the request type.
6. In the **Description** field, enter the name of the request type.
7. To allow Client Portal users to create requests of this type in Client Portal, select the **Allow Client Portal users to create requests** check box.
8. To display the **Resource demand information** tab in the **Request** dialog box for this request type and allow users to include the request effort in the capacity calculations in resource demand scenarios, select the **Enable resource demand information** check box.
9. To force users to add at least one entry in the **Resource demand information** tab in the **Request** dialog box for this request type, select the **Resource demand information is mandatory** check box.
10. To enable time entry in the time sheet in Changepoint for the requests, complete the **Time control** section. For more information, see "About restricting time entry for request types" on page 243.
11. To restrict edit access to the requests, complete the **Security access** section. For more information, see the "Restricting edit access to a request type" section on page 244.
12. Click **Save**.

About restricting time entry for request types

When you create a new request type, by default all resources can enter time that they worked on a request of the request type in the time sheet.

You can restrict time entry for the request type to specific statuses. You can further restrict time entry to a combination of one or more request statuses, and workgroups, resources, and/or roles. If you select such a combination, a resource will be able to enter time for the request type if any of the following conditions is true:

- resource is a member of a selected workgroup
- resource is selected
- resource has a role that is selected

Restricting time entry for request statuses

You can restrict time entry for a request type to specific request statuses.

1. Click **Requests** > **Request Types**.
2. In the Folders view, select the request type.
3. Expand the **Time control** section.
4. To restrict time entry to requests with specific statuses:
   a. Select the **Restrict time entry to the following statuses** check box.
   b. Select the request statuses.
5. To allow time entry for all request statuses, clear the **Restrict time entry to the following statuses** check box.
6. Click **Save**.

Restricting time entry for request types to specific resources or roles

You can restrict time entry for a request type for all statuses or o specific resources or roles.

1. Click **Requests** > **Request Types**.
2. In the Folders view, select the request type.
3. Expand the **Time control** section.

To restrict time entry for a selected request status to workgroups, resources or roles

1. Select the **Restrict time entry to the following statuses** check box and request statuses.
2. Click the name of a request status to highlight it.
3. In the **Restrict time entry to the following resources and roles** section, select the **For the selected request status** option.
4. To select workgroups or resources, expand the **Resources** folder, and then select the workgroups and/or resources.
5. To select roles, expand the **Roles** folder, and then select the roles.
6. To include all workgroups under the selected workgroups, select the **Include children** check box.
7. Click **Save**.

To restrict time entry for all request statuses to resources or roles

1. In the **Restrict time entry to the following resources and roles** section, select the **For all request statuses** option.
2. To select workgroups or resources, expand the **Resources** folder, and then select the workgroups and/or resources.
3. To select roles, expand the **Roles** folder, and then select the roles.
4. To include all workgroups under the selected workgroups, select the **Include children** check box.
5. Click **Save**.

Restricting edit access to a request type

By default, before any restrictions are applied to a request type, all resources have full access. However, you can restrict edit access to specific resources, roles, and/or workgroups.

1. Click **Requests** > **Request Types**.
2. In the Folders view, select the request type.
3. Expand the **Security access** section.
4. Select the **Restrict edit access to the following resources** check box.

5. To select resources that are allowed to create or edit requests of this type, expand the **Resources** folder and select the global workgroup, workgroups and/or resources.
6. To select roles that are allowed to create or edit requests of this type, expand the **Roles** folder and select the roles.
7. To extend the access rights to all workgroups under the selected workgroups, select the **Include children** check box.
8. Click **Save**.

Modifying a request type

If you disable time entry for a request type after a resource has already entered time, the resource can edit and submit the existing time record, but they cannot enter a new time record. The controlling factor is the status of the request at the time of the entry and not the status of the request for the date entered.

When you delete a request type, existing requests in Changepoint are not affected.

1. Click **Requests** > **Request Types**.
2. In the Folders view, select the request type.
3. To edit the request type:
   a. Make the necessary changes.
   b. Click **Save**.
4. To delete the request type:
   a. Click **Delete**.
   b. Click **OK** to confirm.

Creating a request category or subcategory

Request categories and subcategories are used with the request type to automatically assign approved requests to specific queues or resources for action or resolution. For each request type, you can define an unlimited number of request categories and subcategories. Request categories and subcategories appear on the request dialog boxes and can be used as routing criteria to ensure that requests are assigned to appropriate queues and resources.

1. Click **Requests** > **Request Categories**.

2. In the Folders view, select the request type.
3. In the **Category** field, enter the name of the category.
4. To create a request subcategory:
   a. In the **Subcategories** table, right-click, and then select **Insert**.
   b. In the **Subcategory** column, enter the name of the subcategory.
5. Click **Save**.

Modifying a request category or subcategory

When you delete a request category, all subcategories of the category are also deleted.

1. Click **Requests** > **Request Categories**.
2. In the Folders view, select the request category.
3. To rename the category:
   a. In the **Category** field, enter the new name.
   b. Click **Save**.
4. To delete the category:
   a. Click **Delete**.
   b. Click **OK** to confirm.
5. To rename a subcategory:
   a. In the **Subcategory** field, enter the new name.
   b. Click **Save**.
6. To delete a subcategory:
   a. Right-click the subcategory, and then select **Delete**.
   b. Click **OK** to confirm.

About request queues

You can create request queues for a request type, and then set up routing criteria to determine which requests are sent to the various queues. The routing criteria is based on one or more of

the following criteria:

- Initiator
- Product
- Product category
- Request category
- Request priority
- Support desk

In order for requests to be routed to request queues, the following is also required:

- The `Auto Dispatch Request to Queues` scheduled job that routes requests to queues must be configured. For more information, see the *Changepoint Installation Guide*.
- The request workflow process must be completed, and the request cannot have a request status of: **Closed**, **Canceled**, or **Rejected**.

By default, all resources who have view access to requests also have access to request queues. However, you can restrict access to a request queue to specific resources or by workgroups.

Setting the priority for request queues

You can set the order of priority when there are multiple request queues for a request type. Requests are sent to the first request queue in the list whose criteria matches the information in the request. Therefore, ensure that you set the order so that the queue with the most specific criteria is at the top of the list and the queue with the least specific criteria (the default queue) is at the bottom.

Creating a request queue

1. Click **Requests** > **Request Queues**.
2. Select the request type.
3. In the **Queue name** field, enter the name of the queue.
4. Click **Save**.
5. If there are multiple queues in the **Priority** list, do the following:
    - To move a queue higher in the priority order, select the queue and click **Move Up**.

- To move a queue lower in the priority order, select the queue and click **Move Down**.

6. To define routing criteria, do the following:
   a. Expand the **Criteria** section.
   a. Right-click in the table, and then select **Insert**.
   b. In the Criteria list, select the criteria.
   c. In the **Value** list, select the value for the criteria.
7. Click **Save**.

Modifying a request queue

1. Click **Requests** > **Request Queues**.
2. Expand the request type and then select the request queue.
3. To edit the request queue:
   a. Make the necessary changes.
   b. Click **Save**.
4. To delete the request queue:
   a. Click **Delete**.
   b. Click **OK** to confirm.

Restricting access to a request queue

You can restrict access to the requests in a queue to specific resources or all of the resources in a workgroup.

Note: Resources who have the access to manage support desks can access all queues even if access is restricted.

1. Click **Requests** > **Request Queues**.
2. Expand the request type and then select the request queue.
3. Expand the **Security access** section.
4. Select the **Restrict access to the following resources** check box.
5. To select a resource:

a. To search for an item, enter the search text and then click **Search**.

b. To display the tree view, clear the **Show selected items only** check box, ensure that the search field is empty, and then click **Search**.

c. Select one or more items.

d. To display the selected items only, select the **Show selected items only** check box, ensure that the search field is empty, and then click **Search**.

6. To select all of the resources in a workgroup:

   a. Display the tree view.

   b. Expand the workgroup.

   c. Right-click the workgroup, and then select **Select all below**. The workgroup resources that are displayed are automatically selected.

7. Click **Save**.

Restricting access to project requests

You can set up a system-level restriction so that only the resources that have been granted access to a project can view the requests for the project. However, this restriction can be overridden on individual projects as required by the project managers.

1. Click **Requests** > **Project Request Access**.
2. Select the **Restrict view access for project requests** check box.
3. Click **Save**.

About displaying additional information on the Request dialog box

You can specify additional fields to be displayed on the request dialog box. These fields are for information only and cannot be edited.

When you specify additional fields, an icon appears in the top right corner of the request dialog box and the fields are displayed when the icon is clicked.

The additional fields can pertain to various entities selected on the request. For example, you can set up an informational field that displays the office phone number of the resource assigned to the request. The fields reflect the current data entered.

You can specify additional fields to be displayed on all requests types or to specific request types only.

Note: Additional fields are not available to Client Portal users.

Setting up the display of additional information on the Request dialog box

You can select the additional fields to be displayed on the **Request** dialog box and configure the order they are displayed.

1. Click **Requests** > **Additional UI Fields**.
2. In the Folders view, click a request type or click **All request types**.
3. In the **Available fields** list, expand the entity folder.
4. To include a field, select its check box.
5. To change the display order of the selected fields:
   a. Select the **Show selected items only** check box.
   b. Select the field.
   c. Click the up or down arrows to move the field to a new position.
6. Click **Save**.

About assets

You can create a repository of your organization's assets that can be referenced in a request, if required. To configure assets, do the following:

1. Create asset types. For example, monitors.
2. Create asset type options. For example, the size of the monitors.
3. Create values for the asset options. For example, 19 inches and 23 inches for the monitor size.

Creating an asset type

1. Click **Requests** > **Asset Types**.
2. In the Folders view, select an asset type.
3. Click **New**.

4. In the **Asset type** field, enter the name of the asset.
5. To assign asset options to the asset type, see "Assigning an option to an asset type" on page 252.
6. Click **Save**.

Modifying an asset type

1. Click **Requests** > **Asset Types**.
2. Select the asset type.
3. To edit the asset type, make the necessary changes and click **Save**.
4. To delete the asset type:
   a. Click **Delete**.
   b. Click **OK** to confirm.

Creating an asset option

You can define asset options that display as either text fields or drop-down lists in the **Asset** dialog box in Changepoint.

1. Click **Requests** > **Asset Options**.
2. Right-click in the table, and then select **Insert**.
3. In the **Asset option** column, enter a name for the asset option.
4. In the **Type** column, do one of the following:
   - To display the field as a text field, select **Text field**.
   - To display the field as a drop-down list, select **Lookup list**. For more information about lookup values, see "Creating an asset option lookup" on page 252.
5. Click **Save**.

Modifying an asset option

You cannot delete an asset option that is assigned to an asset type. To delete an option that is assigned to an asset type, you must first unassign it from the asset type. For more information, see "Assigning an option to an asset type" on page 252.

1. Click **Requests** > **Asset Options**.

2. Make the necessary changes directly in the table cells.
3. To delete an asset option:
   a. Select the row.
   b. Right-click and select **Delete**.
4. Click **Save**.

Assigning an option to an asset type

1. Create an asset option.
2. Click **Requests** > **Asset Types**.
3. In the Folders view, select the asset type.
4. Do one of the following:
   - To assign an asset option to the asset type, select the option in the **Available asset options** list and click the up arrow that is above the list.
   - To unassign an asset option, select the option in the **Assigned asset options** list and click the down arrow that is below the list.
5. To define the sort order of the asset options:
   a. Select the option in the **Available asset options** list.
   b. Click the up or down arrows to move the option to the desired position.
6. To make the asset option field mandatory in Changepoint, select the **Force users to specify a value for this asset type option** check box.
7. Click **Save**.

Creating an asset option lookup

If you created asset options that display as drop-down lists in Changepoint, you must define the values that will be available for selection in the drop-down list. You can define as many lookup values as required for the asset option.

1. Click **Requests** > **Asset Option Lookups**.
2. In the **Asset option** list, select the asset option.
3. Right-click in the table, and then select **Insert**.

4. In the **Lookup code** field, enter a unique identifier (up to three alphanumeric characters) for the asset option lookup.
5. In the **Description** field, enter a description.
6. Click **Save**.

Modifying an asset option lookup

After an asset option lookup is saved, you can edit only its description. To edit the lookup code, you must first delete the asset option lookup and then create a new one with the correct code.

1. Click **Requests > Asset Option Lookups**.
2. In the **Asset option** list, select the asset option.
3. Make the necessary changes directly in the table cells.
4. To delete an asset option lookup:
   a. Select the row.
   b. Right-click and select **Delete**.
5. Click **Save**.

11. Reporting

About configuring reports

You can configure standard Changepoint reports and custom Report Designer reports as follows:

- organize reports within standard categories or create new report categories
- add custom ASP reports
- export and import Report Designer reports
- grant access to reports to specific roles or resources

There are two basic types of reports:

- ASP reports - include standard Changepoint reports and revenue recognition reports, and custom ASP reports
- Report Designer reports – include custom reports created in Report Designer.

For information about configuring Cognos reports, see "About configuring Cognos reports in Changepoint Administration" on page 256.

Changing the category of a report

1. Click **Reporting** > **Report Setup**.
2. In the Folders view, expand the **Standard reports** report type and the report category.
3. Select the report.
4. In the **Category** list, select the report category.
5. Click **Save**.

Creating a report category

You can create report categories to group reports, for example reports that have similar data or that are related to a specific entity.

1. Click **Reporting** > **Report Setup**.
2. In the Folders view, expand the report type.
3. Select any report category.

4. Click **New**.
5. In the **Category** field, enter the name of the report category.
6. Click **Save**.

Modifying a report category

1. Click **Reporting** > **Report Setup**.
2. In the Folders view, expand the report type.
3. Select the report category.
4. To edit the report category:
   a. In the **Category** field, enter the name of the report category.
   b. Click **Save**.
5. To delete the report category:
   a. Click **Delete**
   b. Click **OK** to confirm.

About configuring Cognos reports in Changepoint Administration

During the installation and configuration of the IBM Cognos Analytics software, the Cognos section, **Analytics**, and section items are added as default sections to the menu bar in Changepoint. You can edit the section names and change the order of the section and section items the same way that you can edit standard Changepoint sections and items. For more information, see "About custom sections and section items" on page 201.

About configuring access to Cognos reports and other Cognos content

Access to Cognos reports and other content is configured in the Analytics Portal. The report owner or the Cognos administrator specifies which users and groups have access to a specific report or item, and which actions (Read, Write, Execute, Set policy, and Traverse) they can perform on the content. For more information, see the IBM Cognos Analytics online help.

Showing and hiding the Cognos toolbar in reports

By default, the Cognos toolbar appears in reports, but it can be hidden.

1. Click **Reporting** > **Report Setup**.

2. In the Folders view, click **Standard reports > Cognos**.
3. Select the report.
4. To hide the Cognos toolbar, clear the **Display Cognos toolbar** check box.
5. To show the Cognos toolbar, select the **Display Cognos toolbar** check box.

Adding Cognos reports and items to Changepoint

After a Cognos report or a other Cognos item has been created in IBM Cognos Analytics, you must perform a synchronization to add the report or item to Changepoint. The reports and items in the Team content folder in Cognos Analytics are synchronized with the **Reports** tree view in the **Cognos** report category in Changepoint. After the synchronization you can move the items to another report category.

You must perform the synchronization whenever you want to add newly created Cognos reports to, or remove deleted Cognos reports from, Changepoint.

To synchronize Cognos reports and other Cognos items

Click **Reporting >Synchronize Cognos items**. A message briefly appears when the synchronization is completed.

About adding a custom ASP report

You can set up custom ASP reports that were created in another application, and make them available in Changepoint.

> **Warning:** The development of custom ASP reports is not supported within the terms of your Changepoint support agreement. For more information, contact your Changepoint account manager.

The custom report file must first be added to the Changepoint web server. For more information, see the *Changepoint Installation Guide*.

If you define a report as an Internet website instead of an ASP page, you must include the protocol in the URL.

Adding a custom ASP report

1. Click **Reporting > Report Setup**.
2. In the Folders view, expand the report type and the report category.

3. Click any report.
4. Click **New**.
5. In the **Category** list, select the report category.
6. In the **Report name** field, enter the name of the report.
7. In the **Description** field, enter a description for the report.
8. In the **Report URL** field, do one of the following:
   - If the report is an ASP report that has been added to the Changepoint server, enter the URL, without the Changepoint domain, but including the file name (for example: /Core/Report/Custom/Reportname.asp).
   - If the report is set up as an Internet website, enter the full path, including the protocol.
9. Click **Save**.

Editing settings for an ASP report

You can edit only the name, description and URL of ASP reports. Report Designer reports must be edited in Report Designer.

Note: You can open Report Designer and edit a Report Designer report by selecting the report and clicking **Actions** > **Edit**.

1. Click **Reporting** > **Report Setup**.
2. In the Folders view, expand the report type and the report category.
3. Select the ASP report.
4. Make the necessary changes.
5. Click **Save**.

Removing an ASP report

You can remove an ASP report from the list of reports, but the report remains in the Changepoint application folder in which it is stored. Therefore, you can reinstate the report later, if required.

Report Designer reports must be deleted in Report Designer.

1. Click **Reporting** > **Report Setup**.

2. In the Folders view, expand the report type and the report category.
3. Select the ASP report.
4. Click **Delete**.
5. Click **OK** to confirm.

About integrating reports into entity profiles

You can integrate an IBM Cognos Analytics report or Report Designer report into an entity profile. You can select a report and integrate it into one or more entity profiles, or you can select an entity profile and integrate one or more reports into it. A report can appear as a section in the entity profile, or as an option in the **Actions** menu on the entity profile.

Depending on the report design, you can filter the report so that only the data that is specific to the entity appears. For example, the **Project Budget** report displays the budget information of projects, but also contains a project filter that is set up to display the budget information of a specific project. When you integrate the **Project Budget** report into a project profile, you can select the `Project.ProjectName` filter so that the report only displays the budget information of the selected project.

Integrating a report into an entity profile

1. Click **Reporting** > **Profile Page Integration**.
2. To integrate a report into one or more entity profiles:
   a. In the Folders view, in the **View by** list, select **Report**.
   b. To filter the reports, enter the filter text in the **Filter by name** field.
   c. Click **Search**.
   d. Expand the report category and select the report.
   e. In the **Entity** column, locate the entity and proceed with step 4.
3. To integrate one or more reports into an entity profile:
   a. In the Folders view, in the **View by** list, select **Profile page**.
   a. Select the profile page.
   b. In the **Report** column, locate the report and proceed with step 4.
4. To display the report as a section on the profile, select the **Profile page** check box.

5. To make the report accessible from the **Actions** menu of the profile, select the **Actions menu** check box.
6. To filter the report so that only the data that is specific to the entity displays in the profile, select the filter field in the **Link to filter** column.
7. Click **Save**.

About moving Report Designer reports between databases

You can export Report Designer reports to XML format, and then import the reports into a different database.

When you import a report, the report and its associated data collections are imported under your user account. However, you can specify another user as the report owner to allow this user to edit the report design and its associated data collections.

Before importing a Report Designer report into a different database, you must make sure that all data providers and data provider columns that are used in the report exist in the target database.

Exporting a Report Designer report

1. Click **Reporting** > **Report Setup**.
2. In the Folders view, expand the **Standard reports** report type and the report category.
3. Select the Report Designer report to export.
4. Click **Export report**.
5. Click **Save as** and select the export location.

Importing a Report Designer report

1. Click **Reporting** > **Import Report**.
2. In the **File name** field, click **Browse** and select the report XML file.
3. In the **Report category** list, select the category of the report.
4. Do one of the following:
   - To use a PCID, enter the PCID in the **PCID** field.
   - In the **Report name** field, enter the name of the report.

5. To provide edit access to the report and its data collections to another resource, in the **Report owner** type-ahead field, enter the resource.
6. Click **Save**.

About granting access to Report Designer reports

By default, no resource has access to reports. You must grant access to resources before they can view or edit reports. There are two levels of access:

- View access – allows resources to view and run reports in Changepoint.
- Edit access – allows resources to edit the Report Designer report and its data collections. Resources also require access to Report Designer.

You can grant access to reports by resource, role, or report.

Granting access to a Report Designer report

1. Click **Reporting** > **Report Access**.
2. In the **Report type** list, select the report type.

To grant view access by report

1. In the **Access by** list, select **Report**.
2. To search for a report, enter the name in the **Filter by name** field.
3. Click **Search**.
4. Select the report.
5. To grant access to roles, in the **Grant access to the following selected roles** section, select the roles.
6. To grant access to resources:
   a. To search for an item, enter the search text and then click **Search**.
   b. To display the tree view, clear the **Show selected items only** check box, ensure that the search field is empty, and then click **Search**.
   c. Select one or more items.
   d. To display the selected items only, select the **Show selected items only** check box, ensure that the search field is empty, and then click **Search**.

Note: If the check boxes are unavailable, access has been granted as part of a role. You can remove this access in the **Grant access to the following selected roles** section.

7. Click **Save**.

To grant view or edit access by role

1. In the **Access by** list, select **Role**.
2. To filter by role name, enter the name in the **Filter by name field**.
3. Click **Search**.
4. Select the role.
5. In the table, select the check boxes to grant either view or edit access to the reports.
6. Click **Save**.

To grant view or edit access by resource

1. In the **Access by** list, select **Resource**.
2. To search for a resource, enter the name in the **Filter by name** field.
3. Click **Search**.
4. In the Folders view, select the resource.
5. In the table, select the check boxes to grant either view or edit access.
6. Click **Save**.

About data providers

Data providers are collections of Changepoint data that can be used in Report Designer to create custom reports. Changepoint is installed with a set of standard data providers but you can create custom data providers, if required.

Warning: The development of custom data providers is not supported within the terms of your Changepoint support agreement. If you require assistance, contact your Service Delivery Group representative or client manager to arrange for consulting services.

The following steps are involved in the creation of custom data providers:

1. Create an SQL view in the Changepoint database. For more information, see "About creating SQL views in the Changepoint database" on page 263.

2. Import a data source. For more information, see "Importing a data source" on page 264.
3. Create a data provider category, if required. For more information, see "Creating a data provider category" on page 265.
4. Create a data provider. For more information, see "Creating a data provider" on page 266.
5. Create a lookup list and lookup values, if required. For more information, see "Creating a lookup list" on page 271.
6. Configure the data provider columns. For more information, see "Configuring a data provider column" on page 266.

Icons

Icon	Entity
	Non-editable data provider. These data providers are either system-defined or protected, or you do not have the required feature.
	Editable data provider.

About creating SQL views in the Changepoint database

You can create SQL views that will be imported as data sources. The following rules apply when creating SQL views:

- The length of the column name in the SQL view cannot exceed 30 characters.
- The column names cannot contain spaces.
- The owner of the view must be `dbo` and its name must be prefaced with `DS_`.
- The SQL statement **must** include `GRANT REFERENCES …. TO [CPACCESS]` in order to provide access to the view for Changepoint.
- The SQL view must be based on the following SELECT statement:

```
CREATE VIEW dbo.DS_NAME_OF_VIEW
AS
SELECT
FROM
WHERE
GO
GRANT REFERENCES , SELECT ON [dbo].[DS_NAME_OF_VIEW] TO [CPACCESS]
```

```
GO
GRANT REFERENCES , SELECT ON [dbo].[DS_NAME_OF_VIEW] TO [Changepoint]
GO
```

About importing data sources

Data sources can originate from Changepoint or from an external source. When you import a data source, you must configure data access checks to ensure that only authorized resources have access to the imported data.

For example, if you configure a data access check for the `ProjectID` column of the Project entity, the system checks whether the resource who runs the report that uses the data provider has access to the project.

You can configure an additional layer of security that verifies that the resource who runs the report has access to the workgroup that is associated with the selected entity. For example, if you configure a data access check on the Project entity, the system will also verify if the resource has access to the project manager's workgroup. The project data is displayed in the report only if the resource has access to the project manager’s workgroup.

Importing a data source

1. Click **Reporting** > **Data Sources**.
2. In the Folders view, select the data source.
3. In the **Apply access check for this entity** list, select the entity on which the data access check will be performed.
4. In the **ID column of the entity** list, select the ID column of the entity.
5. To perform a data access check on the workgroups associated with the entity, select the **Check access to the workgroups associated with the entity** check box.
6. Click **Save**.

Deleting a data source

You can only delete custom data sources that have been imported. When you delete a data source, the data providers that use the data source are also deleted.

1. Click **Reporting** > **Data Sources**.
2. In the Folders view, select the data source.
3. Click **Delete**.

4. Click **OK** to confirm.

Creating a data provider category

Create data provider categories to group data providers that have similar data or are related to a specific entity.

1. Click **Reporting > Data Provider Configuration**.
2. In the Folders view, select any category.
3. Click **New**.
4. In the **General** tab, complete the fields as required. For more information, see "Data Provider Category view, General section options" on page 266.
5. Click **Save**.

Modifying a data provider category

You cannot delete a data provider category if it contains a data provider that is linked to a report.

1. Click **Reporting > Data Provider Configuration**.
2. In the Folders view, select the category.
3. To edit the category.
   a. Make the necessary changes.
   b. Click **Save**.
4. To delete the category:
   a. Click **Delete**.
   b. Click **OK** to confirm.

Data Provider Category view, General section options

Option	Description
Category PCID field	Custom PCID for the category name (from the database administrator).
Category name field	Name of the data provider category.
Description PCID field	Custom PCID for the category description (from the database administrator).
Description field	Description of the data provider category.

Creating a data provider

When you create a custom data provider, you can mark it as a primary data provider if you plan to link it to secondary data providers.

1. Click **Reporting** > **Data Provider Configuration**.
2. In the Folders view, select the data provider category.
3. Click **New provider**.
4. In the **General** tab, complete the fields as required. For more information, see "Data Provider view, General tab options" on page 268.
5. Click **Save**.

Configuring a data provider column

You can configure columns from custom data providers to provide additional functionality, such as allowing resources to filter data in the column or configuring columns to link the data to a profile. Before you can modify a column of a data provider, you must first unlink the data provider from data collections and reports.

> **Note:** The configurable field columns do not appear in the **Data Provider Configuration** view. You can view the configurable fields in the data provider in Report Designer.

You can use custom PCIDs for the data provider name and description. For more information, see "About user interface strings and PCIDs" on page 199.

1. Click **Reporting** > **Data Provider Configuration**.

2. In the Folders view, expand the data provider category and the data provider.
3. Select the column.
4. To include the column in the data provider, click the **Include column in data provider** check box.
5. Do one of the following:
   - To use the column for linking to other data source columns, click the **Internal column** check box. Internal columns are not displayed on the user interface.
   - If the column is not an internal column, enter the field label and the description of the column in the relevant fields.

To allow resources to filter data for this column based on a lookup list

1. Select the **Allow filtering and grouping based on a lookup list** check box.
2. In the **Lookup type** list, select the lookup type.
3. In the **Lookup list** list, select the lookup list used for filtering.
4. In the **Lookup ID column** list, select the ID column within the data source that the current column points to for lookup values.
5. Click **Save**.

To allow the column to be linked to a profile in Changepoint

When you configure a column to allow a link to a profile in Changepoint, you must associate the lookup type STATIC or CPEntity to the data provider column.

1. Select the **Allow linking to a URL** check box.
2. Do one of the following:
   - To link the column to a Changepoint entity profile, select the **Allow linking to a profile** check box, and then select the entity in the **Link URL** list.
   - To link the column to a custom page, enter the URL of the custom page in the **Link URL** field.
3. In the **Link ID column** list, select the ID column within this data source that the current column points to for profile page data.
4. Click **Save**.

To configure a column for monetary values

1. Select the **Column for monetary value** check box.
2. In the **Currency code ID** list, select the currency code used in the current data provider for the monetary value.

   Note: The currency code field is the currency in which the monetary amount is stored and must be configured as an internal column in order to be available for selection.
3. In the **Currency date ID** list, select the date column used in the current data provider for the currency date.
4. In the **Billing office** list, select the billing office within the data source that the column uses for currency conversion.
5. Click **Save**.

Data Provider view, General tab options

Option	Description
Provider name PCID field	Custom PCID for the data provider name (from the database administrator).
Provider name field	Name of the data provider.
Description PCID field	Custom PCID for the description of the data provider (from the database administrator).
Description field	Description of the data provider.
Primary provider check box	When selected, the data provider is a primary data provider.
Provider category field	Name of the data provider category.
Data source field	Data source for the data provider.
Entity of configurable fields field	Entity related to the configurable fields used by the data provider.

Option	Description
Column of configurable fields field	ID column of the configurable field. For example, for the Resource entity, the column is `ResourceID`.
Perform access checks on configurable fields check box	When selected, data access checks are performed to verify if the resource who runs a report has access to the configurable fields.

Deleting a custom data provider

You can only delete custom data providers that are not linked to any data collection in Report Designer.

1. Click **Reporting** > **Data Provider Configuration**.
2. In the Folders view, locate and expand the data provider category.
3. Select the data provider.
4. Click **Delete** .
5. Click **OK** to confirm.

Granting access to a data provider

By default, no resource has access to data providers. You must grant resources access to data providers by resource, role, or data provider.

To grant access by data provider

1. Click **Reporting** > **Data Provider Access**.
2. In the **Access by** list, select **Data provider**.
3. Click **Search**.
4. Select the data provider.
5. To grant access to roles, in the **Grant access to the following selected roles** list, select the roles that are required by resources to access the data provider.
6. Do one of the following:
   a. Expand the tree view to locate the resource.

   b. Search for the resource by entering part of the resource name and then clicking **Search**.

7. Select the resources that are allowed to access the data provider.
8. To display the resources who have been granted access:
   a. Click the **Display all selected items** check box.
   b. Click **Search**.
9. Click **Save**.

To grant access by role

1. Click **Reporting** > **Data Provider Access**.
2. In the **Access by** list, select **Role**.
3. Click **Search**.
4. Select the role.
5. Select the data providers that the resources that have the role are allowed to access.
6. To select all data providers, right-click the **Select** column and select **Select all**.
7. Click **Save**.

To grant access by resource

1. Click **Reporting** > **Data Provider Access**.
2. In the **Access by** list, select **Resource**.
3. In the **Filter by name** type-ahead field, enter the first few letters of the resource's first or last name.
4. Click **Search**.
5. Select the resource.
6. Select the data providers that the selected resource is allowed to access.
7. To select all data providers, right-click the **Select** column and select **Select all**.
8. Click **Save**.

About custom and static lookup lists

Lookup lists contain drop-down list values that are used to filter data in Report Designer reports. There are two types of lookups:

- **Custom** – You can create a list of values that are more meaningful to users. For example, you can change “1/0” to “Yes/No”, or “A/R/P” to “Approved/Rejected/Pending Approval”.
- **Static** – Values that already exist in a Changepoint database table, and can be generated using an SQL statement.

When filtering static lookup lists, the default setting is that report creators can only filter on the entity that is selected in the report filter. To allow report creators to filter on an entity and its child entities in a report, select the entity type in the **Multi-level entity** drop-down list. For example, if you select **Request** as the multi-level entity, any requests that have been created under the parent request will be included in report filters.

Creating a lookup list

1. Click **Reporting > Lookup Lists**.
2. In the Folders view, click any lookup list.
3. Click **New**.
4. In the **Lookup type** list, select the lookup type.
5. In the **Lookup name** field, enter the name of the lookup.

To add values to a custom lookup list

1. Right-click in the table and select **Configure > Insert**.
2. In the **Field label** column, enter the name of the list value.
3. To specify a PCID, enter the **PCID** in the column.
4. In the **Key** field, enter the key used to identify the list value.
5. Repeat these steps for each item in the list.
6. Click **Save**.

To generate values for a static lookup list

1. In the **SQL statement** field, enter the SQL statement that is used to generate the list of values.
2. To validate the SQL statement and generate the list, click **Test**.
3. In the **Test** list, click the drop-down list arrow to view the list.
4. To allow report creators to filter on an entity and its child entities, and not only on the entity that is selected in the report filter, select the entity type in the **Multi-level entity** drop-down list.
5. Click **Save**.

Modifying a lookup list

You can only edit or delete custom lookup lists and values that have been specifically created for your organization.

You can only delete static lookup lists that have been specifically created for your organization.

1. Click **Reporting** > **Lookup Lists**.
2. In the Folders view, select the lookup list.

To modify a value for a custom lookup list

1. To edit a value, make the necessary changes.
2. To delete a value, do the following:
   a. Right-click a value in the table and select **Configure** > **Delete**.
   b. Click **OK** to confirm.
3. Click **Save**.

To modify a statement for a static lookup list

1. To edit a value, make the necessary changes.
2. To delete a value, do the following:
   a. Click **Delete**.
   b. Click **OK** to confirm.

3. Click **Save**.

About relationships between custom data providers

You can configure relationships only for custom data providers, and not for standard data providers that are installed with Changepoint.

Each data provider contains data from a single data source. To use the data from multiple data sources in a single report, you must specify the data provider that contains the main data as the *primary* data provider, and then link it to one or more *secondary* data providers.

For example, if you create a primary data provider, **Project**, from the project data source and you also want to use data from the **Expenses** data provider, then you must link the **Expenses** data provider as a secondary data provider to the primary data provider **Project**. You could also link other related data providers, such as **Time** and **Request**, to the **Project** primary provider.

Data providers are linked by a parent column and a child column that contain the same data type. For example, you can link the `ProjectID` column of the primary **Project** data provider (parent column) and the `ProjectID` column of the secondary **Expenses** data provider (child column). If the secondary data provider is linked to an additional data provider, the parent column is in the secondary data provider and the child column is in the additional data provider.

Creating a relationship between custom data providers

1. Click **Reporting > Data Provider Relationships**.
2. In the **Provider category** list, select the data provider category.
3. In the **Data Provider** list, select the primary data provider.

To associate a secondary data provider to a primary data provider

1. Right-click the **Secondary data providers** table and select **Insert**.
2. In the **Associated provider** list, select the secondary data provider.
3. In the **Parent column** list, select the column of the primary data provider.
4. In the **Child column** list, select the column of the secondary data provider.
5. In the **Join type** list, select the join type.
6. Click **Save**.

To associate an additional data provider to a secondary data provider

1. Right-click in the **Additional data providers** table and select **Insert**.
2. In the **Provider** list, select the additional data provider.
3. In the **Parent column** list, select the column of the secondary data provider.
4. In the **Child column** list, select the column of the additional data provider.
5. In the **Join type** list, select the join type.
6. Click **Save**.

Modifying the relationship for a custom data provider

1. Click **Reporting** > **Data Provider Relationships**.
2. In the **Provider category** list, select the data provider category.
3. In the **Data provider** list, select the primary data provider.

To modify a secondary data provider

1. To edit a secondary data provider:
   a. In the **Secondary data providers** table, click the row that you want to edit.
   b. Make the necessary changes.
2. To delete a secondary data provider:
   a. In the **Secondary data providers** table, right-click the row and then select **Delete**.
   b. Click **OK** to confirm.
3. Click **Save**.

To modify an additional data provider

1. To edit an additional data provider:
   a. In the **Secondary data providers** table, select the secondary data provider.
   b. In the **Additional data providers** table, click the row that you want to edit.
   c. Make the necessary changes.
2. To delete an additional data provider:

a. In the **Secondary data providers** table, select the secondary data provider.

b. In the **Additional data providers** table, right-click the row and then select **Delete**.

c. Click **OK** to confirm.

3. Click **Save**.

Exporting and importing data providers

You can export data providers to XML format, and then import the data providers into a different database. You can export and import standard data providers and custom data providers.

1. Click **Reporting > Data Provider Configuration**.
2. In the Folders view, expand the data provider category.
3. Select the data provider.

To export a data provider

1. Click **Export provider**.

   You are prompted to open or save the file.

2. Save the data provider file.

To import a data provider

1. Click **Import provider**.

   The **Import Provider** dialog box appears.

2. Click **Browse** to locate and select the data provider XML file.
3. Click **Save**.

12. Client Portal Management

About Client Portal management

Client Portal is the application that your organization's customers can use to access Changepoint and view information that is related to their engagements and projects.

To set up Client Portal access:

1. Set up the Client Portal website. For more information, see the *Changepoint Installation Guide*.
2. Enable the standard Client Portal email templates. For more information, see "Enabling an email template" on page 290.
3. Configure the options for accessing Client Portal. For more information, see "Configuring general Client Portal settings" on page 277.
4. Resources create Client Portal users by granting access to customer contacts. However, you can manage settings for individual Client Portal users. For more information, see "Managing Client Portal users" on page 280.

Configuring general Client Portal settings

You can configure the general settings for Client Portal, which includes:

- a standard welcome message
- whether user access must be approved by the administrator
- access to resource profiles
- expiry periods
- email templates to be used for notifications

  Note: You must select an email template in order for the corresponding notification to be sent.

1. Click **Customer and Address** > **Client Portal Access**.

   The **Client Portal Access** view appears.

2. Complete the fields as required. For more information, see "Client Portal Access view options" on page 278.

Client Portal Access view options

Option	Description
Enable Client Portal access check box	When selected, access to Client Portal is enabled.
Welcome text field	Message text that is displayed when users sign in to Client Portal.
New Client Portal users section	
Approval of new users option	Specifies whether new Client Portal users are automatically approved, or must be approved by the administrator.
Default access period (days) field	Number of days after which the access to Client Portal automatically expires.
Invitation email list	Email template for notifications that are sent to new Client Portal users.
Password reminder email list	Email template for notifications that are sent to Client Portal users when their password is reset or a password reminder is sent.
Access resource profiles option	Determines the access that Client Portal users have to resource profiles. Options are: • **No access** – users cannot access resource profiles. • **Sponsor's profile only** – users can access only the resource profile of their sponsor. • **Selected profiles** – users can access the specified maximum number of resource profiles. The resource profiles must be specified for each Client Portal user. **Note:** If the maximum number is later reduced, the resource profiles that exceed the number (based on alphabetical order) are removed. • **All profiles** – users can access all resource profiles.
Expired Client Portal access section	

Option	Description
Expiry period if not used (days) field	Number of days after a user last accesses Client Portal that their access will expire.
Closing email sent to Client Portal users list	Email template for notifications that are sent to users when their Client Portal access expires.
Notify sponsor in advance (days) field	Number of days before a user's access is about to expire that a notification is to be sent to the sponsor.
Expiry email sent to sponsor list	Email template for notifications that are sent to the sponsor when a Client Portal user's access is going to expire.
Sponsor notification emails section	
Approved by administrator list	Email template for notifications that are sent to the sponsor when a user's access to Client Portal is approved by the administrator.
Rejected by administrator list	Email template for notifications that are sent to the sponsor when a user's access to Client Portal is rejected by the administrator.

Accessing a Client Portal user

1. Click **Customer and Address** > **Client Portal User Management**.
2. In the **Search by** list, select **Client Portal user** or **Company**.
3. In the **Search for** field, do one of the following:
   - Enter the first few letters of the user’s first name or the customer name.
   - Leave the field blank to display a list of all users.
4. In the **Status** list, select a status or select **All statuses**.
5. Click **Search**.
6. In the search results, select the Client Portal user.

Managing Client Portal users

You can manage Client Portal users as follows:

- reactivate access that has expired
- approve or reject access
- revoke access
- edit access settings – changes that you make override the settings on the contact profile
- reset passwords
- send password reminders

To edit a Client Portal user's access settings

1. Access the Client Portal user.
2. Make the necessary changes. For more information, see "Client Portal user view, General section options" on page 281 and "Client Portal user view, Security access section options" on page 282.

To reactivate Client Portal user access

1. Access the Client Portal user.
2. Select the **Enable Client Portal access** check box.
3. In the **Expiry date** field, enter a new expiry date.
4. Click **Save**.

To approve Client Portal user access

1. Search for Client Portal users that have **Pending approval** status.
2. In the search results, select a Client Portal user.
3. Click **Approve** or **Reject**.

To revoke Client Portal access

If you revoke access for a Client Portal user, the sponsor must re-invite the Client Portal user in order to reactivate the access.

1. Access the Client Portal user.

2. Click **Revoke access**

To send a password reminder to a Client Portal user

1. Access the Client Portal user.
2. Click **Send reminder**.

Client Portal user view, General section options

Field	Description
Enable Client Portal Access check box	When enabled, the user can access Client Portal (provided that the expiry date has not passed), and the security access fields become available.
User name	Name of the Client Portal user.
Password	Password assigned to the Client Portal user.
Email	Email address of the Client Portal user.
Company	Company of the Client Portal user.
Sponsor	Name of the Changepoint resource who sponsored the Client Portal user.
Current status	Current status of the Client Portal user's access.
Activated on	Date that the Client Portal user was enabled.
Expiry date field	Date that Client Portal access expires. If the access has expired, you can reactivate the access by changing the date to a date in the future.
Last access	Date that the user last signed in to Client Portal.

Client Portal user view, Security access section options

Option	Description
Team folders check box	When selected, the user can access team folders to which they have been added.
Project review check box	When selected, the users can review the projects related to their organization that have been enabled for Client Portal access.
Invoice review check box	When selected, the user can view invoices related to their organization.
Online support check box	When selected, the user can create requests, view requests for their organization, and view the knowledge base.
Close request anytime check box	When selected, the user can close a request at anytime, regardless of the request workflow. When cleared, the user can close a request only when the request workflow allows a transition to closed status.
Workflow participant check box	When selected, the user can be assigned to a workflow step.
Access resource profiles check box	When selected, you can select or clear the **Access all resource profiles** and **Restrict access to the following resource profiles** check box.
Access all resource profiles check box	When selected, the user can access all resource profiles. Available only when access to all resource profiles is set up in the **Client Portal Access** view.
Restrict access to the following resource profiles check box and list	When selected, the user can only access the resource profiles that you select in the list. Available only when access to all resource profiles or selected profiles is set up in the **Client Portal Access** view.

13. General Setup

Setting up server integration

To launch applications from Changepoint, and enable other functionality, you must specify the URLs for each application.

1. Click **General** > **Server Integration**.
2. Enter the URLs. The protocol is not required. If SSL is enabled, the system uses HTTPS.
3. Click **Save**.

Server Integration view options

Option	Description
Changepoint URL field	Hosting site of the Changepoint application.
Changepoint API URL field	Hosting site of the Changepoint API, which is required to create expenses using Excel templates.
Report Designer URL field	Hosting site of the Changepoint Report Designer application.
Report prerender service URL field	URL of the Changepoint web server, which is required by the report prerender service. To avoid possible firewall issues, use an internal URL
Enable Cognos integration check box	External dispatcher URI of the Cognos App Tier server. For more information, see the *Changepoint Installation Guide*.
Cognos application tier URL field	

About setting up addresses

Most countries and their abbreviations are preloaded, but to make a country available for selection by users, you must enable it. You can add countries, states and provinces as required, and set up postal code formats. For more information, see the following topics:

- "Enabling a country " on the next page

- "Adding a country " below
- "Adding states and provinces" below
- "Modifying a state or a province" on the facing page
- "Enforcing postal code formats" on the facing page

Enabling a country

To make a country available for selection, you must enable it. You can also disable a country, provided that none of its states or provinces has been saved in a record

1. Click **Customer and Address > Countries**.
2. In the country row, select the **Enabled** check box.
3. Click **Save**.

Adding a country

After you add a country, you can edit the name, but not the country codes.

1. Click **Customer and Address > Countries**.
2. Right-click in the table, and then select **Insert**.
3. To enable the country for use in Changepoint, select the **Enabled** check box.
4. In the **Country code** field, enter the country code.
5. In the **Two-digit country code** field, enter the two-digit code for the country.
6. Click **Save**.

Adding states and provinces

1. Before you can create states or provinces for a country, you must enable the country.
2. Click **Customer and Address > State/Province Lookups**.
3. Right-click in the table, and then select **Insert**.
4. In the new row, select the country.
5. In the **State/Province** column, enter the state or province name.
6. In the **Abbreviation** column, enter the abbreviation for the state or province.

7. Click **Save**.

Modifying a state or a province

You can change the name and abbreviation for a state or province. However, you cannot change the country. Instead, you have to delete the state or province and create a new one.

1. Click **Customer and Address > States/Province Lookups**.
2. Make the necessary changes directly in the table cells.
3. To delete a state or province:
   a. Select the row.
   b. Right-click and select **Delete**.
4. Click **Save**.

Updating state and province information system-wide

You can change the name and/or abbreviation of a state or province and then automatically update all of the records that include the outdated information.

1. Create a state or province with the new name and/or abbreviation.
2. In the row for the *outdated* state or province, select the name of the new state or province in the **Map to** column.
3. Click **Save**.

Enforcing postal code formats

You can define formats for postal codes, and then enable validation to enforce the formats.

In postal code formats, x represents a letter and # represents a number. You can also enter spaces and dashes as part of the format.

1. Click **Customer and Address > ZIP/Postal Code Validation**.
2. In the country row, select the **Enabled** check box.
3. In the **Format** column, enter the format.
4. Click **Save**.

Enabling company history tracking

You can enable history tracking for company-related information. When you enable history tracking, a **History** section displays on the profiles of contacts, opportunities and other entities in Changepoint.

1. Click **Customer and Address > Company History Tracking**.
2. Select the **Enable company history tracking** check box.
3. Click **Save**.

About email notifications

There are two types of email notifications that you can set up to notify users when a specific event occurs:

- Entity-based email notifications – are sent based on conditions related to a specific entity, which you configure in the email notification.
- Trigger-based email notifications – you must create the trigger that sends the notification based on a specific event.

  Note: All standard Changepoint email notifications are trigger-based.

Setting up email notifications includes the following steps:

1. If none of the standard Changepoint email templates are suitable, create an email template. In the email template, you specify the content for the subject and message for the email notification.
2. Do one of the following:
   - Set up the email notification for the entity-based notification. In the email notification, you set up when the notification is sent, and to whom.
   - Create the trigger for the trigger-based notification. For more information, see the "Special considerations for trigger-based email templates" section on page 294.
3. Ensure that the Changepoint Email Service and Changepoint Mail Service are installed and running. For more information, see the *Changepoint Installation Guide*.

About standard Changepoint email templates

There are different variations of email templates that are supplied with Changepoint:

- Internal Changepoint email templates are used internally in Changepoint and cannot be edited at all.
- Standard email templates and Client Portal templates are predefined, but some settings are editable. For example, you can enable them for use in Changepoint, and edit the wording in the email subject and message.

  Warning: Do not rearrange, or add or delete parameters in any of the standard email template fields. If you do, the parameters will not be resolved properly in the email notifications.

Only the Client Portal templates can be selected from the **Client Portal Access** view, where you select the templates to be used for Client Portal notifications.

Email templates that support quick links

The following is a list of the standard email templates that support quick links.

Note: Email recipients must be able to access the target entity record.

- Credit Notes to Approve
- Expense Reports to Approve
- Invoices to Approve
- New Lead
- New Task
- Notification: Request Information to Initiator
- Project Reassigned to You
- Resource Demand Scenario Approval
- Resource Demand Scenario Rejection
- Resource Request Assigned to You
- Support Request is Closed
- Support Request Submitted Through the Client Portal
- Support Request Submitted Through the Client Portal is Closed
- Task Slippage

- Time Records to Approve
- Workflow Notification

About creating email templates

When you create an email template, you specify the standard settings that apply to the email notifications that use the template. The settings include the following:

- enabling the template for use
- specifying HTML format
- preventing resources from disabling the associated email notification
- grouping email notifications so that only one email is sent to each recipient
- specifying the text in the subject and message fields

Merge fields and quick links

You can add merge fields and quick links to the subject and message fields of an email template:

- Merge fields – Merge fields consist of a parameter that is replaced with the actual values when the email notification is sent. For entity-based templates, the parameters are based on the entity fields. Subentities inherit the parameters of the parent entity. For example, the **ProjectTeam** entity includes the parameters of the **Project** entity.

  Note: You must create parameters for trigger-based notifications.

- Quick links – Quick links are links that a resource can click in the email notification to access an entity page. Not all entity types have a quick link option.

Creating an email template

1. Click **General** > **Email Templates**.
2. In the Folders view, click an existing email template.
3. Click **New**.
4. Complete the fields as required. For more information, see "Email Templates view, General Section options" on page 289, and "Email Templates view, Template information section options" on page 290.

   Note: To create a trigger-based template, leave the **Entity type** field blank.

5. Add merge fields to the subject or body of the message, if required. For more information, see "Adding a merge field to an email template" on page 291.

   Note: If the email template is to be used in a workflow, only the merge fields that contain name, description, ID, and quick link parameters can be processed. Do not add any other type of merge fields to the template.

6. Click **Save**.

Email Templates view, General Section options

Option	Description
General section	
Enable this email template to be used in Changepoint check box	When selected, the template is available in Changepoint.
Enable HTML text check box	When selected, the body of the email message is in HTML format.
Changepoint email template provided for internal email notifications check box	When selected, indicates the template is an internal Changepoint email template or Client Portal email template.
Hide this email template in user preferences check box	When selected, the email template is not displayed in the **Preferences** view and resources cannot disable the email notification.
Send only one email to each recipient check box	When selected, all of the records that meet the condition of the email notification are sent together in one email instead of sending several emails to the same recipient. Available only when an entity type is selected in the **Template information** section.

Email Templates view, Template information section options

Option	Description
Entity type list	When an entity type is selected, the email template is entity-based. When the field is left blank, the email template is trigger-based.
Subtype list	Available only when the **Time** entity is selected. Subtype for the entity.
Template name field	Name of the email template.
Description field	Description for the email template.
Subject field	Text that appears in the subject line of the email.
Message field	Text for the body of the email message.

Enabling an email template

You cannot disable email templates that are associated with an active email notification.

1. Click **General** > **Email Templates**.
2. In the Folders view, select the email template.
3. Select the **Enable this email template to be used in Changepoint** check box.
4. Click **Save**.

Modifying an email template

You cannot edit system email templates.

1. Click **General** > **Email Templates**.
2. Select the email template.
3. To edit the template:
   a. Make the necessary changes.
   b. Click **Save**.
4. To delete the email template, click **Delete**.

Adding a merge field to an email template

1. Click **General** > **Email Templates**.
2. Select the email template.
3. Before you can insert a merge field or quick link, you must create the parameter. For more information, see "Creating an email parameter" on page 291.
4. To insert a merge field, right-click the subject or message at the location where you want to insert the merge field and select the parameter or quick link.
5. To remove a merge field from a subject or message, delete the entire merge field including the opening and closing characters.
6. If the email template is used for a trigger-based email notification, you must make corresponding changes to the triggers. For more information, see "Special considerations for trigger-based email templates" on page 294.

Creating an email parameter

1. Click **General** > **Email Templates**.
2. Select the email template.
3. In the **Template information** section, right-click in the **Subject** or **Message** field and select **Manage** > **Parameters**.

   The **Email Parameters** dialog box appears.
4. Right-click in the table, and then select **Insert**.
5. In the **Email parameter** cell, do one of the following:
   - To create a parameter for an entity-based notification, select the entity field for the parameter.
   - To create a parameter for a trigger-based notification, enter the parameter.
6. In the **Description** cell, enter the description of the parameter.
7. Click **Save**.

   The new parameter is now available for selection when you right-click in the subject or message fields in the email template.

Editing an email parameter

If you change the order or the order of appearance of the merge fields in an email template, you must modify the associated trigger.

1. Click **General > Email Templates**.
2. Select the email template.
3. In the **Template information** section, right-click in the **Subject** or **Message** field and select **Manage > Parameters**.

   The **Email Parameters** dialog box appears.
4. To edit a parameter:
   a. Make the necessary changes.
   b. Click **Save.**
5. To delete a parameter:
   a. Right-click the parameter and then select **Delete**.
   b. Click **OK** to confirm.
   c. Click **Save.**

About grouping records for email notifications

You can group entity-based email notifications so that a single email that includes all entity records is sent to each recipient rather than a separate email for each entity record.

You can group email notifications for system-defined participants or configurable field participants only, which you specify as recipients in the **To** field of the email notification.

In the email template, you must do the following:

- Select the **Send only one email to each recipient** check box.
- Add `<REPEAT></REPEAT>` tags around the parameters in the message body so that each record will be included in the email. If a parameter is outside of the `REPEAT` tags, only the first record is included in the email notification.

  Note: Ensure that you capitalize the `<REPEAT></REPEAT>` tags, otherwise the template will not work.

Recipients in the **Cc** and **Bcc** fields are sent a copy of each email notification for which they have access to one or more of the entity records.

> **Warning:** Data access checking is not performed on the message content of email notifications. Therefore, they can contain data to which the **Cc** and **Bcc** recipients may not otherwise have access.

Example of grouping records for email notifications

In the email template, the option to send one email to each recipient is selected, and the **Message** field contains the following content:

```
 Some of your time has been rejected.
 Here are the details:

 <REPEAT>
 Resource: ÿTime - Resourceÿ
 Date of time record: ÿTime - TimeDateÿ
 Regular Hours: ÿTime - RegularHoursÿ
 Rejected by: ÿTime - ApproverResourceÿ
 Reason for Rejection: ÿTime - RejectReasonÿ
</REPEAT>
```

> **Note:** The resource name is included within the REPEAT tags because the time records for more than one resource may be contained in the same email notification.

There are five rejected time records, all of which were entered by Resource C on behalf of Resource A and Resource B as outlined in the following table.

Time record	Resource	Project manager
1	Resource A	Project Manager 1
2	Resource A	Project Manager 2
3	Resource B	Project Manager 2
4	Resource B	Project Manager 2
5	Resource B	Project Manager 1

To group by resource, resource who entered the time, and project manager, you add the following system-defined participants to the **To** field in the email notification:

- Time - Booked by resource

- Time - Resource
- Time - Project manager

The results are:

- Resource C, who entered the time, receives one email with time records 1, 2, 3, 4, and 5.
- Resource A receives one email with their own time records 1 and 2.
- Resource B receives one email with their own time records 3, 4, and 5.
- Project Manager 1 receives one email with time records 1 and 5, which are the time records for their own projects.
- Project Manager 2 receives one email with time records 2, 3, and 4, which are the time records for their own projects.

However, if you instead add the Time - Project manager participant to the **Cc** or **Bcc** field, then both project managers would each receive three separate emails that contain the information as follows:

- time records 1, 2, 3, 4, and 5 (copy of email sent to the Resource C)
- time records 1 and 2 (copy of email sent to Resource A)
- time records 3, 4, and 5 (copy of email sent to Resource B)

Special considerations for trigger-based email templates

Before you can configure trigger-based email notifications, a database administrator must do the following:

- Create a trigger or scheduled job to populate the EmailQueue table. The Changepoint Mail Service retrieves the entries from the EmailQueue table and sends the email notification for the enabled templates.
- Modify the associated trigger or scheduled job that populates the EmailQueue table with the logic and formatting for embedded links if quick links are included in the subject or message. For more information, see "About sample code for embedded quick links" on page 302.
- Ensure that the names of any new parameters added to email template match the associated field names in the Changepoint database.

- Modify the associated trigger or scheduled job that populates the EmailQueue table if the number or the order of appearance of the merge fields in the email template is changed.
- Test all trigger-based email notifications after installing any subsequent releases of the Changepoint software. Changes to the Changepoint database may require revisions to the triggers.

Setting up an entity-based email notification

You require an email template to set up an email notification.

1. Click **General** > **Email Notifications**.
2. In the **Entity type** list, select the entity type of the email template, and then click **Load list**.
3. Select any email notification.
4. Click **New**.
5. To activate the email notification, select the **Activate this email notification for usage in Changepoint** check box.
6. In the **Notification name** field, enter a name for the notification.
7. In the **Description** field, enter a description for the email template.
8. In the **Email template field**, select the email template to be used for the email notification.
9. In the **From** field, enter the email address to use as the **From** address on the email notification. When the field is left blank, the default value specified in the Changepoint Mail Service configuration file is used.
10. Add email recipients. For more information, see "Adding recipients to an entity-based email notification" on page 296.
11. To set up conditions, see "Setting up conditions for an email notification" on page 297.

    Note: Entity-based notifications are sent based on a change in an entity field. Therefore unless you specify a change to a specific entity field in the conditions, a notification will be sent each time an entity that matches the conditions is created or when any of the fields in the entity are changed.
12. Click **Save**.

Adding recipients to an entity-based email notification

1. Access the email notification.
2. Expand the **Email Recipients** section.
3. In the **From** field, enter the email address or name of the sender. If you do not enter a value, the default value from the Changepoint Mail Service is used.
4. Click **To**, **Cc**, or **Bcc**.

   The **Email Recipients** dialog box appears.
5. To add email recipients manually, in the **Enter the email addresses of the recipients** field, enter the email addresses separated by semicolons.
6. To add resources, workgroups, roles, or system-defined participants as recipients:
   a. To search for an item, enter the search text and then click **Search**.
   b. To display the tree view, clear the **Show selected items only** check box, ensure that the search field is empty, and then click **Search**.
   c. Select one or more items.
   d. To display the selected items only, select the **Show selected items only** check box, ensure that the search field is empty, and then click **Search**.
7. Click **Save**.

About setting up conditions for an email notification

You create the conditions for sending an email notification creating expressions based on a specific field value, or based on whether a field value has changed. You then use one or more expressions to build a conditional formula. You can also add additional conditions based on an SQL SELECT statement.

Conditions based on an SQL SELECT statement

After you create a conditional formula, you can configure additional conditions based on an SQL SELECT statement. The SQL SELECT statement is executed only if the conditions in the conditional formula are met.

The SQL statement must:

- Begin with SELECT
- Not contain UPDATE, DELETE, TRUNCATE or INSERT
- Return a 1 (numeric) to indicate that the email notification should be sent or 0 to indicate that the email notification should not be sent.
- Use @Entityid as a parameter to represent the GUID of the entity in the SELECT statement. For example:

```
WHERE requestid = @entityid
```

As a best practice, include "`FROM table WITH (NOLOCK)`" in your SELECT statement to avoid creating deadlocks in the system.

The following is an example:

```
SELECT
CASE
WHEN count (*) >=1 THEN 1
ELSE 0
END
FROM request WITH (NOLOCK)
WHERE customerid = @entityid AND requeststatus NOT IN ('clo','rej','can')
```

This SQL SELECT statement could be combined with a simple condition formula so that an email notification is sent to the support desk personnel when a customer's status changes to inactive and there are active requests. You would want to ensure that all work is stopped on requests if a customer status changes to inactive.

Setting up conditions for an email notification

1. Create or access the email notification.
2. Expand the **Configure Condition** section.

To create an expression

1. Do one of the following:
   - To define an expression based on when a field value changes from a specified value to another specified value, select the **Condition based on field change** option.
   - To define an expression based on when a field value meets a specified condition, select the **Condition based on field value** option.
2. In the **Expression** field, enter a name for the expression.

3. In the **Field name** list, select the field to be used in the expression.
4. If the condition is based on a field value, in the **Condition** list, select the condition.
5. If the condition is based on a field value change, in the **From value** and **To value** fields, select the values. Leave the field blank to specify that any value will meet the condition.

   For request fields that relate to users, an **Any** condition is available to specify Changepoint users or Client Portal users.
6. Complete the expression by entering values in the fields.

To build the condition formula

1. To add an expression to the **Formula expression** field, double-click the expression in the table.
2. To add an operator, bracket, or space, click the appropriate button.
3. To test that the formula, click **Test Formula**.
4. To clear the formula and start over, click **Clear Formula**.
5. To view the expressions in the formula in expanded format, select the **Display expanded conditional formula** check box.
6. To add an additional condition based on an SQL SELECT statement:
   a. Select the **Configure notification based on Select statement** check box.
   b. In the **SQL statement** field, enter the SQL SELECT statement. For more information, see "About setting up conditions for an email notification" on page 296.
7. Click **Save**.

Modifying an entity-based email notification

1. Click **General > Email Notifications**.
2. In the **Entity type** list, select the entity type of the email template.
3. To further filter the list of email notifications, select the email template and/or status.
4. Click **Load list**.
5. Select the email notification.
6. Make the necessary changes.

7. Click **Save**.

Sample trigger for trigger-based email notifications

The following code is provided only as a sample of how a trigger can be created to interact with the Changepoint business logic.

> **Note:** The sample code is provided for reference purposes only. Custom triggers are not supported within the terms of your Changepoint support agreement. It is expected that an individual who is knowledgeable in both SQL code and your organization's business practices be responsible for creating and maintaining custom triggers. If you require assistance, contact your account manager to arrange for chargeable consulting services. Your Changepoint support analyst is unable to assist you in this area.

Sample code

The following is sample code for a trigger-based email notification to be sent to a resource who has been assigned as project plan editor of a project.

```
CREATE TRIGGER OnCoManagerAssignment ON [CoManageMember]
FOR INSERT
AS
declare @EmailId id
declare @EmailAddress varchar(50)
declare @ProjectName varchar(50)

select @EmailId = EmailId from Email where Name = 'On Co-Manager Assignment' AND
Enabled = 1

IF @EmailId is null
RETURN

SELECT @EmailAddress = ra.EmailAddress FROM ResourceAddress ra, inserted i
WHERE ra.ResourceId = i.ResourceId

SELECT @ProjectName = p.Name from Project p, inserted i where p.ProjectId =
i.ProjectId

Insert EmailQueue(emailqueueID, EMailId, ToEmail, CCEmail, BcEmail,
SubjectParameters, BodyParameters)
VALUES(newID(), @EmailId, @EmailAddress, NULL, NULL, NULL, @ProjectName)
VALUES(@EmailId, @EmailAddress, NULL, NULL, NULL, @ProjectName)
```

Notes:

- Reference the email template name.

- The appropriate email template record is selected only if it is enabled.
- The email address is selected in the resource profile and the project name is selected in the project profile.
- The values are then inserted into the EmailQueue table.
- The values entered into the parameters field correspond to the tags found in the email template and are separated with a pipe (|) character. They are also placed in the same order as the tags are placed in the message body.

Sample scheduled job for trigger-based email notifications

The following code is provided only as a sample of how a scheduled job can be created to interact with the Changepoint business logic.

> **Note:** The sample code is provided for reference purposes only. The creation of scheduled jobs is not supported within the terms of your Changepoint support agreement. It is expected that an individual knowledgeable in both SQL code and your organization's business practices be responsible for creating and maintaining scheduled jobs. If you require assistance, contact your account manager to arrange for chargeable consulting services. Your Changepoint support analyst is unable to assist you in this area.

Sample code

The following is sample code for a trigger-based email notification to be sent to managers of projects with expenses that have gone over budget. The scheduled job runs every day at noon.

Stored Procedure:

```
/*********************************************
Name:ExpensesOverBudget

Description:Stored procedure retrieves all projects exceeding expense budget and
sends emails to those managers

Used By:Changepoint scheduled job -

Inputs:n/a

Change History:
DateNameChange
03.02.2000Rodney BotelhoInitial Version
*******************************************/

CREATE PROCEDURE ExpensesOverBudget /*%ENCRYPT%*/ AS
```

```
--Retrieve E addresses for all project managers
DECLARE @EmailTemplateId id
DECLARE @EmailAddress varchar(256)
DECLARE @ResId id
DECLARE @ProjectName varchar(256)
DECLARE @ExpenseTotals currency
DECLARE @ExpenseBudget currency
DECLARE @Overage currency

SELECT @EmailTemplateId = EmailId FROM Email WHERE Name = 'Project Expenses Over
Budgeted Amount'
IF @EmailTemplateId is null
RETURN

DECLARE Email_Cur CURSOR FOR
SELECT ra.EmailAddress, m.ResourceId, p.Name, p.ExpenseBudget, 'ExpenseTotals' =
sum(e.UnitPrice * e.Quantity) FROM ResourceAddress ra, ManageMember m, project
p, Expense e
WHERE ra.ResourceId = m.ResourceId AND p.ProjectId = m.ProjectId AND e.ProjectId
= m.ProjectId AND p.ExpenseBudget is not null AND
len(RTRIM(LTRIM(ra.EmailAddress))) > 0 GROUP BY
ra.EmailAddress, p.Name, p.ExpenseBudget, m.ResourceId

OPEN Email_Cur

--Fetch first record

FETCH NEXT FROM Email_Cur INTO @EmailAddress, @ResId, @ProjectName,
@ExpenseBudget, @ExpenseTotals

WHILE @@FETCH_STATUS = 0

BEGIN
IF @ExpenseTotals > @ExpenseBudget
BEGIN
SET @Overage = @ExpenseTotals - @ExpenseBudget
INSERT EmailQueue(EmailId, ToEmail, BcEmail, CcEmail, SubjectParameters,
BodyParameters) VALUES (@EmailTemplateId, @EmailAddress, NULL, NULL,
@ProjectName + ';' + cast(@ExpenseBudget as varchar(50)) + ';' + cast(@Overage
as varchar(50)))
END

FETCH NEXT FROM Email_Cur INTO @EmailAddress, @ResId, @ProjectName,
@ExpenseBudget, @ExpenseTotals

END
```

```
CLOSE Email_Cur
DEALLOCATE Email_Cur
/*******************************************
```

The parameters stored in the EmailQueue table are: ProjectName, ExpenseBudget and Overage.

About sample code for embedded quick links

For a list of standard Changepoint email templates that support quick links, see "Email templates that support quick links" on page 287.

When you embed a quick link in an email template that is used for trigger-based email notifications, you must modify the triggers and scheduled jobs that populate the EmailQueue table to include the following logic for the embedded link.

Sample code for embedded quick links

The following is sample code for a trigger that includes an embedded quick link to a customer record.

```
--Get the Language of the database.
set @dbLanguage = (select dbLanguage from Version)

--Get the "Please click on this link" text.
set @LinkText = (select ContentShort from PageContent where PageContentId =
70019 and Language = @dbLanguage)

set @QuickLinkURL = @ChangepointURL + '?entityId={' + convert(varchar
(38),@CustomerId) + '}&qlink=CUS'

if @HTML = 1
set @QuickLinkText = '<a href="' + @QuickLinkURL + '">' + @LinkText + '</a>'
else
set @QuickLinkText = @QuickLinkURL
```

Trigger notes for embedded quick links

`Set @QuickLinkURL` identifies the Changepoint server, and the `entityId` contains the GUID of the specific page that will be displayed when the user clicks the embedded link. The `qlink` parameter should be at the end of the link so that the closing bracket of the entity GUID is not dropped when it appears in an email. The following is a list of the `qlink` parameters for each entity type.

```
ENG Engagement
```

```
PRJ Project
TSK Task
REQ Request
OPP Opportunity
PRD Product
KNI Knowledge Item
TIM Time Approval
EXP Expense Approval
INI Invoice
INC Credit Note
RRQ Request Workflow
RRT Resource Request Workflow
WRK Project Workflow
CCA Invoices to Approve
CNA Credit Notes to Approve
ATM Resource Demand
VEX Expense Sheet
WFO Opportunity Workflow
```

Setting up email integration

You can specify the URLs for the links to Changepoint that are in email notification messages.

1. Click **General** > **Email Integration**.
2. In the **Changepoint URL** field, enter the URL for the Changepoint website.
3. In the **Client Portal URL** field, enter the URL for the Client Portal (format: http://server:port/fcElogin.asp).
4. In the **Survey response website URL** field, enter the URL for resources to access the survey response website.
5. Click **Save**.

Enabling alternate names

You can set up a second field for names of companies, opportunities, engagements, workgroups, resources, and projects to be entered and displayed in another language or using another alphabet. In entity profiles, the alternate name is displayed next to the primary name in the format: Primary name - Alternate name.

Note: If the alternate name functionality is subsequently disabled, the existing alternate names will continue to be displayed unless they are deleted first.

1. Click **General** > **Alternate Name Setup**.

2. Select the **Enable alternate names** check box.
3. Click **Save**.

   Note: The web servers must be restarted for the changes to take effect.

Setting up name formatting

You can specify how the names for resources and contacts are displayed. There are separate formats for Asian and non-Asian languages. The default format is **Last Name, First Name**.

The proper full name format for Chinese, Japanese, and Korean names is **LastName FirstName.**

If you change the format, the new name format is applied to existing names only after the record containing the name is subsequently edited. However, you can run the `UpdateFullNames` stored procedure to change all names to the new setting.

1. Click **Resources** > **Custom Name Formatting**.
2. In the **Default name format** list, select the format to use for non-Asian names.
3. In the **Asian name format** list, select the format for Asian language names.
4. Click **Save**.

Setting up sign in and password validation

You can set password rules and require resources to use passwords that follow specific requirements.

1. Click **Resources** > **Sign in and Password Validation**.
2. Set the password rules. For more information, see "Sign in and Password Validation view options" on page 305.
3. Click **Save**.

Sign in and Password Validation view options

Option	Description
Force user to change password at first sign in	When set to **Yes**, resources must change their passwords when signing into Changepoint for the first time, and after their password has been reset.
Number of days until the password expires	Valid values: • 0 – no expiry • 1 to 999
Number of days before the password can be changed	Valid values: • 0 – resources can change their passwords at anytime • 1 to 31
Number of unsuccessful sign-in attempts before the account is locked	Valid values: • 0 – no limit • 1 to 255 Default value: 10
Password complexity rules	
Prevent the use of the user's first name and/or last name as the password	When selected, the resource's first name and/or last name as specified in **Resource Setup** cannot be used, regardless of case.
Force an alphabetic character in the first position	When selected, the first character in the password must be alphabetic.
Force an alphabetic character in the last position	When selected, the last character in the password must be alphabetic.
Minimum number of characters	Valid values: • 0 – no minimum • 1 to 50

Option	Description
Maximum number of characters	Valid values: • 0 – no maximum • 1 to 50
Maximum number of times the same character can be used consecutively	Valid values: • 0 – no maximum • 2 to 50
Maximum number of characters that can be the same as in the previous password	Valid values: • 0 – no maximum • 1 to 50
Minimum number of uppercase characters	Valid values: • 0 – no minimum • 1 to 50
Minimum number of lowercase characters	Valid values: • 0 – no minimum • 1 to 50
Minimum number of numeric characters	Valid values: • 0 – no minimum • 1 to 50
Minimum number of special characters	Valid values: • 0 – no minimum • 1 to 50 Special characters are the following characters: `~!@#$%^&*()_=-+{}[]\:";'<>,.?/` **Note:** The pipe symbol (|) and spaces are not allowed in passwords. Leading and trailing spaces in passwords are removed.
Number of unique passwords required before a password can be reused	Valid values: • 0 – unique passwords are not required • 1 to 100

Enabling secure socket layer support (SSL)

Enabling secure socket layer (SSL) support requests all internal ASP pages with HTTPS protocol to ensure a secure internal environment.

The IIS server must also be configured to support SSL.

1. Click **General** > **Session Security**.
2. Select the **Enable SSL support** check box.
3. Click **Save**.

Enabling enhanced session management

You can prevent active links from being sent by email to unauthenticated resources.

When enhanced session management is enabled, Changepoint and Report Designer are locked and only one active session per browser container is supported. In order to manage two or more active browser sessions, the browser session must be launched from the **Start** menu bar and users have to sign on again, as opposed to reusing an open browser container.

When using this feature, ensure that the server name does not contain an underscore, otherwise client workstations will have to connect to the server using the IP address instead of server name in order to sign in to Changepoint.

> **Note:** When enhanced session management is enabled, the browser must be set to accept cookies. Also, if the server name contains an underscore, resources must use the IP address instead of the server name to sign in to Changepoint.

1. Click **General** > **Session Security**.
2. Select the **Enhanced session management** check box.
3. Click **Save**.

About setting up auto-numbering

You can define the numbering format for the following entity types: customer, engagement, projects, revenue recognition batch and resource request. You can also use a custom stored procedure for numbering.

When auto-numbering is enabled, the ID fields are disabled on the company and engagement dialog boxes and the project editing view in Changepoint. Also, metadata rules for these ID

fields will not be applied. When auto-numbering is disabled, normal metadata rules apply to these ID fields in Changepoint.

Warning: If your organization has an integration between Changepoint and Microsoft Dynamics GP, auto-numbering cannot be used for customers in Changepoint. Microsoft Dynamics GP creates its own customer IDs. The relevant ID field must be left empty in Changepoint before the export. For more information, see the *Microsoft Dynamics GP Toolkit Administration Guide*.

Setting up the auto-numbering scheme

The numbering options that are available depend on the selected entity type.

1. Click **General** > **Auto-Numbering Setup**.
2. Expand the **General** section.
3. In the **Entity type** list, select an entity type.
4. Select one of the following options:
   - To disable the auto-numbering functionality for the selected entity, select the **Do not use auto-numbering** option. Users can enter their own unique IDs for the entity in the entity dialog box in Changepoint.
   - To create a numbering scheme, select the **Use numbering scheme** option and enter the appropriate information in the numbering scheme section. For more information, see "Numbering scheme options" on page 310.
   - To use a custom stored procedure, select the **Use custom stored procedure** option and select the appropriate custom stored procedure in the **Auto-numbering stored procedure** list. All stored procedures with the prefix “AN_” display in the drop-down list. For more information, see "Requirements for auto-numbering stored procedures" on page 308.

   Note: If you switch to using a stored procedure for resource requests, but decide to revert to the original numbering scheme, the request numbers will start at 1 again.
5. Click **Save**.

Requirements for auto-numbering stored procedures

Warning: Custom stored procedures are not supported within the terms of your Changepoint support agreement. It is expected that an individual knowledgeable in both

SQL code and your organization's business practices be responsible for creating and maintaining stored procedures. If you require assistance, contact your account manager to arrange for billable consulting services. Your Changepoint support analyst will be unable to assist you in this area.

The following are guidelines for creating custom stored procedures for the auto-numbering function:

- All custom stored procedure names must start with `AN_` and the name cannot longer than 30 characters.
- Custom stored procedures must not contain any of the `INSERT/UPDATE/DELETE/TRUNCATE` statement against any Changepoint table except for table `AutoNumberUsed`.
- The custom stored procedure object owner must be dbo, for example:

  ```
  CREATE PROCEDURE [dbo].AN_GetNextXXXNumber
  ```

- Inputs should be:

  ```
  @EntityCode char(3)
  @ReferenceID uniqueidentifier
  ```

  The default values are `null id`

- Output should be:

  ```
  @UserDefinedID nvarchar(255) output
  ```

Sample custom stored procedure for auto-numbering:

```
CREATE PROCEDURE [dbo].AN_GetNextXXXNumber (@EntityCode char(3), @ReferenceID
uniqueidentifier = '00000000-0000-0000-0000-000000000000', @UserDefinedID
nvarchar(50) output)
AS
DECLARE @LastNumber bigint

BEGIN TRANSACTION
SELECT @LastNumber = LastNumberUsed
FROM AutoNumberUsed (UPDLOCK)
WHERE EntityCode = @EntityCode and ReferenceID = @ReferenceID
IF @LastNumber is null
BEGIN
set @LastNumber = 1
Insert into AutoNumberUsed (EntityCode, ReferenceId, LastNumberUsed)
values( @EntityCode, @ReferenceID , @LastNumber+1)
END
ELSE
```

```
BEGIN /* increase LastNumberUsed by 1*/
UPDATE AutoNumberUsed SET LastNumberUsed = @LastNumber + 1
WHERE EntityCode = @EntityCode and ReferenceID = @ReferenceID
END
COMMIT TRANSACTION

Set @UserDefinedID = null
Set @UserDefinedID = 'Prj - ' + right( replicate(0, 5) + convert(varchar,
@LastNumber), 5)
/* the new user defined id is "Prj - 00001" */
return
GO
SET QUOTED_IDENTIFIER OFF
GO
SET ANSI_NULLS ON
GO
GRANT EXECUTE ON [dbo].[AN_GetNextXXXNumber] TO [CPACCESS]
GO
GRANT EXECUTE ON [dbo].[AN_GetNextXXXNumber] TO [Changepoint]
GO
```

Numbering scheme options

The following numbering scheme options apply to auto-numbering, export batch numbering, and request numbering.

Enter values in at least one of the parts (A,B, or C). For examples of how to set up this section, see "Numbering scheme examples" on page 311.

Option	Description
Starting value fields	Initial value for part A, B, or C of the number. Only numeric values can be incremented. The maximum value is determined by the number of digits. For example, if you enter “000”, the maximum value is “999”. When the maximum value has been reached, the value is reset to the starting value.
Increment options	Increments the starting value. Options are: • **Never** – The value remains constant. • **Every time** – The value increases by one each time a record is created. • **Annually** – The value increases by one on the selected rollover date. • **On part B rollover** – When the value in part B reaches its maximum value, part B is reset to its starting value, and part A increases by one. • **On part C rollover** – When the value in part C reaches its maximum value, part C is reset to its starting value, and part B increases by one.
Separator text fields and options	Character or space that separates the parts of the number. • **No separator** • **Use space** • **Character**
Reset numbering on rollover of previous part check box	When selected, causes the part to be reset when the previous part reaches its maximum value. **Note:** If **On part B rollover** is selected, the **Reset numbering on rollover of previous part** setting is ignored.
Next rollover date field	Date on which the part number is set to change annually. This is usually the first day of the new fiscal year.

Numbering scheme examples

Example 1

The following settings generate numbers that always begin with CAN and the current year, and end with a number based on the sequence in which records are created. A hyphen

separates the number parts.

For example: CAN-2014-00001, CAN-2014-00002, CAN-2014-00003, and so on.

Example 2: Resetting numbering on rollover of previous part

If part A is “CAN”, part B has the starting value “2014” and increments annually, part C is set at 00000 and the next rollover date is set to 1/1/2015, then on January 1, 2015 the record number resets to CAN-2015-00000.

About setting up custom stored procedures for portfolio health

Changepoint provides a standard project and portfolio overall health calculation for the numeric equivalent of the red (3), yellow (2) or green (1) status of each metric multiplied by the metric weighting. You can replace the existing calculation and create custom stored procedures to generate the red/yellow/green status. If you create custom stored procedures, they will be available for selection on the **Health** tab when creating or editing portfolios in Changepoint. The selected stored procedures will replace the health calculation for the items in the portfolio, and the overall health of the portfolio. It will also determine the color status for each item.

Warning: Custom stored procedures are not supported within the terms of your Changepoint support agreement. It is expected that an individual knowledgeable in both SQL code and your organization's business practices be responsible for creating and maintaining stored procedures. If you require assistance, contact your account manager to arrange for billable consulting services. Your Changepoint support analyst will be unable to assist you in this area.

The following are guidelines for creating custom stored procedures for portfolio item and portfolio overall health:

- The name of the custom stored procedure must begin with either `PFHI_` (for portfolio health item) or `PFHS_` (for portfolio health summary). The name is not case sensitive. The name cannot be longer than 30 characters.
- Custom stored procedures must not contain `INSERT/UPDATE/DELETE/TRUNCATE` commands.
- The custom stored procedure object owner must be dbo.
- The four input parameters are:

  ```
  ProjectID GUID
  FiscalYearID GUID
  FiscalPeriodID GUID
  ProjectStatus varchar(3)
  ```

  The `ProjectID` parameter can be used for both project and rollup portfolios. The SQL code itself should distinguish between the types of records, if necessary.

- The output parameter is:

```
ColourCode varchar(1)
```

The custom stored procedure should return either `R`, `G`, `Y`, `W` or "". Any other return value will be treated as `W` by the portfolio pages.

14. Survey Management

About survey management

Using Survey Management, you can create and send surveys, and analyze the survey responses. You can create entirely new surveys, or use a corporate or personal template as a starter. You can add images to the header of the survey (for example, a logo) and watermarks to the survey page.

You can create surveys that can be sent automatically when a specific trigger event occurs in Changepoint, such as a won opportunity, a completed project, or a closed request.

You can include rating questions in your surveys to allow customers and resources to provide feedback on the performance of resources and projects.

After a survey has been completed, you can view individual or combined survey results in report or chart form. Survey results can also be exported as a tab-delimited file or as an XML file, for further analysis and review.

About accessing surveys

You can access surveys from the following areas in Changepoint:

- **Surveys** tree view.
- Changepoint home page – You can set up surveys to be displayed in the **Survey Management** portlet and then add the portlet to the home page. You can also view automated surveys that are pending approval and surveys that are within two weeks of their expiry date in the **My Reminders** portlet. All pending automated and expiring surveys appear in both of these portlets automatically for survey administrators.
- Company, contact, and resource profiles – You can view the list of surveys to which companies, contacts, and resources responded. For more information, see "Viewing survey results from a resource or contact profile" on page 342 and "Viewing surveys and ratings results that are associated with an entity" on page 342.

Survey status

Surveys are grouped in folders according to their status.

Status	Description
Draft	Surveys that have been created and saved but not yet sent to respondents
Automated	Surveys that are automatically sent to respondents when a trigger event occurs in Changepoint
Active	Surveys that have been sent to respondents
Expired	Surveys that have passed their expiry date
Completed	Surveys that have been marked as completed

Accessing a survey

1. Click **General** > **Surveys**.

   The **Surveys** tree view appears and displays the surveys grouped in folders according to their status.

2. Expand the status folder and click the survey.

   The survey opens in a new window.

Surveys tree view options

By default, all surveys appear grouped by status in the **Surveys** tree view. Use the **Options** menu to filter or group the surveys in the tree view. The options are as follows:

- **Filtering** options
  - **All surveys** – Displays all surveys.
  - **Pending** – Displays only pending surveys.
  - **Responded** – Displays only surveys to which respondents have responded.
- **Group surveys** options
  - **No grouping** – Groups surveys by status (default setting).
  - **By creation date** – Groups surveys within each status folder by the date they were created.

    - **By author** – Groups surveys within each status folder by the names of the resources who created them.

- **Group respondents** options
    - **No grouping** – Groups the respondents of each survey by respondent name (default setting).
    - **By category** – Groups the respondents of each survey by respondent category (Company, Resource, Unknown, or Non-categorized).
    - **By response date** – Groups the respondents of each survey by the date that they responded to the survey.
    - **By sent date** – Groups the respondents of each survey by the date that the survey was sent to them.
- **Respondents** options
    - **Show rejected respondents** – Includes respondents that have been rejected from the survey.
    - **Hide rejected respondents** – Hides respondents that have been rejected from the survey.
- **Survey details** options
    - **Show** – Displays the creation date and author of the survey beside the survey name.
    - **Hide** – Hides the additional information and displays only the survey name (default setting).

About creating surveys

When creating a survey, you can:

- make your survey anonymous so that the names of respondents are not revealed in the results
- enable *prompt tags*, which are placeholders that are replaced with specific entity values when the survey is sent
- set up the survey to be sent automatically when a trigger event occurs in Changepoint.

After you create a survey, you can add images and additional text to the survey and edit the default messages for the survey.

About automated surveys

You can set up a survey to be sent automatically when a trigger event occurs in Changepoint. When you create an automated survey, you specify the trigger event. You can choose from the following trigger events:

- **Won opportunity**
- **Completed project**
- **Closed request**
- **Custom** – You can create up to ten additional custom trigger events.

Each trigger event is associated with a specific type of predefined respondent.

An automated survey is sent only to the respondents that the survey administrator approves.

Creating a survey

1. Click **New** > **Survey**.

   The **Create Survey** view appears in a new window.

2. Complete the fields as required. For more information, see "Create/Edit Survey view options" on page 319.

3. Add questions to the survey. For more information, see "Adding a question to a survey" on page 320.

4. Click **Actions** > **Save**.

   The survey is saved in the **Draft** folder in the **Surveys** tree view.

5. Before you send the survey to respondents, you can configure the appearance of the survey and the survey messages. For more information, see the following topics:

   - "Adding text and images in header of a survey" on page 325
   - "Adding a background image to a survey" on page 326
   - "Configuring the email messages used in a survey" on page 327

Create/Edit Survey view options

Option	Description
Survey name field	Name of the survey.
Description field	Description.
Anonymous check box	When selected, the names of the resources who respond to the survey are replaced, in the results, with Respondent 1, Respondent 2, and so on.
Use prompt tags check box	When selected, prompt tags can be used in the survey. **Note:** Prompt tags cannot be used in automated surveys because replacement values must be specified for prompt tags when the survey is sent.
Trigger event for automated survey list	If a trigger event is specified, the survey is automatically sent when the trigger event occurs. Default is **None**. Options include: • **Won opportunity** – When the status of the associated opportunity is marked as won, the survey is sent to the email address of the main contact of the company • **Completed project** – When the project is marked as completed, the survey is sent to the email address of the main contact of the company. • **Closed request** – When the request is closed, the survey is sent to the email address of the initiator of the request.
Start date field	Start date.
Expiry date field	Expiry date.

Creating a survey from a template

1. Click **Resources** > **Performance Management**.

   The **Performance Management** tree view appears.

2. Expand the **Survey Templates** folder.

3. Expand the appropriate templates folder, and then select the template.

The survey template appears.

4. Click **Actions** > **Create survey from template**.

   A new window, **Create survey from template**, appears.

5. Make the necessary changes. For more information, see "Create/Edit Survey view options" on page 319.

6. Click **Actions** > **Save**.

   The survey is saved in the **Draft** folder in the **Surveys** tree view.

Adding a question to a survey

1. Access the survey.

2. Click **Actions** > **Edit survey**.

   The edit survey view appears.

3. In the **Question editor** section, click **New**.

4. Complete the fields as required. For more information, see "Question editor options" on page 320.

5. Click **Save**.

   The question is added to the survey.

6. Click **Actions** > **Save**.

Question editor options

Not all of the following options are available for all question types.

Option	Description
Question type list	Type of question to be added.
Question field	Text for the question.
Mandatory check box	When selected, the respondent must answer the question before the survey can be completed.

Option	Description
Display horizontally check box	When selected, the answer options display horizontally rather than vertically.
Answer choices field	Text for the answers, separated by a return (press **Enter**).
Allow users to enter another answer check box	When selected, a question option is added with a text field for respondents to enter their own text. The default text for the question is **Other. Please specify.**, but you can change it.

Question types

Question type	Description
Instructions	Displays instructions for the respondents to complete the survey.
Comment - One line	Open-ended question format, with a text box for respondents to enter short answers.
Comment box	Open-ended question format, with a text box for respondents to enter answers of several lines.
Multiple-choice (commented)	Closed-ended question format, with a finite set of answers from which respondents choose. Also provides text boxes where respondents enter brief comments.
Multiple-choice	Closed-ended question format, with a finite set of answers from which the respondents choose.
Rating question	Question format where respondents rank something on a scale of 1 to 5.
Single-choice	Closed-ended question format, with a finite set of answers from which respondents choose only one.
True/False	Respondents can only answer True or False.
Yes/No	Respondents can only answer Yes or No.

About rating questions

You use rating questions in a survey when you want respondents to rate something on a scale of 1 to 5. The order in which you enter the answer options in the **Question Editor** determines both the order in which the answer options are displayed on the survey, and the rating of the answer options starting with 1 and increasing to 5. However, the rating numbers do not display on the survey.

The rating numbers are used to measure performance on the customer report card and from the company profile. Use the rating scale consistently for all rating questions. That is, if 1 is the most negative rating and 5 is the most positive rating for one question, use this rating scale for all of the rating questions.

Note: Only rating questions without prompt tags are included on the customer report card.

Editing or deleting a question in a survey

You can edit a question, move it up or down in the survey, or delete it.

1. Access the survey.
2. Click the question.
3. To move the question, right-click the question and select **Move up** or **Move down**.
4. To edit the question, make the necessary changes in the **Question editor**.
5. To delete a question, right-click the question and then select **Delete question**.
6. Click **Save**

Previewing a survey

1. Access the survey.
2. Click **Actions** > **View** > **Survey preview**.

   The survey appears in a new window.

Editing a survey

Only draft surveys can be fully edited. For active, automated, and expired surveys, you can only change the expiry date.

1. Access the survey.

2. Click **Actions** > **Edit survey**.

   The **Edit Survey** view appears.

3. Make the necessary changes.

4. Click **Actions** > **Save**.

Deleting a survey

1. Access the survey.

2. Click **Actions** > **Edit** > **Delete survey**.

3. Click **OK** to confirm.

About prompt tags

Prompt tags are placeholders that you replace with specific entity values when you send the survey. For example, to create a survey for evaluating the overall performance of a resource who worked on a project, you can insert a prompt tag that references the Resource entity and Resource name field into the survey question:

```
How do you rate the overall performance of [prompt@employee@Resource.Name] who
managed your project?
```

When sending the survey, you specify the resource as “John Smith”. The question appears as follows to survey respondents:

```
How do you rate the overall performance of John Smith who managed your project?
```

You can evaluate more than one resource or entity in one survey. For example, the first question can be related to a specific project manager and the second question to a specific sales representative. It is also possible to use multiple prompt tags in one question. For example:

```
How do you rate your overall satisfaction regarding the project
[prompt@project@Project.Name] managed by [prompt@employee@Resource.Name]?
```

Inserting a prompt tag into a survey question

1. Access the survey.

   The survey appears in a new window.

2. Click **Actions** > **Edit Survey**.

   The **Edit Survey** view appears.

3. Select the **Use prompt tags** check box.
4. Do one of the following:
   - In the **Question Editor**, add a new question.
   - To insert the prompt tag into an existing question, click the question in the survey.
5. In the **Question** field of the **Question Editor**, right-click in the text where you want to insert the prompt tag.

   The **Insert Prompt Tag** dialog box appears.
6. In the **Description** field, enter a description for the prompt tag.
7. In the **Entity type** list, select the entity.
8. In the **Field** list, select the entity field.
9. Click **Add**.

   The prompt tag is added to the question.
10. In the **Question Editor**, click **Save**.
11. Click **Actions** > **Save**.

Controling access to a survey

By default, only the creator of a survey and survey administrators can edit surveys and view survey results. However, you can grant view and edit access to other resources or prevent resources from viewing survey results of questions that include prompt tags that refer to other resources.

1. Access the survey.
2. Click **Actions** > **Edit** > **Access control**.

   The **Access Control** dialog box appears.
3. Select the options for each resource as required. For more information, see "Access Control dialog box options" on page 325.
4. Click **Save**.

Access Control dialog box options

Option	Description
Edit survey check box	When enabled, the resource can edit the survey.
View results check box	When enabled, the resource can view survey results.
Exclude results check box	When enabled, the resource cannot view results of questions that include prompt tags that refer to other resources.

Configuring the layout of a survey

You can add images and text in the header of a survey, use images as the survey background or change the standard text of email messages. For more information, see:

- "Adding text and images in header of a survey" on page 325
- "Adding a background image to a survey" on page 326
- "Configuring the email messages used in a survey" on page 327

Adding text and images in header of a survey

You can add an image (such as a logo), or text (such as instructions for the respondents) in the header of a survey.

1. Access the survey.
2. Click **Actions** > **Edit** > **Configure theme**.

   The **Configure Theme** dialog box appears.
3. To add an image to the survey header:
   a. Click the **Header image** tab.
   b. If necessary, add the image to the **Image** list. For more information, see "Adding an image to the list of images for a survey" on page 326.
   c. In the **Image** list, select the image. The image appears.
   d. Select the alignment option.
4. To add text:

a. Click the **Header text** tab.

b. Enter the text. For more information, see "Header text tab options" on page 328.

5. Click **Save**.

6. To preview the changes, click **Actions** > **View** > **Survey preview**.

Adding a background image to a survey

You can add an image as a background watermark to a survey.

1. Access the survey.

2. Click **Actions** > **Edit** > **Configure theme**.

   The **Configure Theme** dialog box appears.

3. Click the **Background image** tab.

4. If necessary, add the image to the **Image** list. For more information, see "Adding an image to the list of images for a survey" on page 326.

5. In the **Image** list, select the image.

6. Click **Save**.

7. To preview the changes, click **Actions** > **View** > **Survey preview**.

Removing an image from a survey

You can remove an image from the header or the background of a survey.

1. Access the survey.

2. Click **Actions** > **Edit** > **Configure theme**.

   The **Configure Theme** dialog box appears.

3. Click the **Header image** tab or **Background image** tab.

4. Click **Reset**.

5. Click **Save**.

Adding an image to the list of images for a survey

1. Access the survey.

2. Click **Actions** > **Edit** > **Configure theme**.

The **Configure Theme** dialog box appears.

3. Click the **Header image** or **Background image** tab.
4. In the **Image** list, click **<Upload an image>**.

   The **Upload Image** dialog box appears.

5. Click **Browse** to locate the file on your system.
6. Click **Upload**.

   The file is added to the **Image** list.

7. Click **OK**.
8. To add the image to the header or background, according to the tab you selected in step 3, click the image name.
9. Click **Save**.

Configuring the email messages used in a survey

You can specify the standard text of the following message types in a survey: email message, reminder message, refill message, completion message, and closing message.

1. Access the survey.
2. Click **Actions** > **Edit** > **Configure theme**.

   The **Configure Theme** dialog box appears.

3. Click the tab for the message.
4. Complete the fields as required. For more information, see "Configure Theme dialog box options" on page 328.
5. Click **Save**.

Configure Theme dialog box options

Header image tab options

Field or option	Description
Alignment option	Alignment of the image
Image list	Image to appear in the header of the survey page.

Background image tab options

Field or option	Description
Image list	Image to appear in the background of the survey page.

Header text tab options

The default header text includes variable tags that are replaced by actual values when you send the survey. You can edit the default text, and remove and insert tags as required. The following table includes a complete list of the tags.

> **Note:** You must enter the tags exactly as they are listed here, including the square brackets and excluding spaces.

Tag	Replaced in the survey by:
[survey.sentto]	Respondent's name
[survey.name]	Survey name
[survey.senttocompany]	Company (if the respondent is a contact), or workgroup (if the respondent is a resource)
[survey.description]	Description of the survey
[survey.expiredate]	Expiry date of the survey

Tag	Replaced in the survey by:
[reference.refname]	Entity name (for example, project name, opportunity name, request number), if the survey is associated to an entity
[reference.description]	Text from the **Short Description** field (requests only) or **Comments** field of the entity

Email message tab options

Specifies the default text that appears in the following places:

- **Submit Survey** dialog box when you send a survey
- email in which the survey invitation is sent to respondents

Field	Description
Subject field	Name of the survey.
Sender field	Email address from your resource profile. This field is not available if your organization uses SQLMail for electronic mail.
Message text box	Body text of the email.

Reminder message tab options

Specifies the default text that appears in reminder messages that are sent to respondents.

Field	Description
Subject field	Name of the survey.
Message text box	Body text of the email

Refill message tab, Completion message tab and Closing message tab options

Specifies the default text that appears in the following messages:

- Refill – message that appears when a respondent tries to access the survey after they have submitted it
- Completion – message that appears when a respondent submits the survey
- Closing – message that appears when a respondent tries to access the survey after it has expired or has been closed.

Field	Description
Message text box	Body text of the email

Adding a survey to the Survey Management portlet

1. Click **General** > **Surveys**.

   The **Surveys** tree view appears.

2. Expand the status folder to locate the survey.
3. Right-click the survey and click **Add to portlet**.
4. To remove the survey, right-click the survey and click **Remove from portlet**.

About survey templates

Survey templates are surveys that have been created or saved for reuse in one of the following survey template folders:

- **System templates** – Standard Changepoint templates that cannot be edited, but can saved as a corporate template or as a personal template, which you can then edit.
- **Corporate templates** – User-defined templates that can be used and edited by all resources.
- **Personal templates** – User-defined templates that can be used and edited only by the resource who created them.

In each survey template folder, templates are grouped into categories. There must be at least one category in a folder before you can save a survey template.

Creating a template category

1. Click **Resources** > **Performance Management**.

The **Performance Management** tree view appears.

2. Expand **Survey Templates**.
3. Click the **Corporate Templates** folder or **Personal Templates** folder, or an existing template category.
4. Click **Actions > Create template category**, or **Actions >Edit > Create template category**.

   The **Create Template Category** dialog box appears.
5. In the **Template category** field, enter the name of the template category.
6. In the **Description** field, enter a description of the template category.
7. Click **Save**.

Editing or deleting a template category

You can only edit or delete the template categories for corporate and personal templates.

1. Click **Resources > Performance Management**.

   The **Performance Management** tree view appears.
2. Expand **Survey Templates**.
3. Expand the **Corporate Templates** folder or **Personal Templates** folder, and then select the template category.
4. To edit the template category:
   a. Click **Actions > Edit template category**.

      The **Edit Template Category** dialog box appears.
   b. Make the necessary changes.
   c. Click **Save**.
5. To delete the template category:
   a. Click **Actions > Delete template category**.
   b. Click **OK** to confirm.

Accessing a survey template

1. Click **Resources** > **Performance Management**.

   The **Performance Management** tree view appears.

2. Expand the **Survey Templates** folder.

3. Expand the folders to locate the survey template.

4. Click the survey template.

   The survey template appears.

Creating a corporate or personal survey template

1. Click **Resources** > **Performance Management**.

   The **Performance Management** tree view appears.

2. Expand the **Survey Templates** folder.

3. Do one of the following:

   - To create a corporate template, expand the **Corporate Templates** folder, then right-click a template category folder and select **Create template**.

   - To create a personal template, expand the **Personal Templates** folder, then right-click a template category folder and select **Create template**.

   The **Create Survey Template** dialog box appears.

4. Complete the fields as required. For more information, see "Create/Edit Survey view options" on page 319.

5. Click **Actions** > **Save**.

Editing a survey template

You can only edit corporate and personal templates. However, you can save a system template as a corporate or personal template then edit the saved template.

1. Access the survey template.

2. Click **Actions** > **Edit template**.

   The **Edit Survey Template** view appears.

3. Make the necessary changes. For more information, see "Create/Edit Survey view options" on page 319.
4. Click **Actions** > **Save**.

Deleting a survey template

You can only delete corporate and personal templates.

1. Access the survey template.
2. Click **Actions** > **Edit** > **Delete template**.
3. Click **OK** to confirm the deletion.

Saving a survey or a survey template as a corporate template

1. Access the survey or the survey template.
2. Click **Actions** > **Save as** > **Corporate template**.

   The **Corporate Template** dialog box appears.
3. In the **Corporate template category** list, select the template category.
4. Click **Save**.

Saving a survey or a survey template as a personal template

1. Access the survey or the survey template.
2. Click **Actions** > **Save as** > **Personal template**.

   The **Personal Template** dialog box appears.
3. In the **Personal template category** list, select the template category.
4. Click **Save**.

About sending surveys

You can send surveys that are in any status except **Expired** and **Completed**. However, you can reactivate an expired survey first and then send it.

When you send a draft survey, it is moved from the **Draft** folder to the **Active** folder, and the respondents are listed under the **Active** folder in the **Surveys** tree view. The names of respondents display in red until they respond to the survey, after which the names display in black. If respondents are rejected by the survey administrator, their names displays in blue.

You can select respondents for surveys from the Changepoint resources and contacts that have email addresses in their profiles, and you can enter email addresses directly. You can also set up distribution lists of respondents.

About sending surveys that include prompt tags

When you send a survey that includes prompt tags, you must select the specific entity names or records to replace the prompt tags.

If a question contains multiple prompt tags, you do not have to select values for all prompt tags. If you skip a prompt tag, the prompt tag's information is not displayed in the question. If you skip all prompt tags for a question, the entire question is not displayed.

You can also associate the survey with an entity record. For example, if you associate a survey to a project, you can view the responses to the survey in the **Survey Ratings** view of the project profile. The project name also appears in the **Reference** field of the respondent's survey profile.

About sending automated and non-automated surveys

You can send surveys by email to surveys respondents using the **Actions** > **Send** command.

When you send a *non-automated* survey, an invitation is sent by email to survey respondents.

When you send an *automated* survey, the survey moves from the **Draft** folder to the **Automated** folder. When the trigger event occurs, a notification appears in the **My Reminders** portlet of survey administrators. The survey invitation is not sent to respondents until the survey administrator reviews the survey, and then it is sent only to the respondents that the survey administrator approves.

Sending a survey to respondents

1. Access the survey.
2. If the survey is in the **Draft** folder, click **Actions** > **Edit survey**.
3. Ensure that the expiry date allows the respondents enough time to respond to the survey.
4. Do one or both of the following:
   - Click the **Distribution list** link and then select a distribution list to add to the **Respondents** field.

- In the **Recipients** field, enter the email addresses of the respondents, separated by semicolons.

5. Click **Actions** > **Send**.
6. If the survey includes prompt tags, the **Prompt Tag Selection** dialog box appears:
   a. In the **Associate survey with entity** list, select the entity type to be associated with the survey.
   b. In the **Associate survey with entity** type-ahead field, enter the entity name.
   c. In the **Prompt** type-ahead field for each prompt tag description, enter a value.

      The **Display** column shows how the value appears on the survey.
   d. Click **Go**.

   The **Survey Email** dialog box appears.
7. Complete the fields as required. For more information, see "Survey Email dialog box options" on page 335.
8. Click **Send**.

Survey Email dialog box options

Option	Description
Subject field	Subject line of the survey email.
Sender field	Your email address. **Note:** The **Sender** field is not available if your organization uses SQLMail for email.
Message list	Default email message as configured for the survey.

Prompt Tag Selection dialog box options

Option	Description
Associate survey with entity list	Entity type that is associated with the survey (that the survey references).
Associate survey with entity type-ahead field	Specific entity record to be associated with the survey. If the same entity that is associated to the survey is referenced in a prompt tag, then this entity record becomes the default value for the prompt tag.
Prompt type-ahead field	Value to replace the prompt tag in the survey

Reactivating an expired survey

To reactivate an expired survey, you change the expiry date to a date in the future.

1. Access the expired survey.
2. In the **Expiry date** field, change the date to a date in the future.
3. Click **Actions** > **Save**.

   The survey is activated and moved into the **Active** folder in the **Surveys** tree view.

Approving and rejecting respondents for an automated survey

Survey administrators approve or reject the sending of an automated survey to respondents.

1. Access the survey.
2. In the **Respondents** section, click the number link in the **Pending automated surveys** field.

   The **Automated Survey Approval** dialog box appears.
3. Do one of the following:
   - To accept all respondents and send the survey, select the **Accept** check box in the heading row of the table.
   - To remove all respondents and cancel the survey, select the **Reject** check box in the heading row of the table.

- To reject or accept individual respondent, select the **Accept** or **Reject** check boxes for each contact.

4. Click **Go**.
5. If you selected **Accept** for at least one respondent, the **Survey Email** dialog box appears.
6. Edit the **Subject**, **Sender** and **Message** fields as required.
7. Click **Send**.

About distribution lists

You can create distribution lists to use when sending surveys.

You can select the distribution list members from resources and contacts that contain valid email addresses in their profiles. In addition to selecting from these categories, you can also add members manually to a distribution list. When you add a member manually, it is automatically added to the *non-categorized* group.

You can make your distribution lists available for other resources to use by making them public. Public distribution lists have an icon beside their name.

Accessing a survey distribution list

You can access the distribution lists from any survey profile.

1. Access a survey.
2. Click **Actions > View > Distribution lists**.

   The **Distribution Lists** view appears.
3. In the **Distribution list** section, click a distribution list.

   The distribution list members are displayed in the **Member list** section.

Creating a survey distribution list

1. Access a survey.
2. Click **Actions > View > Distribution Lists**.

   The **Distribution Lists** view appears.
3. In the **Distribution list** section, click **<New distribution list>**.

   The **Distribution list** fields and the **Member list** section are cleared.

4. In the **Distribution list** field, enter a name for the distribution list.
5. To allow all resources to use the distribution list, select the **Public** check box.
6. Add members to the distribution list. For more information, see:
   - "Adding a member manually to a survey distribution list" on page 338
   - "Selecting existing members for a survey distribution list" on page 339
7. Click **Save**.

Adding a member manually to a survey distribution list

When you add a member manually to a survey distribution list, the member is automatically added to the **Non-categorized** group. The next time you select respondents for a survey, you can select the member from the **Non-categorized** group.

1. Do one of the following:
   - Access the distribution list.
   - Create a new distribution list.
2. In the **Member list** section, click **<New member>**.
3. In the **New Member** section, enter the first name, last name and email address of the new member.
4. Click **Save**.

   The member information displays in the pane.
5. Click **Update** or **Save**.

Editing a member of a survey distribution list

You can only edit the members that were previously added manually. To edit a contact or resource, you must access the contact or resource profile.

1. Access the distribution list.
2. In the **Member list** section, click the member.
3. Make the necessary changes.
4. Click **Update**.

Selecting existing members for a survey distribution list

You can select existing members for a distribution list from the following categories:

- **Companies** – contacts that have email addresses in their profiles
- **Resources** – resources that have email addresses in their profiles
- **Non-categorized** – members that have previously been added manually.

1. Do one of the following:
   - Access the distribution list.
   - Create a new distribution list.
2. In the **Filter criteria** section, do one of the following:
   - To add contacts, select **Companies**. The **Filter Expression** section appears.
   - To add resources, select **Resources**. The **Filter Expression** section appears.
   - To add email addresses that were previously added manually to the distribution list, select **Non-categorized**. Go to step 7.
3. In the **Criteria**, **Condition** and **Value** lists, select values to create a filter expression.
4. Click **Add**.
5. If required, add more filter expressions.
6. Click **Go**.

   The matching members display in a tree view in the **Matching records** section.
7. Do one of the following:
   - To add individual members, click the member.
   - To add all of the members, click the double left arrow.
8. Click **Update** or **Save**.

Editing a survey distribution list

You can change the name and availability of a distribution list, and add and remove members from a distribution list.

1. Access the distribution list.

2. Make the necessary changes to name and availability.
3. To delete a manually added member:
   a. In the **Member list** section, click the member.
   b. Click **Delete**.

   This also removes the member from the list.
4. To remove a member:
   a. In the **Member list** section, click the member.
   b. Click **Remove**.
5. To remove all members, in the **Member list** section, click the double right arrow.
6. Click **Update**.

Deleting a survey distribution list

1. Access the distribution list.
2. Click **Delete**.
3. Click **OK** to confirm.

Sending a reminder email to a respondent

You can send email reminders to respondents who have not submitted the survey.

1. Access the survey.
2. In the **Respondents** section, click the number link in the **Outstanding respondents** field.

   The **Outstanding Respondents** dialog box appears. In the **Outstanding Respondents** dialog box, the **Reminders** column indicates the number of reminders that have been sent to each respondent.
3. Do one of the following:
   - To send a reminder email to some of the respondents, select the **Accept** check box next to the respondent's name.
   - To send a reminder to all respondents, select the **Accept** check box in the header row of the table.
4. Click **Go**.

The **New Reminder** dialog box appears.

5. Edit the **Subject**, **Sender** and **Message** fields, if required.
6. Click **Send**.

   The reminder is sent to the respondents that you selected in step 3.

Viewing survey results from the survey profile

The survey profile lists the survey questions and responses. Each question shows the number of responses that were submitted. Rating and selection questions show the percentage of respondents who chose a specific answer. The percentage of respondents is presented visually as a horizontal bar.

Questions for which the respondents typed an answer display the number of submitted responses as a link. Click the link to view the response typed by each respondent.

There are options for viewing and analyzing survey results in the survey analysis view. For more information, see "Accessing the survey analysis view" on page 345.

Viewing survey results from individual respondents

In the **Surveys** tree view, each of the respondents is listed under the survey. The respondents are color-coded as follows:

- black – have submitted a survey response
- red – have not submitted a survey response
- blue – were rejected.

To view the rejected respondents, click **Options** > **Show rejected respondents** in the **Surveys** tree view.

1. Access the survey, but instead of clicking the survey name, expand the survey.

   The respondents are displayed.

   Tip: You can point to the respondent to display the email address and reference information.

2. Click the respondent.

   The survey answers display in the **Response information** section.

Viewing survey results from a resource or contact profile

You can view the surveys results from the profiles of resources or contacts who have submitted the survey.

1. Access the profile of the resource or contact.
2. Click **Actions** > **View** > **Surveys**.

   The list of surveys that the resource or contact submitted appears.
3. In the **Survey** column, click the name of the survey.

   The survey appears in a new window.

Viewing surveys and ratings results that are associated with an entity

If a survey includes rating questions associated with an entity (for example, a project), you can view the survey and the results from the associated entity profile.

1. Access the entity.
2. Click **Actions** > **View** > **Survey ratings**.

   The **Survey Ratings** view appears.
3. To view a survey that is associated with the entity, click the survey link in the **Entity-based surveys** section.
4. To view the results of the ratings questions that reference the entity, click the survey link in the **Entity-based survey questions** section.

About the company report card

A company report card is a summary of customer information that is available from the company profile. You can also view customer report card data in the **Customer Radar** report.

The report card includes the following sections:

Company information

Includes general information from the company profile.

Company status

- Number of active projects

- Sales reference status
- Customer satisfaction rating – the average of all survey responses to rating questions that do not have custom tags. For more information, see the *Performance Metric Calculations Reference Guide*.

Financial outlook

- **Current opportunities** – The number of current opportunities currently associated with the customer. Current opportunities are configured to be included in the forecast rollup and do not have a specified outcome.
- **Total value** – total of the revenue forecast amounts for current opportunities.
- **Weighted value** – value of current opportunities, which is calculated as follows:

  sum of revenue forecast * probability * 100

Financial history

- **Average days to payment** – average number of the days between the date that invoices were sent to the customer and the date that they were paid or the current date (for pending payments).
- **Total revenue** (last 12 months). The total revenue, which is the sum of the total (net of taxes) for invoices created within the last 12 months, and with the status **Approved**, **Committed**, **Sent**, **Paid** or **Archived**.
- **Accounts receivable**. The total amount in accounts receivable, which is the sum (including taxes) of payments for invoices that are not deleted and have a status of **Sent**.
- **Gross margin** – calculated as follows:

  Profit – gross margin% (Revenue – Cost) / Revenue * 100%

  - Revenue = total amount of revenue from invoiced time, expenses, request time, fixed fees, and products – Total write-offs to date (see below)
  - Cost = Total cost for invoiced time, expenses, request time, products, unbillable time, unbillable expenses
  - Total write-offs (to date) = Total amount written off for time, expenses, support time, products + total for invoices that have the status **Active**, **Committed**, **Sent**, **Paid** or **Archived**

Viewing a company report card

1. Click **General** > **Companies**.

   The **Companies** tree view appears.

2. Expand the folders to locate the company.

3. Click the company name.

   The company appears.

4. Click **Actions** > **View** > **Report card**.

   The report card appears.

About analyzing survey results

The following methods for analyzing survey results are available in the survey analysis view of each survey.

Reports

The following reports are available:

- **Text responses** – Shows the typed responses of each respondent.
- **Survey summary** – Shows the number of responses, the number of outstanding responses, the date the survey was sent, and the date the response was received. This report also shows a list of respondents who no longer receive email survey reminders.
- **Response trend analysis** – Shows the date the response was received, the date the survey was sent, and the name and email address of the respondent. This information shows the responses made to the survey over time.
- **Questions and responses totals** – Shows all questions in the survey, the number of respondents, and the percentage of respondents who choose a specific answer (except for questions for which respondents entered comments).

Charts

The following chart views are available:

- **Response trend analysis** – Shows the number of responses to a survey over time in the type of chart selected (clustered column, clustered bar, line or exploded pie).

- **Single question analysis** – Shows the number of respondents to a single selected question from the survey. You can select any question in the survey for analysis except the questions where respondents entered comments.

Pivot Table

You can view the survey results in a pivot table. You can change the view of the data to see more details or calculate different summaries, such as counts or averages. You can also export the pivot table to Microsoft Excel.

Accessing the survey analysis view

You can filter the information in the survey analysis view to specific customers, resources, or non-categorized individuals.

1. Access the survey view.
2. Click **Actions** > **View** > **Analysis**.

   The survey analysis view appears.
3. To filter the information in the reports, charts or pivot table:
   a. In the **Filter criteria** section, do one of the following:
      - To include responses from contacts, select **Companies**.
      - To include responses from resources, select **Resources**.
      - To include responses from respondents that are neither contacts nor resources, select **Non-categorized**.

   b. If you selected **Companies** or **Resources**, you must select a criterion, a condition, and a value to create an expression.

   c. Click **Add**. The expression is added to the **Expression** section.

   Tip: You can add more expressions, if required. To remove an expression from the list, select it and click **Remove**.

   d. To restrict the time frame, edit the start date or end date.
4. Access the reports, charts and pivot table.

Viewing the survey analysis reports

1. Access the survey analysis view.
2. In the **Reports** section, click a report type.

The report opens in a new window.

3. Do one of the following:
   - To print the report, click **Print**.
   - To close the report, click **Close**.

Viewing the Response Trend Analysis chart

1. Access the survey analysis view.
2. In the **Charts** section, click **Response trend analysis**.

   The **Changepoint - Response Trend Analysis** window appears.
3. In the **Select a chart type** list, select the chart.

   A chart displays the survey data results. While the chart window is open, you can change the chart type at any time.
4. Do one of the following:
   - To print the report, click **Print**.
   - To close the report, click **Close**.

Viewing the Single Question Analysis chart

Questions for which respondents typed an answer are not available in this chart.

1. Access the survey analysis view.
2. In the **Charts** section, click **Single question analysis**.

   The **Changepoint - Single Question Analysis** window appears.
3. In the **Select a question** list, select the question to analyze.
4. In the **Select a chart type** list, select the chart.

   A chart displays the survey data results. You can change the chart type at any time.
5. Do one of the following:
   - To print the report, click **Print**.
   - To close the report, click **Close**.

Viewing the PivotTable report

1. Access the survey analysis view.
2. In the **PivotTable Report** section, click **PivotTable report**.

   The **Changepoint - PivotTable Report** window appears.
3. Manipulate the data in the table as required. For more information about working with pivot tables, see the Microsoft Excel online help.

Exporting the Pivot Table report to Microsoft Excel

You can export the data from the Pivot Table report to a Microsoft Excel spreadsheet.

Certain layouts and calculations in the detail fields do not appear in Microsoft Excel if the pivot table was saved from the Internet. Also, the calculation of values in some fields may be different in Microsoft Excel than in Changepoint.

1. Adjust the pivot table to ensure a clean export to Excel. For more information, see the Microsoft Excel online help.
2. Click .

   The data from the pivot table displays in an Excel spreadsheet. **Sheet1** contains the data that was grouped in Changepoint. **Sheet2** contains all the data.

Using survey results for performance evaluation

Rating questions provide results that can be used to assess the performance of resources and projects, and for calculated configurable fields.

Note: Other types of questions can be used in custom calculations to collect performance data. For more information about custom calculations, contact your Changepoint client manager.

To use surveys to collect ratings that will be used for performance evaluation, do the following:

- Create a metric template with a **Customer feedback**, **Peer feedback**, or **Project** template type. Customer feedback and peer feedback template types are for individual performance metrics. Both template types can be linked to a project or resource using feedback from internal (peer) or external (customer) respondents. For more information, see "About metric templates" in the *Changepoint Administration Guide*.

- Create an Individual Performance Management (IPM) metric and assign it to the resource, or create a project metric that can be used in a project portfolio. In some cases, the survey is only available for selection when it is active (that is, it has been sent to a respondent).
- Create a survey with rating questions and prompt tags. Then specify the resource or Changepoint entity in the **Prompt Tag Selection** dialog box, when you send the survey to respondents.
- Create a metric. Then assign the metric to the resource or project to be rated. Metric templates can be created and metrics assigned only after the survey has been sent to respondents

Survey respondents rate the resource or Changepoint entity identified in a rating question and submit the survey. Results are collected against a metric and can be viewed and analyzed.

Exporting survey results to a TXT or XML file

1. Access the survey.
2. Click **Actions** > **View** > **Export survey**.

   The **Export Survey Data** dialog box appears.
3. In the **Date range** section, change the start and end date, if required.
4. In the **Survey format** section, select **Details** or **Summary**.
5. In the **File format** section, select **Tab-delimited file** or **XML**.
6. To download the information into a file on a hard drive, select **Download**.
7. Click **Next**.

   The **Export Survey Data** dialog box displays your selections.
8. Click **Download**.

   The **File Download** dialog box appears.
9. Select the export location and then click **Save**.

Marking a survey as complete

Only expired surveys can be marked as complete.

1. Access the expired survey.

2. Click **Actions** > **Complete survey**.

   The survey is moved to the **Completed** folder in the **Surveys** tree view.

15. Importing and Exporting Data

About export setup

You can export data from the Changepoint database to text files for input to third-party applications. You must first create export definitions that define what data is exported and how it is exported. You can export data manually, or you can also set up automatic exports, referred to as *export publishing*, which occur according to events or schedules.

To set up exports:

1. Create export views using database views. If required, create data types for date and numeric fields.
2. If required, create categories for the export views.
3. Create export definitions.
4. If required, configure export batch numbering.
5. To set up automatic exports, see "About export publishing" on page 363.

Creating an export view

1. Click **Import/Export** > **Export Views**.
2. Right-click in the table, and then select **Insert**.
3. In the **Export view** column, enter the name for the export view.
4. In the **Description** column, enter a description.
5. In the **Database view** column, select the Changepoint database view to use with the export view.
6. Click **Save**.

Modifying an export view

You cannot delete a view that is used in a group definition.

1. Click **Import/Export** > **Export Views**.
2. To modify the export view, make the necessary changes directly in the table cells.
3. To delete an export view:

   a. Right-click the row, and then select **Delete**.

   b. Click **OK** to confirm.

4. Click **Save**.

Creating an export data type

You can create data types to format numbers or dates in the export data according to the requirements of the third-party application.

Note: Changepoint supports the .NET Framework custom date format strings and custom numeric format strings.

1. Click **Import/Export** > **Export Data Types**.
2. Right-click in the table, and then select **Insert**.
3. In the **Export data type** cell, enter the name of the export data type.
4. In the **Description** cell, enter a description.
5. Click the **Format type** cell and do one of the following:
   - To create a numeric format type, select **Numeric** and enter the format in the **Numeric format** field.
   - To create a date format type, select **Date** and enter the format in the **Date format** field.
6. Click **Save**.

Modifying an export data type

You cannot edit the format type of an export data type. To correct the format type, you must delete the export data type and then recreate it.

1. Click **Import/Export** > **Export Data Types**.
2. Make the necessary changes directly in the table cells.
3. To delete an export data type:
   a. Select the row.
   b. Right-click and select **Delete**.
4. Click **Save**.

About creating export definitions

In an export definitions, you specify the data to be exported, and how the data is to be grouped, delimited, and formatted (for date and numeric fields). You can also restrict the use of an export definition to specific roles.

> **Note:** You cannot use the same export definition for both manual exports and export publishing. Once you create an export publishing schedule, the export definition associated with the schedule can no longer be used in a manual export process, whether the schedule is active or not.

An export definition consists of the following items that are set up in a tree structure under the category as follows:

Export name > File definition > Group > Line > Column.

The following is an outline of the steps to create an export definition.

1. Create the export name. You can restrict the use of the export definition to specific roles.
2. Create a file definition.
3. Create a group.
4. Create the rows (lines) of data.
5. Add the fields (columns) of data for each row.

Creating an export definition category

Export definitions are organized under categories.

1. Click **Import/Export > Export Definitions**.
2. In the Folders view, select an existing category.
3. Click **New**.
4. In the **Category** field, enter the name of the category.
5. In the **Description** field, enter a description for the category.
6. Click **Save**.

Creating an export name

When you specify the name of the export, you can restrict the roles that can use it.

1. Click **Import/Export** > **Export Definitions**.
2. Select the export category.
3. Click **New export name**.
4. In the **Export name** field, enter a name for the export definition.
5. In the **Description** field, enter a description for the export definition.
6. To make the export definition available for batch exports, select the **Available for batch exports** check box.
7. To restrict the use of the export definition to resources with specific roles:
   a. Select the **Restrict this export to the following roles** check box.
   b. Select one or more roles.
8. Click **Save**.

Creating an export file definition

In the file definition, you specify the name of the export file and specify string and column (field) delimiters.

1. Click **Import/Export** > **Export Definitions**.
2. Expand the export category and then select the export name.
3. Click **New export file**.
4. In the **File definition** field, enter a default name for the file definition.
5. In the **Description** field, enter a description for the file definition.
6. In the **Default file name** field, enter a default name for the export file.
7. In the **String delimiter** field, enter the character to use to delimit text strings in the file.
8. In the **Column delimiter** field, enter the character to use to delimit columns (fields) in the file.
9. Click **Save**.

Creating an export group and selecting the export view

You must configure at least one group for the export definition. You can group the exported data based on the value in a field, and add a where clause to filter the data to be exported.

1. Click **Import/Export** > **Export Definitions**.
2. Expand the category and export name, and then select the file definition.
3. Click **New export group**.
4. In the **Group name** field, enter a name for the group.
5. In the **Description** field, enter a description for the group.
6. In the **View name** list, select the export view.
7. To group records in the export file, select the field in the **Group by** list.
8. To filter records in the export file, enter a `WHERE` clause in the **Selection formula** field.
9. Click **Save**.

Adding a line to an export file

1. Click **Import/Export** > **Export Definitions**.
2. Expand the export category folder to locate, and then select, the group definition.
3. Click **New export line**.
4. In the **Line name** field, enter a name for the line.
5. In the **Description** field, enter a description for the line.
6. Click **Save**.

Adding a column to a line in an export file

For export publishing, column names can contain only alphanumeric characters (A-Z, a-z, 0-9). For manual exports, column names are not restricted.

1. Click **Import/Export** > **Export Definitions**.
2. Expand the export category to locate, and then select, the export line.
3. Click **New export column**.
4. In the **Column name** field, enter a name for the column.

5. In the **Description** field, enter a description for the column.
6. To add a field from the export definition:
   a. In the **Column type** option, select **Name**.
   b. In the **View column name** list, select the field.
   c. If the field is a date or numeric type, in the **Format definition** list, select the date or number format definition.
7. To add a constant:
   a. In the **Column type** section, select **Constant**.
   b. Enter a fixed string, or one of the following predefined constants:

      %DATE% – date the export was created

      %TIME% – time the export file was created

      %BATCH% – batch number of the export

      %USER% – for manual exports only, name of the resource that exported the data

   Note: In export publishing there is no “user”. If %USER% is included in an export publishing definition, the value in the export is blank.
8. Click **Save**.
9. To change the column order, see "Changing the position of a column in an export file" on page 356.

Changing the position of a column in an export file

1. Click **Import/Export > Export Definitions**.
2. Expand the export category to locate, and then select, the column.
3. In the **Column order** list, click column, and then click the up or down arrow to move the column to the desired position.
4. Click **Save**.

Modifying an export definition

You can modify any of the items that are included in an export definition. However, after an export definition has been used for a successful batch export, you cannot modify it.

1. Click **Import/Export > Export Definitions**.
2. Expand the export category folder to locate, and then select, the item.
3. To edit the export definition item:
   a. Make the necessary changes.
   b. Click **Save**.
4. To delete the export definition item:
   a. Click **Delete.**
   b. Click **OK** to confirm.

Setting up an export batch numbering scheme

1. Click **Import/Export > Export Batch Numbering**.
2. In the **Export name** list, select the name of the export.
3. In the **Part A**, **Part B** and **Part C** sections, specify the numbering scheme. For more information, see "Numbering scheme options" on page 310.
4. Click **Save**.

Database procedures for export setup

These procedures must be performed by a database administrator.

Creating a custom database view for exports

This procedure must be performed by a database administrator.

The names of the standard database views start with `Export` and the names of the standard database views for export publishing start with `ExportExpPub`.

Keep the following in mind when you create a custom database view:

- the view name must start with `Export`
- access to the view must be granted to the `cpaccess` role.

- if the view is for event-based exports, include a column called `EntityId`, and populate the field with the GUID of the entity being exported

Enabling export batch tracking in a database view

Note: This procedure must be performed by a database administrator.

When a record is exported in a batch, the export is recorded in a table called `IEBatchRows`. A record that exists in this table is not normally eligible to be exported in another batch. However, you can add a unique identifier in the view that allows multiple batch exports, for example, to allow two different exports of the same time records with different columns in each.

To enable batch tracking, add the following columns to the database view:

- ID – contains a unique identifier, for example, the customer id, even if there is already a customer id column in the view.
- BATCHTYPE – contains a user-defined, three-character code necessary to distinguish the records in each batch.

The standard Changepoint Export and ExportExpPub views do not contain these columns.

To enable a standard view for multiple batch exports, you must add the ID and BATCHTYPE columns to the view. If the view is encrypted, you must create a new view, add the two columns, and then select the rest of the columns from the existing view.

Adding a new topic for export publishing

Topics are used by Microsoft Service Bus to route the exported data. You can associate each topic with only one export definition. Several topics are predefined in Changepoint. However, you can add new topics.

Note: This procedure must be performed by a database administrator.

1. In the Changepoint database, insert a new record into the `ExpPubTopic` table.

   For example:

   ```
   INSERT INTO
   ExpPubTopic (ExpPubTopicId, PageContentId, TopicName, DisplayName)
   VALUES
   (NewId(), 0, 'changepoint.newtopic', 'New Topic')
   ```

   where:

- ExpPubTopicId – Primary key field for the ExpPubTopic table. The value must be `NewId()`.
- PageContentId – Identifier field from the PageContent table, which is used to localize the DisplayName into different languages. To display the same name for all languages, set the PageContentId field to 0 and enter the name that you want to display in the DisplayName field.
- TopicName – Topic name field, which is used by export publishing to identify and route the message. The format is:

  ```
  'changepoint.<newtopic>'
  ```

  where <newtopic> is the name of the new topic. For example:

  ```
  'changepoint.customers'
  ```
- DisplayName – Name to display when the PageContentId field is 0. Spaces are allowed.

2. Add an external channel for the new topic in the `ChangepointDataMapper.xml` file:

   a. Assign a name to the channel.

   b. Assign the new topic name to the `outbound` element.

   For more information, see the *Changepoint Integration Framework Reference*.

3. When you have finished adding topics:

   a. Restart all instances of the Changepoint Data Mapper Service that are listening to Microsoft Service Bus.

   b. Restart all instances of the Changepoint Communication Dispatcher Service that are listening to Microsoft Service Bus.

About exporting data manually

You can export data from the Changepoint database as Unicode text files for importing into external systems. Exports can be of type batch or non-batch.

Batch exports

Batch exports are used to keep track of which records are exported.

When a batch is exported successfully, a batch number is created. You can re-export a batch, and can choose an export definition that is different from that of previous batch exports.

Note: After a batch is exported successfully, the export definition cannot be modified.

Export options

Based on pre-defined export definitions you can choose:

- Export category, for example, time, expenses
- Export name
- How the exported records are selected and grouped
- What fields are exported, and in what format

Before you begin an export

Before you begin an export:

- Review "Editing the export definition before exporting" on page 361 to determine if you need information about the **Filter** and **Filter value** fields.
- Contact your system administrator if:
  - you cannot tell, by looking at the corresponding data in Changepoint, what to use for filter conditions and filter values
  - you need a batch number to re-export a batch

Exporting data manually

1. Click **Import/Export** > **Export Data**.

   The **Export Data** view appears.

2. Select the **Export data using existing export definitions** option, and then click **Go**.

   The **Changepoint Export** dialog box appears.

3. In the **Category** list, select the export category.
4. In the **Export name** list, select the export definition.
5. Click **Apply**.

   The **Confirm Export** dialog box appears.

6. To edit the export definition before exporting:
   a. Click **Edit**. The **Edit Export Definition** dialog box appears.
   b. Edit the export definition. For more information, see "Editing the export definition before exporting" on page 361.
7. Click **Export**.
8. Open or save the exported data file.

Re-exporting data from a previously exported batch

1. Click **Import/Export** > **Export Data**.

   The **Export Data** view appears.
2. Select the **Re-export data from a previously exported batch** option and click **Go**.

   The **Changepoint Export** dialog box appears.
3. In the **Export name** list, select the name of the export.
4. In the **Batch number** list, select the batch number.
5. Click **Apply**.
6. If prompted, click the button for batch export or regular export.
7. To edit the export definition before exporting, click **Edit**. The **Changepoint Export** dialog box appears. For more information, see "Editing the export definition before exporting" on page 361.
8. To export the data, click **Export**.
9. Open or save the exported data file.

Editing the export definition before exporting

1. In the **Changepoint Export** dialog box, select **Edit**.
2. Expand the export definitions tree.
3. For each level of the export definition:
   a. Make the necessary changes. For more information, see "Changepoint Export dialog box options" on page 362.

b. Click **Apply**.

4. To apply a field-based filter:

   a. In the **Filter** list, select a filter condition: for example, is equal to, is not equal to, etc.

   b. In **Filter value 1**, and **Filter value 2** if shown, enter or select a value.

   c. If the **Format** list displays, select a format.

   d. To exclude a field from the export file, select the **Excluded** check box.

Changepoint Export dialog box options

When expanded, the export definitions tree has up to four levels: **File**, **Group**, **Line**, and **Field name**.

The following table shows what information you can modify at each level of the export definition.

Note: You cannot modify anything at the **Line** level.

If you export a batch file, you can modify only the **Default file name**, which is at the **File** level.

Level	What you can modify
File	• **Default file name** • **String delimiter** • **Column delimiter**
Group	• **Group by** - select the field to use to group the data. • **Selection Formula** (read-only) – displays if the system administrator has specified an SQL formula.

Level	What you can modify
Line	No changes are permitted at this level.
Field Name	Different fields provide different options for you to use. For example: • **Filter** list, with criteria such as *is equal to*, *is not equal to*, etc. • **Filter value**. • **Format**, for example *dd-mm-yyyy* or *mm/dd/yyyy* for a date field. • **Excluded** – when enabled, excludes the field from the export file.

About export publishing

To export data automatically, you can set up export publishing. The output from export publishing is sent to Microsoft Service Bus, where the data can be by picked up by third-party applications such as Salesforce, and BizTalk. The third-party applications must be configured to pick up the exported data.

Setting up export publishing includes the following steps:

1. Creating an export definition with an export batch numbering scheme.
2. Setting up event notifications for event-based export publishing.
3. Configuring an export publishing schedule.
4. Granting access to the **Export Publishing Audit** report and the **Export Publishing Error** report.
5. Configuring the following Changepoint Integration Framework components:
   - Changepoint Data Mapper Service
   - Changepoint Communication Dispatcher Service
   - Export Publishing Service

   Note: For more information, see the *Changepoint Integration Framework Reference*.

6. After data has been exported, you can confirm the status and check for errors by running the Export Publishing Audit and the Export Publishing Error reports.

Creating an export publishing schedule

There can be only one active export publishing schedule for a topic. If you activate a second setup for the same topic, the previously active topic is deactivated automatically.

1. Click **Import/Export > Export Publishing Schedule**.
2. Select any existing schedule.
3. Click **New**.
4. To activate the schedule, select the **Activate the export publishing schedule** check box.
5. In the **Name** field, enter a name for the export publishing schedule.
6. In the **Description** field, enter a description.
7. To export all records, in the **Event type** list, select **Regular export**.
8. To export all records since the last batch was run:
   a. In the **Event type** list, select **Batch export**.
   b. To export a file that contains header information only when there is no data to export, select the **Send non-data file** check box.
9. To export records based on an event:
   a. In the **Export type** section, select **Event**.
   b. In the **Export event notification** list, select the event.
10. In the **Export definition** list, select the export definition.
11. In the **Topic** list, select the topic.
12. In the **Configuration ID** field, enter the name of the transformation file.
13. To configure the start date and time:
    a. In the **Start date** field, enter the date for the first export.
    b. In the **Daily start time** field, enter the start time for the first export.
    c. In the **Time zone** list, select the time zone.

14. In the **Export schedule** section, configure the recurrence settings. For more information, see "Configuring the recurrence settings for an export publishing schedule" on page 365.
15. Click **Save**.

Configuring the recurrence settings for an export publishing schedule

Note: The timing of the export schedule also depends on the schedule for the Export Publishing Service. For more information, see the *Changepoint Installation Guide*.

To configure a daily schedule

1. In the **Recurrence** list, select **Daily**.
2. In the **Recurrence setting** section, select one of the following options:
   - **Every day**
   - **Every weekday (Monday – Friday)**
   - **Every <n> days**, where <n> is the number that you enter (number between 1 and 30).
3. To repeat the export multiple times each day (applies only to **Every day** or **Every workday (Monday – Friday)**):
   a. Select the **Repeat schedule** check box.
   b. In the **Every** field, enter the interval, and then select the time unit from the list.
4. Click **Save**.

To configure a weekly schedule

1. In the **Recurrence** list, select **Weekly**.
2. In the **Recurrence setting** section:
   a. In the **Every <n> weeks on** field, enter a number between 1 and 52 for the number of weeks between runs.
   b. Select the check boxes for the days of the week on which to run the export.
3. Click **Save**.

To configure a monthly schedule

1. In the **Recurrence** list, select **Monthly**.

2. In the **Recurrence setting** section, select one of the following options:

   - **Day <n> of every <m> month(s)**

     In the <*n*> field, enter a number between 1 and 31 for the day of the month on which to run the export. In months that do not have the specified number of days, the export runs on the last day of the month.

     In the <*m*> field, enter a number between 1 and 12 for the number of months between runs.

   - **The <nth > <period> of every <m> month(s)**

     In the <*nth*> list, select **First**, **Second**, **Third**, **Fourth**, or **Last**.

     In the <*period*> list, select the period.

     In the <*m*> field, enter a number between 1 and 12 for the number of months between runs.

3. Click **Save**.

Modifying an export publishing schedule

1. Click **Import/Export > Export Publishing Schedule**.
2. Select the export publishing schedule.
3. Make the necessary changes and click **Save**.
4. To delete the setup, click **Actions > Delete**.

Setting up an export event notification

1. Click **Import/Export > Export Event Notifications**.
2. In the **Entity type** list, select the entity type associated with the event notification.
3. To filter the entity types by status, in the Status list, select **Active** or **Inactive**.
4. Click **Load list**.
5. If the **Event Notification** view does not appear, select an existing event notification, and then click **New**.
6. To activate the event notification, select the **Activate this event notification for usage in Changepoint** check box.

7. In the **Notification name** field, enter a name for the event notification.
8. In the **Description** field, enter a description.
9. To set up conditions for the event notification, in the **Configure Condition** section, complete the fields as required. For more information, see "Setting up conditions for an export event notification" on page 367.
10. Click **Save**.

Setting up conditions for an export event notification

You first create expressions and then use the expressions to build a formula, which defines the conditions under which the event notification is sent.

To set up a condition based on a field value

1. In the **Configure Condition** section, select the **Condition based on field value** option.
2. In the **Expression** field, enter a name for the expression, or leave the field blank to have a name automatically assigned.
3. In the **Field name** list, select the field.
4. In the **Condition** list, select the condition.

   Note: For request fields that relate to users (for example, **Created by** or **Initiator**), you can specify either Changepoint resources or Client Portal users by using the **Any** condition.
5. In the **String text** field, enter the value.
6. In the **Configure Condition** section, click the **Save** button.

To set up a condition based on when the value of a field changes

1. In the **Configure Condition** section, select the **Condition based on field change** option.
2. In the **Expression** field, enter a name for the expression, or leave the field blank to have a name automatically assigned.
3. In the **Field name** list, select the field.
4. Do one of the following:
   - To base the condition on changes from or to specific values, enter the values in the **From value** and/or **To value** fields.

- To base the condition on any change to the field values, leave the **From value** and/or **To value** fields blank.

5. In the **Configure Condition** section, click the **Save** button.

To build a condition formula:

1. To add an expression to the formula, double-click the expression in the expression table.
2. To add an operator, bracket, or space, click the appropriate button:
3. To test that the formula you have entered is valid, click **Test Formula**.
4. To display the expressions in expanded format, select the **Display expanded conditional formula** check box.
5. Click **Save**.

To add an additional condition based on a SELECT statement

After you create a conditional formula, you can configure additional conditions based on an SQL SELECT statement, which is executed only if the conditions in the conditional formula are met.

1. Select the **Configure notification based on SELECT statement** check box.
2. Enter the statement in the field that appears. For more information, see "About SQL SELECT statements for conditional formulas" on page 369.

Modifying an event notification

Do not deactivate or delete an event notification that is associated with an export publishing schedule. You must first delete the export publishing schedule, or modify the schedule to remove the event notification before you deactivate or delete the event notification.

1. Click **Import/Export > Export Event Notifications**.
2. Select the event notification.
3. To deactivate the event notification:
   a. Clear the **Activate this event notification for usage in Changepoint** check box.
   b. Click **Save**.
4. To edit the event notification:

a. Make the necessary changes.

b. Click **Save**.

5. To delete the event notification:

a. Click **Delete**.

b. Click **OK** to confirm.

About SQL SELECT statements for conditional formulas

The SQL statement must:

- Begin with SELECT
- Not contain UPDATE, DELETE, TRUNCATE or INSERT
- Return:
  - 1 if the event notification should be sent
  - 0 if the event notification should not be sent.
- Use `@Entityid` as a parameter to represent the GUID of the entity in the SELECT statement. For example: `WHERE requestid = @entityid`
- As a best practice, include `FROM table WITH (NOLOCK)` in the SELECT statement to avoid creating deadlocks in the system.

For example:

```
SELECT
  CASE
    WHEN count (*) >=1 THEN 1
    ELSE 0
  END
  FROM request WITH (NOLOCK)
  WHERE customerid = @entityid AND requeststatus NOT IN ('clo','rej','can')
```

Verifying the status of export publishing exports

After the data has been exported, you can run the **Export Publishing Audit** and the **Export Publishing Error** reports to verify the status of the export.

Export Publishing Audit report

The report includes the following information:

- name of the export publishing setup
- date the export was created (UTC)
- export number
- file number (if the file is exported in parts, due to a maximum file-size limit)
- number of records in the file
- Microsoft Service Bus acknowledgement code
- whether the file has been resent (Yes or No)

The following table lists the Microsoft Service Bus acknowledgement codes.

Code	Description
0	File was successfully sent to Microsoft Service Bus
99	File was not sent to Microsoft Service Bus because of a Microsoft Service Bus error in a previous file in the export
107	Microsoft Service Bus error

Export Publishing Error report

The report includes the following information:

- name of the export publishing setup
- date the error was generated
- Changepoint error code
- Microsoft Service Bus error (stack trace)

The following table lists the error codes.

Code	Description
100	System error
101	The source export definition was deleted
102	Failed to insert the schedule into queue
103	Failed to update next run date of the schedule
104	Insufficient or incorrect attributes in the 'Recurrence XML' document
105	There is no export definition information to be retrieved or no columns were selected
106	No new batch could be created because export batch numbering has not been set
107	Microsoft Service Bus error
108	Invalid column name(s) in the export definition

Resending published data

You can resend a successful export publishing export, for example, if the third-party application did not receive the export properly. The receiving program must be set up to detect when exports have been resent.

1. Click **Import/Export** > **Export Publishing Resend**.
2. In the **Export to resend** list, select the export publishing schedule.
3. In the **Export number** list, select the export number that has the date and time of the export. The export number consists of the export number, export date, and file number.
4. Click **Resend**.

About importing companies and contacts

Company data (including prospects and leads) and contact data can be imported into Changepoint. You must format the data in a Microsoft Excel spreadsheet where you map the

data to the corresponding Changepoint field names. You must ensure that the import data includes values for the fields that are mandatory in Changepoint.

The import data is processed as follows:

- If the company name in the import file matches an existing company in Changepoint, the company's data is updated.
- If the company name does not match any existing companies, a new company is created.
- If the company name is close to, but not exactly the same as an existing company, it is listed as *questionable* in the **Import Results** report. You can then decide whether you want to update an existing company or create a new company.
- Only blank fields in Changepoint are updated with import data. Existing values are not overwritten.

About creating the import file for companies and contacts

You must create a Microsoft Excel spreadsheet with the import data as follows:

- The first row in the spreadsheet must contain the field names as they exist in the Changepoint database. For more information, see "Available fields for importing companies" on page 373 and "Available fields for importing contacts" on page 376.
- To import data for lookup fields, you must use the Changepoint lookup values in the import file.
- You must provide values for the mandatory fields. The **System Metadata** report lists all of the fields and their settings, including whether they are mandatory or not. .
- The import file must be in Unicode text format.

The following table includes the fields and values that are required to import company data as a company, prospect, or lead.

Company type	Sales status	Required field
Company	Customer	None
Lead	Lead	SalesRepID
Unassigned lead	Lead	(none)

Company type	Sales status	Required field
Prospect	Prospect	TelemarketerID
Unprocessed prospect	Unprocessed	None

Available fields for importing companies

Company data is in the customer entity table.

Note: To import postal codes and states or provinces, you must also import the country field.

Field Name	Length	Label	Type
AccountManagerID	N/A	Account manager	Lookup
AccountType	N/A	Account type	Lookup
AllowEngagement	N/A	Allow Engagements	Boolean
AnnualRevenue	N/A	Annual revenue	Lookup
Business1Address	100	Main	String
Business1AddressLine2	100	Main	String
Business1AddressLine3	100	Main	String
Business1AddressLine3	100	Main	String
Business1City	50	City	String
Business1Country	N/A	Country	Lookup
Business1Postal	20	ZIP/Postal code	String
Business1Province	N/A	State/Province	Lookup
Business2Address	100	Billing	String
Business2AddressLine2	100	Billing	String

Field Name	Length	Label	Type
Business2AddressLine3	100	Billing	String
Business2City	50	City	String
Business2Country	N/A	Country	Lookup
Business2Postal	20	ZIP/Postal Code	String
Business2Province	N/A	State/Province	Lookup
Business3Address	100	Shipping	String
Business3AddressLine2	100	Shipping	String
Business3AddressLine3	100	Shipping	String
Business3City	50	City	String
Business3Country	N/A	Country	Lookup
Business3Postal	20	ZIP/Postal code	String
Business3Province	N/A	State/Province	Lookup
CampaignID	N/A	Source	Lookup
Customer_Description	2048	Comments	String
Customer_OtherPhone	25	Other phone	String
Customer_Reference	N/A	Sales reference	Boolean
CustomerCode1	N/A	Code 1	Lookup
CustomerCode2	N/A	Code 2	Lookup
CustomerCode3	N/A	Code 3	Lookup
CustomerServicePhone	25	Customer service	String
CustomerStatus	N/A	Status	Lookup

Field Name	Length	Label	Type
CustomerText1	100	Text 1	String
CustomerText2	100	Text 2	String
CustomerText3	100	Text 3	String
Employees	N/A	Employees	Lookup
ExecutiveOfficePhone	25	Executive office phone	String
FaxPhone	25	Fax	String
HRPhone	25	HR phone	String
IndustryType	N/A	Industry type	Lookup
MainPhone	25	Main phone	String
MarketingPhone	25	Marketing phone	String
Name	200	Company Name	String
SalesPhone	25	Sales phone	String
SalesRegion	N/A	Sales region	Lookup
SalesRepID	N/A	Sales representative	Lookup
SalesStatus	N/A	Sales status	Lookup
SecurityPhone	25	Security phone	String
TechnicalSupportPhone	25	Technical support phone	String
TelemarketerID	N/A	Telemarketer	Lookup
TollFreePhone	25	Toll free	String
UserDefinedCustomerId	25	Company ID	String
WebSite	255	Web site	String

Available fields for importing contacts

Note: To import postal codes and states or provinces, you must also import the country field.

Field Name	Length	Label	Type
Anniversary	50	Anniversary	DateTime
AssistantName	100	Assistant name	String
AssistantPhone	25	Assistant phone	String
Birthday	50	Birthday	DateTime
BusinessAddress	100	Main	String
BusinessAddressLine2	100	Main	String
BusinessAddressLine3	100	Main	String
BusinessCity	50	City	String
BusinessCountry	N/A	Country	Lookup
BusinessFax	50	Business fax	String
BusinessPhone	25	Business phone	String
BusinessPhone2	25	Business phone 2	String
BusinessPostal	20	ZIP/Postal code	String
BusinessProvince	N/A	Province/State	Lookup
CarPhone	25	Car phone	String
Contact_Description	2048	Comments	String
Contact_OtherPhone	25	Other phone	String
Contact_Reference	N/A	Sales reference	Boolean
ContactCode1	N/A	Code 1	Lookup

Field Name	Length	Label	Type
ContactCode2	N/A	Code 2	Lookup
ContactCode3	N/A	Code 3	Lookup
ContactText1	100	Text 1	String
ContactText2	100	Text 2	String
ContactText3	100	Text 3	String
ContactType	N/A	Contact type	Lookup
Customer	N/A	Company	Lookup
Department	100	Department	String
Email1	100	Email 1	String
Email2	100	Email 2	String
Email3	100	Email 3	String
FirstName	50	First	String
HomeAddress	100	Billing	String
HomeAddressLine2	100	Billing	String
HomeAddressLine3	100	Billing	String
HomeCity	50	City	String
HomeCountry	N/A	Country	Lookup
HomeFax	50	Home fax	String
HomePhone	25	Home phone	String
HomePhone2	25	Home phone 2	String
HomePostal	20	ZIP/Postal code	String

Field Name	Length	Label	Type
HomeProvince	N/A	Province/State	Lookup
LastName	50	Last	String
ManagerName	100	Manager	String
ManagerPhone	25	Manager phone	String
MiddleName	50	Middle	String
MobilePhone	25	Mobile	String
Nickname	50	Nickname	String
Office	100	Office	String
OtherAddress	100	Shipping	String
OtherAddressLine2	100	Shipping	String
OtherAddressLine3	100	Shipping	String
OtherCity	50	City	String
OtherCountry	N/A	Country	Lookup
OtherFax	50	Other fax	String
OtherPostal	20	ZIP/Postal code	String
OtherProvince	N/A	Province/State	Lookup
Pager	50	Pager	String
Prefix	20	Title	String
PrimaryPhone	25	Main contact	String
Profession	100	Profession	String
SpouseName	50	Spouse name	String

Field Name	Length	Label	Type
Suffix	20	Suffix	String
Title	100	Job title	String
WebAddress	100	Web site	String

Importing companies and contacts

1. Place the import file on a local drive or a shared folder.
2. Click **Import/Export** > **Import Data**.

   The **Import Data** view appears.
3. Click **Browse** to locate and select the import file.
4. In the **Deleted customers** section, do one of the following:
   - To exclude data for deleted companies from being imported, select **Ignore**.
   - To import data for deleted companies, select **Import**.
5. In the **Deleted contacts** section, do one of the following:
   - To exclude data for deleted contacts from being imported, select **Ignore**.
   - To import data for deleted contacts, select **Import**.
6. In the **Maximum number of close names** field, enter the number of similar names to include in the **Import Results** report.
7. Click **Go**.

   The **Import Results** report appears. Processing may take a few moments.
8. To view the list of the companies that were imported, expand the **Companies imported** section.
9. To view the list of contacts that were imported, expand the **Contacts imported** section.
10. To process the close matches, expand the **Questionable companies** section.
11. For each company in the section, do the following:
    a. Expand the company.

b. To view the company profile, click the company name link.

c. Do one of the following:

- To create a new company profile, select **Create as new company**.
- To update the existing company, select **Update existing company**.

12. Click **Import**.

13. To view import errors, expand the **Errors** section.

16. Archive Management

Archiving overview

When you archive an engagement or a project, all the data associated with the engagement or project is archived with it. For example, if you archive a project, the project tasks, requests and knowledge items associated with the project, time and expenses entered for the project, project budget, and so on, are also archived.

When an entity is archived, it is physically deleted from the production database and is no longer available from Changepoint tree views, search results, or reports. If the system administrator has configured access to the archive database, users can access the archived data through standard or custom Report Designer reports.

Terminology

For the purposes of the archiving functionality, the following terms apply:

- archive administrator – resource responsible for archiving and who can access Changepoint Administration
- entity manager – generic term that refers to the resource who is the engagement manager or project manager for the given entity

Archiving process

1. Before data can be archived, the database administrator must set up an archive database and configure access to the archived data. For more information, see the*Changepoint Installation Guide*.
2. Entity managers use the archive options in Changepoint to flag project or engagement entities for archiving.
3. The entity archiving request appears in the **Archive Approval** view in Changepoint Administration.
4. The archive administrator reviews the entity archiving requests, and either approves or rejects the entity for archiving. If a child entity is rejected by the archive administrator, then the parent entity is automatically rejected as well.
5. The archive administrator runs the `Archive Validation` scheduled job that checks whether the approved entities can be safely archived. If a child entity fails the archiving validation, then the parent entity automatically fails as well.

6. The archive administrator or the entity manager clears the failed and rejected entities from the Archiving Validation Log report.
7. The archive administrator runs the `Archive Aged Entities` scheduled job to archive the entities.

About retaining funding source data

There is an option that allows for funding source data to be retained even after the associated entity has been archived. If the **Retain funding source data** option is selected, totals for past (and potentially current and future) periods can include the effort, cost and revenue from archived items, even though the archived items themselves are no longer available in the production database.

When the **Retain funding source data** option is cleared, the totals are recalculated to remove the funding source data for the archived entities.

> **Note:** The **Retain funding source data** option must be selected in the **Archive Approval** view before the view is saved the first time. The option cannot be changed after it has been saved.

About accessing archived data

No standard Changepoint reporting is available. To access the archived data, you must create a custom Report Designer report. You can set up a website to point to the archive database and run reports from there, or you can set up custom “combined” views that allow reporting on both production and archived data.

You can create custom data providers for use in reports on the archive database. For more information, see the "About data providers" section on page 262.

> **Note:** The creation of custom reports and data providers is not supported by your Changepoint support agreement. If you require assistance, contact your Service Delivery Group representative or client manager to arrange for consulting services.

About approving entities for archiving

After the entity manager flags an entity for archiving in Changepoint, the archiving request appears in the **Archive Approval** view in Changepoint Administration. The archive administrator reviews the entity and either approves or rejects it.

Only the entities that have been approved by the archive administrator are validated by the `Archive Validation` scheduled job.

If an entity is rejected, its parent entities are automatically rejected as well.

An entity that has failed validation cannot be flagged again for archiving in Changepoint or from the **Archive Approval** report until all issues listed in the report have been reviewed and cleared by either the entity manager or the archive administrator.

Once the entity has been cleared in the **Archiving Validation Log**, the entity is again available for archiving in Changepoint.

Approving entities for archiving

1. Click **Archive** > **Archive Approval**.
2. To approve an entity, select the check box in the **Approve** column.
3. To reject an entity:
   a. Select the check box in the **Reject** column.
   b. Enter the reason in the **Rejection reason** cell.
4. Select the **Retain funding source data** check box, if required.

   Warning: The **Retain funding source data** option is available only the first time that the **Archive Approval** view is saved, and the setting cannot be changed later. It is strongly recommended that the archive administrator consult the Finance department before saving this view.
5. Click **Save**.

Archive Approval view

Column	Description
Approve check box	Available only when the validation status is **Pending** or **Passed**.
Reject check box	Available only when the validation status is **Pending** or **Passed**.

Column	Description
Entity name	Name of the entity to be archived.
Entity type	ENG (engagement), or PRJ (project)
Rejection reason	Reason for rejecting the entity. Editable only when the **Reject** check box is selected.
Validation status	One of the following statuses: • **Pending** – the entity has not been validated yet • **Passed** – the entity has passed validation • **Failed** – the entity has failed validation
Flagged for archiving on	Date that the entity was initially flagged for archiving, but updated to the date that the archive administrator saves the **Archive Approval** view.
Flagged for archiving by	Entity manager who flagged the entity for archiving.
Validated on	Date that the *Archive Validation* scheduled job was run.
Validated by	Name of the archive administrator.

Canceling archiving for an entity – archive administrator

The archive administrator can cancel archiving for an entity that has a validation status of **Pending** or **Passed** at any time before the `Archive Aged Entities` scheduled job is run.

1. Reject the entity in the **Archive Approval** view.
2. Clear the rejected entity from the **Archive Validation Log**.

About running the Archive Validation scheduled job

The `Archive Validation` scheduled job checks only the entities that have been approved and have a validation status of **Pending** in the **Archive Approval** view. The entities that fail validation or have been rejected by the archive administrator are listed in the **Archiving Validation Log** report.

The archive administrator manually runs the `Archive Validation` scheduled job while no other Changepoint scheduled jobs are running. If the `Archive Validation` scheduled job fails, an email notification is sent to the entity managers.

Project validation list

For a project to pass validation, all of the following conditions must be met:

- The project is in **Completed** state, but not locked.
- If the project has subprojects, all subprojects must be able to pass validation.
- The project is not associated to a expense report that is also used by other projects that are not being archived.
- The project is not used as a template in a workflow step.
- The project is not associated with:
  - unapproved expenses
  - billable expenses that have not been invoiced
  - non-committed invoices
  - non-committed credit notes
  - an invoice that:
    - is associated with a product
    - includes fixed fee records
    - includes request time records
    - is used by other projects that are not being archived
  - a credit note that:
    - is associated with a product
    - includes fixed fee records
    - includes request time records
    - is used by other projects that are not being archived
  - billable time that has not been invoiced
  - unapproved time
  - a workflow that has not yet been completed
  - time and expense records that have been recognized

- a portfolio

Engagement validation list

For an engagement to pass validation, all of the following statements must be true:

- The engagement must be closed, but not locked.
- All projects under this engagement must pass validation.
- The engagement is not associated with a non-committed invoice or credit note.
- Revenue recognition must be disabled for the engagement.

About the Archiving Validation Log report

Entities that are rejected by the archive administrator or fail validation are listed in the **Archiving Validation Log** report, which is a standard Changepoint report. Entity managers can view the results for the entities that they flagged for archiving by accessing the **Archiving Validation Log** report in Changepoint.

It is good practice for the entity managers or archive administrator to clear all failed and rejected entities from the **Archiving Validation Log** before the `Archive Aged Entities` scheduled job is run. Entities can be cleared either by resolving the problems that caused the failures and rerunning the `Archive Validation` scheduled job, or by deleting the entities from the **Archiving Validation Log**.

> **Note:** Entities that fail validation cannot be flagged for archiving nor can they be canceled by entity managers in the entity profile in Changepoint.

The **Archiving Validation Log** report displays the following information:

- Entity name – name of the entity
- Clear – check box that, when selected, will clear the entity from the report when the report is saved
- Entity type – ENG (engagement) or PRJ (project)
- Rejection reason – the reason that the archive administrator rejected the entity
- Validated on – the date that the validation scheduled job was run
- Flagged for archiving by – the entity manager who initiated the archive process

Accessing the Archiving Validation Log report – archive administrator

Click **Archive** > **Archiving Validation Log**.

Clearing entities from the Archiving Validation Log report – archive administrator

1. Click **Archive** > **Archiving Validation Log**.

   The **Archiving Validation Log** view appears.

2. To remove an entity, clear the check box in the **Clear** column.

3. Click **Save**.

About the Archive Aged Entities scheduled job

When entities have passed validation, the archive administrator manually runs the `Archive Aged Entities` scheduled job, which does the following:

- revalidates all of the approved entities that have a validation status of **Passed** in the **Archive Approval** view
- copies the entities that pass validation into the archive database
- removes the entities that were successfully copied from the production Changepoint database
- adds a row to the **Archiving Log** report for each entity that was successfully archived

Running the Archive Aged Entities scheduled job

The archive administrator manually runs the `Archive Aged Entities` scheduled job.

1. Ensure that all users have been locked out of Changepoint. For more information, see the "Locking Changepoint" section on page 24.

2. Enable and schedule the `Archive Aged Entities` scheduled job to run at a time when all users are disconnected from the database and no other scheduled jobs or tasks are running.

3. If the *Archive Aged Entities* scheduled job fails:

   a. Run the `EnableAllTRsNFKs.sql` script to ensure that the Changepoint database is in working condition.

   b. Review the job history or `Data_Archiving.dtsx.log` for more details.

4. Unlock Changepoint.

About the Archiving Log report

The entities that are successfully archived are reported in the **Archiving Log** report. Entity managers can view the results for their own entities only, but archive administrators can view the results for all entities.

The **Archiving Log** report displays the following information:

- Entity name – name of the entity
- Entity type – engagement or project depending on the archived entity
- Archiving date – the date that the archiving scheduled job is run

Accessing the Archiving Log report – archive administrator

Click **Archive** > **Archiving Log**.

Troubleshooting archiving

The Archive option for an entity is not available on the entity profile

For an entity to be eligible for archiving, the following conditions must be met:

- User must be the engagement manager of the engagement or project manager for the project and have the security access for archiving.
- Projects must have a status of Complete
- Engagements must have a status of Closed
- Only one entity in a hierarchy can be flagged for archiving at a time. When a parent entity is flagged, then its children cannot be flagged. For example, if an engagement is flagged, then the projects for the engagement cannot be flagged. Similarly, when a child entity is flagged, then its parent entity cannot be flagged. These restrictions apply during the entire archiving process until the flagged entity is either archived or archiving is canceled for the entity.

An entity passed validation for archiving, but failed during archiving

Engagement and project entities that pass validation are locked, but can be edited as follows:

- Engagement managers and project managers can edit their entities, even after they have been locked.
- data associated to a locked entity can be edited by resources.

Therefore, it is possible for an entity to pass validation during the `Archive Validation` scheduled job, but later fail during the `Archive Aged Entities` scheduled job. For example, if a project entity passed validation, but time and expenses are later entered for the project but are not approved, then the project entity would fail validation during the `Archive Aged Entities` scheduled job.

17. Workflow Management

About workflow management

An entity workflow includes entity *states* and the activities that take place between an initial state of an entity and one of a set of final states. The movement from one state to another is called a *state transition.*

For each entity type, a specific *workflow field* is used to track the progress of an entity from one workflow state to another. The entity types and their corresponding workflow fields are as follows:

- project - Proposed phase
- request - Status
- resource request - Status
- opportunity - Status

A state transition may be either:

- manual - initiated by a resource changing the current value of the workflow field to the new **To** value of the transition
- automatic - initiated by either the value of a user configurable field, or a change in value of a user configurable field when the Workflow Management scheduled job runs

In either case, the transition may cause the execution of a *workflow process*: a combination of steps that might include running stored procedures; comparing entity field values; sending workflow notifications to resources; and having resources carry out actions and then set a completion status.

Filters are used to determine which workflow is used for a newly-created entity.

Workflow configuration overview

To configure a workflow, you must create a state definition that includes states and state transitions. Optionally, for each state transition you can create a process definition. You can also define access restrictions for the states and state transitions.

A state definition also includes filters that determine which workflow is selected for each newly-created entity.

- A state is a defined “status” of the entity controlled by the workflow.

- A state transition is a path between states.
- A process definition consist of process steps and step transitions.
  - A step is an action to be carried out.
  - A step transition is a path between steps.

Changepoint includes a default workflow for each entity type. The default workflow is used when a newly-created entity does not match any workflow definition filter for that entity. However, it is strongly recommended that you create workflows, including default workflows, that match your organization's business processes.

To create a workflow for an entity, do the following:

1. Enable the workflow for the entity, if required.
2. Create state definitions, each with a set of filter criteria.
3. For each state definition, create a state workflow layout, then add states and state transitions.
4. Optionally, for each workflow state and state transitions, define the edit access rights to the entity and the transition.
5. Optionally, for each state transition, edit the *From* state and configure the fields and criteria that must be met to initiate the state transition.
6. Optionally, for each state transition, do the following:
   a. Create a process workflow layout.
   b. Add and configure process steps and step transitions.
7. When required, activate the workflow.

Enabling and disabling workflow for an entity

Workflow for request and resource request entities is mandatory and is enabled by default.

Workflow for project and opportunity entities is optional and must be enabled before you can configure workflows for these entity types.

You can disable workflow for the project and opportunity entities even after workflows have been created and are in use.

However, if you disable workflow for an entity, all workflows for the entity that are in progress at that time are canceled, and the status of the entity remains unchanged.

1. Click **Workflow > Workflow Configuration**.
2. To enable workflow for **Project** and/or **Opportunity** entities, select the appropriate check boxes.
3. To disable workflow for **Project** and/or **Opportunity** entities, deselect the appropriate check boxes.
4. Click **Save**.

Resetting a workflow process instance

You can reset a workflow process instance for an entity, for example, after you make changes or additions to a process workflow layout. The process instance that was in progress is canceled, and a new process instance is created.

1. Click **Workflow > Reset Workflow Process Instance**.
2. In the **Entity type** list, select the entity type.
3. In the **Process** list, select the workflow process.
4. In the **Search** field, do one of the following:
   - To search for a process instance, enter the search text.
   - To view all process instances, leave the field blank.
5. Click **Search**.
6. In the **Name/Number** list, select the instances that you want to reset.
7. Click **Save**.

Resetting a workflow state instance

For entity records that are in process, you can change the workflow state to another state. When the state is reset, the workflow in progress is canceled, and the entity is placed in the specified state. No new workflow is triggered.

1. Click **Workflow > Reset Workflow State Instance**.
2. In the **Entity type** list, select the entity.

3. In the **Field name** list, select the workflow field for the entity.
4. In the **State** list, select the state. States that have been deleted are gray.
5. In the **Search** field, do one of the following:
   - To search for a state instance, enter the search text.
   - To view all state instances, leave the field blank.
6. Click **Search**.
7. Select the state instances.
8. In the **Change state to** list, select the new state for the selected state instances.
9. Click **Save**.

State definitions and layout

About workflow state definitions and filters

A workflow state definition includes all of the information needed to determine:

- Whether the workflow definition is triggered for a new instance of the entity.
- The initial state that the entity goes into when the workflow is initiated.
- The different states the entity can reach while the workflow in progress.
- The possible transitions from one state to another and how each transition is effected.
- The edit access rights to the entity in each workflow state and to the state transitions.

About activating and locking a workflow state definition

When you activate a workflow state definition it becomes locked. You can modify only the **State definition** field and **Description** field, and must deactivate the workflow state definition before you can delete it.

> **Note:** Deactivating a workflow state definition does not unlock it. To make changes to a locked workflow state definition you must make a copy of it, modify the copy, then activate the copy.

About the workflow states

The workflow states come from the values of the entity field that is selected as the workflow field in the state definition.

- For the request, resource request, and opportunity entities, the workflow field is the **Status** field.
- For the project entity, the workflow field is the **Proposed phase** field.

  Note: The drop-down values for the **Proposed phase** field are defined in the Task lookup at the system-level. For more information, see the "About modifying values for standard drop-down (lookup) lists" section on page 181.

About filter criteria

The filter criteria determine which workflow a newly-created entity is routed to.

If a workflow has multiple filter criteria, the criteria are implicitly joined by an AND operator.

A configurable field can be used in a filter criterion provided it is set up as a single-selection list whose values are not entity-based.

About selecting subfields in filters

Some fields in Changepoint are subfields in a hierarchy. When you select a subfield name in a filter, the fields higher in the hierarchy than the subfield are added automatically as filter criteria.

For example in a filter for a request, if you select an engagement, the corresponding company is added as a criterion; if you select a project, the corresponding engagement and company are added as criteria.

How filtering works to select a workflow

When a new entity is created, the entity's field values are evaluated against the filters for all active workflows for that entity. The following rules are applied in the order given:

1. If the entity is not a match to any workflow filters, the default workflow is selected.
2. If the entity is a match to the workflow filters for only one workflow, that workflow is selected.
3. If the entity is a match to the workflow filters for more than one workflow:

a. The workflow with the largest number of filter criteria is selected.

b. If there is more than one workflow with the same (largest) number of criteria matched, the workflow with the name that comes first alphabetically is selected.

Note: If there are two or more matched workflows with the same name, it cannot be predicted which workflow will be selected for a new entity.

About filter criteria changes

If an entity field that is used in filter criteria is changed, the workflow is canceled.

- If the changed field values match another workflow then that other workflow is initiated for the entity.
- If entity records are transferred from one resource to another, the workflow is reset and restarted at the beginning of the workflow state definition when the record transfer is completed.
- If the field is edited manually by a resource, the workflow is canceled immediately.
- If the filter field is changed by some other means (for example, through the Changepoint API, or as a result of a calculation), then the workflow is canceled when the workflow management scheduled job runs.

Creating a workflow state definition

1. Click **Workflow** > **Workflow Definitions**.
2. In the Folders view, expand the entity, and then select any state definition.
3. Click **New**.
4. In the **State definition** field, enter the name for the state definition.
5. In the **Field name** list, select the workflow field for the entity.
6. In the **Reference** field, enter any text.

   Typically this field is used for information that uniquely identifies the state definition and version.
7. In the **Description** field, enter the description of the state definition.
8. To add a filter, in the **Filter criteria** section, enter the filter criteria as follows:

   a. Right-click in the table, and then select **Insert**.

   b. In the **Field name** list, select the filter field.

   c. In the **Value** list, select the value of the field.

9. To delete a filter, do the following:

   a. Right-click the row, and then select **Delete**.

   b. Click **OK** to confirm.

10. Click **Save**.

    Note: You cannot enable the **Active** check box and save the definition until you have defined at least an initial state in the state workflow layout.

    Tip: Do not enable the **Active** check box until you have completely defined the state workflow layout. Once a state definition has been activated, it is locked and you cannot modify the workflow layout.

Editing a workflow state definition

1. Click **Workflow** > **Workflow Definitions**.

2. In the Folders view, expand the entity, and then select the state definition.

   You can also use the **Filter** field to restrict the definitions displayed.

3. To modify the state definition:

   a. Make the necessary changes to the fields.

   b. Click **Save**.

4. To delete the state definition:

   a. Clear the **Active** check box and then click **Save**.

   b. Click **Delete**.

   c. Click **OK** to confirm.

Activating and validating a workflow state definition

When you have configured the state workflow layout and the required process workflow layouts for a state definition, you can activate the definition. When you activate a definition, if an active definition exists with the same filter criteria, it is automatically deactivated.

State definitions are validated during activation.

1. Click **Workflow** > **Workflow Definitions**.
2. In the Folders view, expand the entity, and then select the state definition.
3. To activate the workflow for the state definition,, check the **Active** check box and then click **Save**.

   If the workflow is invalid, the **Workflow Validation** dialog box appears with a list of validation error definitions.
4. To correct a validation error, do the following:
   a. Double-click a definition to be taken to the location of the error.
   b. Correct the error.
   c. If the error was in the process workflow layout screen, click **Return**.
   d. Click **Close** on the state workflow layout screen.

      The **Workflow Validation** dialog box re-appears.
   e. In the **Workflow Validation** dialog box, click **Validate**.
   f. If the error correction was successful, the definition is removed from the list.
5. To deactivate the workflow for the state definition, clear the **Active** check box.
6. Click **Save**.

Copying a workflow state definition

When you copy a state definition, the state definition General and Filter values, states, transitions, process definitions, access rights, and attachments that have been configured for the definition are also copied.

1. Click **Workflow** > **Workflow Definitions**.
2. In the Folders view, expand the entity, and then select the state definition.

   You can also use the **Filter** field to restrict the definitions displayed.
3. Click **Copy**.

   Tip: Because the copy has the same name as the original, you should rename the copy (or the original) as soon as possible.

About exporting and importing workflow state definitions

You can export state definitions, including the associated process definitions, from a Changepoint server and then import them into another Changepoint server with the same Changepoint version.

For example, you can export state definitions from a production server, and import them into a test server for testing and troubleshooting.

State definitions are exported in XML format.

The state definition is validated before it is exported. For more information about validating definitions, see "Activating and validating a workflow state definition" on page 397.

Exporting a workflow state definition

The state definition is validated before it is exported.

1. Click **Workflow** > **Workflow Definitions**.
2. In the Folders view, expand the entity, and then select the state definition.

   You can also use the **Filter** field to restrict the definitions displayed.
3. Click **Export**, and save the file to the required location.

Importing a workflow state definition

1. Click **Workflow** > **Workflow Definitions**.
2. In the Folders view, expand the entity and then select any state definition.
3. Click **Import**.

   The **Import State Definition** dialog box appears.
4. Click **Browse**, select the state definition file, and click **Open**.
5. Click **Upload**.
6. In the **State definition name** field, edit the name of the state definition, if required.
7. Click **Import**.
8. If the file being imported contains entity states that do not exist in the database, the **Workflow Validation** dialog box appears. For each such state do the following:

   a. Select whether to create a new state or to map it to an existing state.

b. To map it to an existing state, select the existing state.

Overview of the state workflow layout

The state workflow layout window includes a toolbar and a design area that displays a graphic representation of the state workflow. In this window, you can configure the states (represented as) and state transitions (represented as) for a state workflow.

The initial state of the workflow is shown as .

A state transition that has an associated workflow *process* is shown as .

To configure a state workflow layout, do the following:

1. Add the required states to the design area.
2. If required, configure each state to apply access restrictions for the entity while it is in that state.
3. Add each required state-to-state transition to the design area.
4. If required, configure each state transition to apply access restrictions.

5. If required, configure each state to add a field value-based trigger for each state transition that starts at that state.

If required, after you have configured each state transition, you can define process workflow steps that must be carried out before the state transition can complete. For more information, see "Process workflow layout" on page 412.

Accessing the state workflow layout window

1. Click **Workflow** > **Workflow Definitions**.
2. In the Folders view, expand the entity, and then select the state definition.
3. Click **State workflow layout**

   The State workflow layout window appears.

Adding a state to the state workflow layout

The values in the **State** drop-down list are the values for the entity workflow field. For example, for request workflow, all available request status values display in the drop-down list.

Each State value can be placed on the design area only once.

1. Access the state workflow layout window.
2. Drag the icon onto the design area.

   The **Workflow State Configuration** dialog box appears.
3. To make this state the default state when a new entity is created for this workflow, select the **Initial state** check box.
4. In the **State** list, select the state.
5. In the **Name** field, enter a name for the state as it is to appear on the workflow layout.
6. In the **Description** field, enter a description for the state.

   This information is intended for internal reference only.
7. To restrict the editing of the entity while it is in this state, see "Restricting edit access to the entity while in a workflow state" on page 402.
8. You can add a trigger to initiate a state transition for which this state is the **From** state. However, you need to add the state transition first. For more information, see "Adding a

state transition to the state workflow layout" on page 402 and "Adding a trigger for a workflow state transition" on page 403

9. Click **Save**.

Restricting edit access to the entity while in a workflow state

By default, any user can edit an entity while it is in any workflow state. You can restrict edit access to the entity while the entity is in a specific workflow state to specific resources, system-defined participants, or roles.

Note: You can modify access control only if the state definition is not locked.

If you restrict edit access to a specific resource whose user account is later deactivated, existing entities may be unable to progress past this state. This requires the workflow to be reset.

1. Access the state workflow layout window.
2. Double-click the icon in the design area.

   The **Workflow State Configuration** dialog box appears.
3. Click the **Access** tab.
4. To display users, do one of the following:
   a. In the **Search** field, enter the user name, then click **Search**.
   b. To display only users who already have access, select the **Show selected items only** check-box.
5. Select and deselect users as required.
6. Click **Save**.

Adding a state transition to the state workflow layout

1. Access the state workflow layout window.
2. Drag the icon onto the design area.

   The **State Transition** dialog box appears.
3. In the **Transition name** field, enter a name for the transition.

Tip: Give each state transition a unique name so that you can unambiguously identify the transition with the link in the state workflow layout.

4. In the **Description** field, enter the description of this transition.

   The description is for internal reference only.

5. In the **From state** list, select the starting state for this transition.

6. In the **To state** list, select the destination state for this transition.

   Note: The outcome of the state transition may not be the destination state you select here, because the outcome may be changed by a process workflow that performs detailed steps for the transition.

Restricting edit access to the workflow state transition

Note: If both state access controls and state transition access controls are set up, the resource selected for state transition access must also have edit access to the starting state. If not, the workflow is invalid.

1. Access the state workflow layout window.

2. Right-click the icon in the design area, and select **State transition configuration**.

   The **State Transition** dialog box appears.

3. To select the resources who are allowed to perform the state transition, do one of the following:

   a. In the **Search** field, enter the user name, then click **Search**.

   b. To display only users who already have access, select the **Show selected items only** check-box.

   Note: System-defined participant in this case includes Client Portal users with workflow participant access rights.

4. Select and deselect users as required.

5. Click **Save**.

Adding a trigger for a workflow state transition

You can configure a workflow state so that an entity field value-based criterion must be satisfied to initiate a state transition with that starting state. The field that is configured to

initiate the workflow is the *trigger* field. You can use any configurable field of the entity as the trigger field.

If multiple criteria are defined, the conditions are evaluated in the order in which they appear in the table in the **Transition** tab of the **Workflow State Configuration** dialog box. The first matched criterion initiates the transition.

Note: For request workflow, the configurable field selected is validated with the request type configured for the state definition, when the state configuration is saved.

1. Access the state workflow layout window.
2. Double-click the icon in the design area.

   The **Workflow State Configuration** dialog box appears.
3. Click the **Transition** tab.
4. Do one of the following:
   - To have the state transition initiated when a specific change occurs in the trigger field, select the **Transition based on change to the value of the field** option.
   - To have the state transition initiated when a specific value is found in the trigger field, select the **Transition based on the value of the field** option.
5. In the **Transition** list, select a state transition that has been created with this state in the **From state** field.
6. In the **Field name** list, select the trigger field.
7. If you selected **Transition based on the value of the field**:
   a. In the **Condition** list, select the condition for the transition. The available selections in this field depends on the data type (code, text, numeric or date) of the **Field name** field.
   b. In the **String text** field, select or enter the value of the field, or the range of values, that will trigger the transition.
8. If you selected **Transition based on change to the value of the field** and the trigger field is not a multi-select configurable field, complete the **From value** and **To value**.

   To cause *any* change to the trigger field to initiate the workflow transition, leave the **From value** and **To value** fields blank.

9. Click the **Save** button above the table.

   The transition criterion is added to the table.

10. To reorder the criteria, use the arrows at the right of the table.

11. To delete a criterion, select the criterion in the table and then click the **Delete** button above the table.

12. To modify a criterion, select the criterion in the table, make the changes in the fields above the table, and then click the **Save** button above the table.

Modifying a workflow state

You can delete or edit states in the state workflow layout when the state definition is not locked. If the definition is locked, only the state name and description can be changed.

To make other changes to a locked state definition, copy the state definition and make the changes to the copy.

When you delete a state from a state workflow layout, all state transitions connected to the state are also deleted, along with their corresponding process workflows.

1. Access the state workflow layout window.
2. Double-click the icon in the design area.

   The **Workflow State Configuration** dialog box appears.

3. To edit the state, make the necessary changes and then click **Save**.
4. To delete the state, click **Delete**.

Modifying a workflow state transition

You can delete or edit state transitions in the workflow layout when the state definition is not locked. If the definition is locked, only the transition name and description can be changed.

To make other changes when the state definition is locked, copy the state definition and make the changes to the copy.

1. Access the state workflow layout window.
2. In the design area, right-click the icon, and select **State transition configuration**

   The **State Transition** dialog box appears.

3. Do one of the following:
   - To edit the state transition, make the necessary changes and click **Save**.

     If you change the name of the state transition, the name of the corresponding process workflow is also changed.
   - To delete the state transition, click **Delete**.

     If a process workflow exists for the transition, it is also deleted.

Resource Request Workflow

Default state definitions for resource request workflow

The following table describes the default state definitions for resource request workflows.

State	Transition Configuration	Edit Access
New	The initial state. Automatic transition: **Pending Assignment** automatically transitions the **New** state to the **Assigned** state. No criteria required for the transition to occur.	• Request Initiator • Resource Manager (engagement staffing workgroup) • Resource Manager (resource request) • Resource Manager (resource request workgroup)
Assigned	Automatic transition: **Pending Approval** automatically transitions the **Assigned** state to the **Approved** state. No criteria required for the transition to occur.	• System Administrator
Approved	No automatic transition. The **Approved** state transitions to the **Canceled by Initiator** and **Canceled by Resource Manager** states. Only the Request Initiator can select **Canceled by Initiator** and only the Resource Manager can select **Canceled by Resource Manager**.	• Request Initiator • Resource Manager (engagement staffing workgroup) • Resource Manager (resource request) • Resource Manager (resource request workgroup)

State	Transition Configuration	Edit Access
Rejected	Automatic transition: **Assignment Rejected** automatically transitions the **Rejected** state to the **Assigned** state. No criteria required for the transition to occur.	• Resource Manager (engagement staffing workgroup) • Resource Manager (resource request) • Resource Manager (resource request workgroup)
Re-Opened	Automatic transition: **Re-Opened Assigned** automatically transitions the **Re-Opened** state to the **Assigned** state. No criteria required for the transition to occur.	• Request Initiator • Resource Manager (engagement staffing workgroup) • Resource Manager (resource request) • Resource Manager (resource request workgroup)
Canceled	No automatic transition. The **Canceled** state transitions to the **Re-Opened** state based on user selection, or the system can set the state to **Re-Opened** via the project team or task editing screen. Either the request initiator or the resource manager can make the transition.	• Request Initiator • Resource Manager (engagement staffing workgroup) • Resource Manager (resource request) • Resource Manager (resource request workgroup)
Canceled by Initiator	No automatic transition. The **Canceled by Initiator** state transitions to the **Re-Opened** state based on user selection, or the system can set the state to **Re-Opened** via the project team or task editing screen. Only the request initiator can make this transition.	• Request Initiator • Resource Manager (engagement staffing workgroup) • Resource Manager (resource request) • Resource Manager (resource request workgroup)

State	Transition Configuration	Edit Access
Canceled by Resource Manager	No automatic transition. The **Canceled by Resource Manager** state transitions to the **Re-Opened** state based on user selection, or the system can set the state to **Re-Opened** via the project team or task editing screen. Only the resource manager can make this transition.	• Request Initiator • Resource Manager (engagement staffing workgroup) • Resource Manager (resource request) • Resource Manager (resource request workgroup)
Send to Resource Manager	Automatic transition: **Mark as In Progress** automatically transitions the **Send to Resource Manager** state to the **In Progress (Resource Manager)** state. No criteria required for the transition to occur.	• Resource Manager (engagement staffing workgroup) • Resource Manager (resource request) • Resource Manager (resource request workgroup)
In Progress (Resource Manager)	Automatic transition: **In Progress - RM** automatically transitions the **In Progress (Resource Manager)** state to the **Assigned** state. No criteria required for the transition to occur.	• Resource Manager (engagement staffing workgroup) • Resource Manager (resource request) • Resource Manager (resource request workgroup)
Send to Initiator	Automatic transition: **In Progress Initiator - Mark as In Progress** automatically transitions the **Send to Initiator** state to **In Progress (Initiator)** state. No criteria required for the transition to occur.	• Request Initiator

State	Transition Configuration	Edit Access
In Progress (Initiator)	Automatic transition: **In Progress - Initiator** automatically transitions the **In Progress (Initiator)** state to **Assigned** state. No criteria required for the transition to occur.	• Request Initiator
Re-Assigned	Automatic transition: **Re-Assigned** automatically transitions the **Re-assigned** state to **Assigned** state. No criteria required for the transition to occur.	• Resource Manager (engagement staffing workgroup) • Resource Manager (resource request) • Resource Manager (resource request workgroup)

Stored procedures for logic execution steps in resource request workflow

WFCALC_Approve

Performs a resource leveling check, and then populates the pass/fail status into the step (**Approved** is a pass). If resource leveling is passed, the stored procedure also populates the resource into the task assignment, project team, and projected resource record.

WFCALC_Assign

Performs a resource leveling check, and then populates the pass/fail status into the step (**Assigned** is a pass). If resource leveling is passed, the stored procedure also populates the resource into the project team entry. In the default resource request workflow, resources are populated earlier for project team records (after **Assigned**) than for projected resources and task assignment records (after **Approved**). If you want the task assignment, project team, and projected resource record to be populated at the same point in the workflow, use WFCALC_ Approve instead.

WFCALC_Cancel

Performs a validation of the cancel, and populates the pass/fail status into the step. If the validation passes, the stored procedure also removes the resource from the project team, task assignment or projected resource record.

WFCALC_RMV_RejectRequestMailNotification

Add a step that includes this stored procedure if resources will use the resource management worksheet to make changes to demand items, and these changes will initiate resource requests. If a resource request is rejected, this stored procedure sends an email to the resource who committed the change, and then removes the pending request from the resource management worksheet scenario.

WFCALC_RMV_EmailLastRequestCompleted

Add a step that includes this stored procedure if resources will use the resource management worksheet to make changes to demand items, and these changes will initiate resource requests. When the request is completed, this stored procedure sends an email to the resource who committed the change, and removes the pending request from the resource management worksheet scenario.

A notification is sent only for the last request that is contained in the scenario and is completed.

WFCALC_RMV_RequestCompleteMailNotification

Add a step that includes this stored procedure if resources will use the resource management worksheet to make changes to demand items, and these changes will initiate resource requests. When the request is completed, this stored procedure sends an email to the resource who committed the change, and removes the pending request from the resource management worksheet scenario.

A notification is sent for every request that is contained in the scenario.

WFSPLIT_FromRMV

Add a step that includes this split decision if resources will be using the resource management worksheet to make changes to demand items that will initiate resource requests. This stored procedure checks whether the request came from the resource management worksheet.

Returns:

- FromRMV
- NotFromRMV

WFSPLIT_RequestInitiateLevel

Identifies the source of the resource request.

Returns:

- ENG – engagement level
- PRJ – project level
- TSK – task level

WFSPLIT_RmLevel

For use in a split decision to determine how to route the resource request based on the information that is populated in the request.

Returns:

- NotAvailable
- ResourceRequest
- ResourceRequestWorkgroup
- EngagementStaffingWorkgroup

WFSPLIT_ValidateCanceling

Use with WFCALC_Cancel to check if the resource can be removed from the project team or task assignment.

For project team entries, if task assignments exist for the resource, then the resource can only be removed if there are no existing project team entries to cover the time period for the task assignments.

For task assignments, the resource can only be removed if there are no time or expenses associated with the task assignment.

WFSPLIT_ValidateLeveling

Use with WFCALC_Assign and WFCALC_Approve to double-check resource leveling requirements are still met, and route the resource request differently if leveling fails.

Process workflow layout

After you have configured a state transition, you can create a workflow process for it.

A workflow *process* is a series of *steps* or activities that must be completed before the associated state transition can complete.

A state transition that has *no associated process* completes immediately when it is triggered.

Some of the process steps types require manual action by an assigned workflow participant (system-defined participant, resource, role, or configurable field participant).

Creating a process workflow

To create a process workflow for a state transition, do the following:

1. Access the state workflow layout window.
2. Right-click the icon for the state transition and select **Process configuration**.

   The **Process Workflow Layout** window appears. The beginning and ending states of the state transition are included automatically.
3. Do one of the following:
   - Click to save the process layout.
   - Drag any step icon onto the design area then either click **Return** or click .

   When you refresh the workflow definitions tree, the process definition appears in the tree as a child of the corresponding workflow state definition.

   Add process steps and step transitions to build the process workflow.
4. Click .
5. Click **Return**.
6. Click **Close**.

Modifying a process workflow definition

When a process definition is locked, you can edit only the process name and description, and you cannot delete the process definition.

If you change the process name, the name of the corresponding state workflow transition is also changed.

To delete a process definition, delete the corresponding state workflow state transition.

1. Click **Workflow** > **Workflow Definitions**.
2. In the Folders view, expand the entity and the state definition, and then select the process definition.
3. To edit the process definition, make the necessary changes and click **Save**.
4. To delete the process definition, do the following:
   a. In the **State Workflow Layout** window, open the state transition configuration for the corresponding state transition.
   b. Delete the state transition.

About the process workflow layout window

The process workflow layout window includes a toolbar and a design area that displays a graphic representation of the process workflow. In this window, you can configure the steps and step transitions for the process workflow.

The toolbar consists of two sets of buttons:

- layout management buttons

  Use these buttons to print, filter the display, etc.

- process step icons

  Drag and drop these icons to the design area to graphically design the process workflow by adding steps, and transitions between steps.

Accessing the process workflow layout window

To access the process layout window from the Workflow Definitions tree:

1. Click **Workflow** > **Workflow Definitions**.
2. In the Folders view, expand the entity, and then expand the state definition.
3. Under the state definition, select the process workflow.
4. Click **Process Workflow Layout**.

   The process workflow layout window opens.

To access the process layout window from the State Workflow layout:

1. Access the state workflow layout window.
2. In the design area, double-click the icon of the state workflow transition that corresponds to the process workflow.

   The process workflow layout window opens.

Process workflow step icons

Drag these icons to the design area to graphically design the process workflow by adding steps and transitions between steps.

Icon	Action
	Logic Execution – Executes a stored procedure.
	Action – Requires a participant to perform an approval action.
	Status – Requires a participant to provide a status.
	Decision – Adds a split decision or a join decision. No user action is required for a decision step.
	Notification – Sends an email notification. This step does not require an action from the participant, but is used to inform users about actions, such as notifying the initiator that a request has been approved.
	State – Drag to the design area to add an alternate state to the process workflow. Alternate states are used when the outcome of a process workflow results in a state change that differs from the end state defined for the workflow state transition. **Note:** You can only add states that have been included in the state workflow layout.
	Copy project – Creates a new project from an existing project. **Note:** This step is not available for resource request workflows.
	Tri-state approval – Can transition to one or more of several paths as a result of the participant's selection of one of three different outcomes.
	System-driven survey – Sends a survey to a list of recipients.
	Drag to the design area to add a transition between two steps.
	User-driven survey – Requires the participant to send a survey to a list of recipients
	Upload – Requires the participant to upload a document and then mark the step as complete.

Creating a process workflow layout

After you have created the state workflow layout, for each state transition that requires a process workflow, use the process workflow layout window to add and configure the process workflow steps.

1. Access the process workflow layout window.
2. Add and configure the required steps. For more information, see the configuration topics for the following steps:
   - "Configuring a process workflow state" on page 418
   - "Configuring a process workflow logic execution step" on page 419
   - "Configuring a process workflow action step" on page 420
   - "Configuring a process workflow status step" on page 420
   - "Configuring a process workflow decision step" on page 421
   - "Configuring a process workflow notification step" on page 422
   - "Configuring a process workflow copy project step" on page 423
   - "Configuring a process workflow tri-state approval step" on page 424
   - "Configuring a process workflow system-driven survey step" on page 424
   - "Configuring a process workflow user-driven survey step" on page 425
   - "Configuring a process workflow upload step" on page 426
3. Add and configure the step transitions between the steps. For more information, see "Configuring a process workflow step transition" on page 427.
4. Click to save the process layout.

About process workflow steps

When you first open the process workflow layout window of a workflow state transition, the start and end states for the state transition are displayed in the design area. These states cannot be removed from the layout.

However, you can add additional states to the process workflow. Additional states are required in situations where the outcome of a step needs to be a state other than the destination (end) state of the state workflow transition.

You can only add states that exist in the state workflow layout. Each state can be added only once.

Example

In the following example, the *state transition* begins in the **New** state and ends in the **Approved** state.

However, the process workflow for the state transition includes a step to assess the requirements and determine whether to proceed with the project or to ask for clarification of project goals. If the decision maker requires more information, the **Clarification Required** state is the end state instead of the **Approved** state.

So in this case the **Clarification Required** state must be added to the process workflow layout.

Deleting process workflow steps

As long as the workflow parent of a process workflow is not locked, you can delete any of the process workflow steps that have been added to the process workflow layout.

Decisions

Apart from the process state, each process step dialog has a **Join decision** tab and a **Split decision** tab. In general there is no need to add a decision step to a process layout because the step **Join decision** and **Split decision** tabs provide exactly the same functionality as the decision step.

Reference information

The workflow participant for a step may require reference information, such as a link, or a template, to complete a step. Use the **Create Knowledge Item** menu item included in each step dialog box.

> **Tip:** Give each step a unique name so that you can unambiguously identify the step with the icon in the process workflow layout.

Configuring a process workflow state

1. Access the process workflow layout window.
2. Drag the icon onto the design area.

   The **State Step** dialog box appears.
3. In the **Add state** list, select the state.
4. In the **Step name** field, enter the name for the step.
5. Click **Save**.

About process workflow logic execution steps

Use a logic execution step to execute stored a procedure as a stand-alone process.

No user action is required for this step.

Sample stored procedure used in logic execution steps

In the following example, the stored procedure calculates the estimated effort for a request in hours.

```
CREATE PROCEDURE dbo.WFCALC_Request_EstimatedHours (@EntityId as
UNIQUEIDENTIFIER, @Entity as VARCHAR(25), @StepId as UNIQUEIDENTIFIER,
@strOutput as NVARCHAR(255) output)
AS
select @strOutput= convert(varchar(255),cast(isnull(EstimatedHours,0) as int))
from Request where RequestId = @EntityId
return
```

```
GO
```

If you create a custom stored procedure for a logic execution step, follow these rules:

- Begin the procedure name with `WFCALC_`
- Parameters are positional. Do not modify the names or types of the four mandatory parameters shown in the sample above
  - @EntityId represents the GUID of the entity associated with the workflow step, and can be used, for example, in a select statement to retrieve information about the entity
  - @Entity represents the name of the entity type, for example, Request
  - @StepId is the GUID of the process step instance
  - (as in the example), convert @strOutput to NVARCHAR(255)
- Add your own variables, if required

Configuring a process workflow logic execution step

Note: To use a custom stored procedure, create the procedure before you configure the logic execution step.

1. Access the process workflow layout window.
2. Drag the icon onto the design area.

   The **Logic Execution** dialog box appears.
3. In the **Step name** field, enter the name for the step.
4. In the **Instructions** field, enter information about the step.
5. To configure a join decision, click the **Join decision** tab. For more information, see "About workflow join decisions" on page 434.
6. To configure a split decision, click the **Split decision** tab. For more information, see "About workflow split decisions" on page 436.
7. Click the **Action** tab.
8. In the **Stored procedure to be executed** list, select the stored procedure.
9. Click **Save**.

Configuring a process workflow action step

Use the action step when a workflow participant is required to perform an action and/or provide an approval.

Participants who are assigned an action step receive a workflow notification in their **My Reminders** portlet in Changepoint.

1. Access the process workflow layout window.
2. Drag the icon onto the design area.

   The **Action** dialog box appears.
3. In the **Step name** field, enter the name for the step.
4. In the **Instructions** field, enter instructions for the workflow participant to complete the step.
5. To assign the step to a participant, click the **Assignment** tab. For more information, see "Selecting a workflow step participant" on page 430.
6. To configure escalation rules, click the **Escalation** tab. For more information, see "About workflow escalation" on page 432.
7. To configure a join decision, click the **Join decision** tab. For more information, see "About workflow join decisions" on page 434.
8. To configure a split decision, click the **Split decision** tab. For more information, see "About workflow split decisions" on page 436.
9. Click **Save**.

Configuring a process workflow status step

Use the status step when a workflow participant is required to perform a task and mark the task as completed. For example, when the participant is required to review a schedule and then mark the review as completed.

Participants who are assigned a status step receive a workflow notification in their **My Reminders** portlet in Changepoint. They must perform the task and update the status to Completed, In progress, On hold, or Reassigned.

1. Access the process workflow layout window.
2. Drag the icon onto the design area.

The **Status** dialog box appears.

3. In the **Step name** field, enter the name for the step.
4. In the **Instructions** field, enter instructions to complete the step.
5. To assign the step to a participant, click the **Assignment** tab. For more information, see "Selecting a workflow step participant" on page 430.
6. To configure escalation rules, click the **Escalation** tab. For more information, see "About workflow escalation" on page 432.
7. To configure a join decision, click the **Join decision** tab. For more information, see "About workflow join decisions" on page 434.
8. To configure a split decision, click the **Split decision** tab. For more information, see "About workflow split decisions" on page 436.
9. Click **Save**.

Configuring a process workflow decision step

Use the decision step to configure a split or join decision in the process workflow.

In general, configuring split or join decisions using the Split decision tab or the Join decision tab in each step type is functionally identical to using a separate Decision step.

No user action is required for decision steps.

Warning: If you configure a split decision with mutually exclusive decisions, and later two or more of the paths from these decisions converge in a join decision that requires *all* to be completed, workflow will stall at the step with the join decision.

1. Access the process workflow layout window.
2. Drag the icon onto the design area.

   The **Decision** dialog box appears.

3. In the **Step name** field, enter the name for the step.
4. In the **Instructions** field, enter instructions for the workflow participant to complete the step.
5. To configure a join decision, click the **Join decision** tab. For more information, see "About workflow join decisions" on page 434.

6. To configure a split decision, click the **Split decision** tab. For more information, see "About workflow split decisions" on page 436.
7. Click **Save**.

Configuring a process workflow notification step

Use the notification step to send an email notification about actions taken as part of the process workflow. Notifications can be sent to any resource.

No user action is required for this step.

Note: Before you start, ensure that you have access to a suitable email template.

1. Access the process workflow layout window.
2. Drag the icon onto the design area.

   The **Notification** dialog box appears.
3. In the **Step name** field, enter the name for the step.
4. In the **Instructions** field, enter information about the step.
5. Click the **Notification** tab.
6. Select the **Send an email** check box.
7. In the **Template** list, select the email template for the notification.

   The **Subject** and **Message** fields display the email subject and message of the selected template. You cannot edit these fields.
8. Select the recipients of the email notification. For more information, see "Selecting a workflow step participant" on page 430.
9. To configure a join decision, click the **Join decision** tab. For more information, see "About workflow join decisions" on page 434.
10. To configure a split decision, click the **Split decision** tab. For more information, see "About workflow split decisions" on page 436.
11. Click **Save**.

Configuring a process workflow copy project step

Use the copy project step to allow workflow participants to either create a new project based on existing project data. The project information such as tasks, task assignments, work codes and work locations are copied from a source project to a new or existing project.

1. Access the process workflow layout window.
2. Drag the icon onto the design area.

   The **Copy Project** dialog box appears.
3. In the **Step name** field, enter the name for the step.
4. In the **Instructions** field, enter instructions for the workflow participant to complete the step.
5. To assign the step to a participant, click the **Assignment** tab. For more information, see "Selecting a workflow step participant" on page 430.

   Note: Client Portal users cannot be selected as a participant on a copy project step.
6. Click the **Source** tab.
7. In the **Phase** field, select one or more task phases. Only tasks that are associated with the selected phases in the source project are copied to the target project. If no phase is selected, then all the tasks from the source project are copied to the target project.
8. To allow the step participant to add or remove task phases when creating a new project, select the **Allow participants to add/remove phases** check box.
9. Do one of the following:
   - To use a project as the source, select the **Select a project** option, and then select the company, engagement, and project.
   - To use a project configurable field as the source, select the **Select a configurable field** option, and then select the **Project configurable field** field.
10. To configure escalation rules, click the **Escalation** tab. For more information, see "About workflow escalation" on page 432.
11. To configure a join decision, click the **Join decision** tab. For more information, see "About workflow join decisions" on page 434.

12. To configure a split decision, click the **Split decision** tab. For more information, see "About workflow split decisions" on page 436.
13. Click **Save**.

Configuring a process workflow tri-state approval step

For tri-state approval steps, the **Split decision** tab is used to configure the step to transition to up to three different conditions as a result of the split decision.

1. Access the process workflow layout window.
2. Drag the icon onto the design area.

   The **Tri-State Approval** dialog box appears.
3. In the **Step name** field, enter the name for the step.
4. In the **Instructions** field, enter instructions for the workflow participant to complete the step.
5. To assign the step to a participant, click the **Assignment** tab. For more information, see "Selecting a workflow step participant" on page 430.
6. To configure escalation rules, click the **Escalation** tab. For more information, see "About workflow escalation" on page 432.
7. To configure a split decision, click the **Split decision** tab. For more information, see "About workflow split decisions" on page 436.
8. Click **Save**.

Configuring a process workflow system-driven survey step

Use the system-defined survey step to send a survey to a list of recipients. You can configure only active surveys that are not automated. If the selected survey has expired before the workflow reaches this step, the step is skipped.

No user action is required for this step.

1. Access the process workflow layout window.
2. Drag the icon onto the design area.

   The **System-driven survey** dialog box appears.
3. In the **Step name** field, enter the name for the step.

4. In the **Instructions** field, enter information about this step.
5. To configure a join decision, click the **Join decision** tab. For more information, see "About workflow join decisions" on page 434.
6. To configure a split decision, click the **Split decision** tab. For more information, see "About workflow split decisions" on page 436.
7. Click the **Survey** tab.
8. In the **Surveys** list, select a survey.
9. To allow this step to be marked Complete before all survey recipients have responded, select the **Auto-complete survey** check-box, and then in the **Response** fields, do the following:
   - Optionally, in the **%** field, enter the percentage of survey responses that must be received for this process workflow step to be marked Complete.
   - In the **day(s)** field, enter the number of days that the process workflow will wait before this process workflow step is marked Complete.

   The process workflow step is marked Complete when either the percentage of responses received condition or the number of days condition is satisfied.
10. To select the recipients of the survey, do the following:
    a. In the body of the **Recipients** table, right-click and select **Insert**.
    b. In the **Participant** column, expand the tree view and select a participant.
    c. To assign a participant who is organizationally related to the resource assigned to a predecessor step (for example, the resource's manager), do the following:
       - Select the system-defined participant.
       - In the **Previous step** column, select the predecessor step.
11. Click **Save**.

Configuring a process workflow user-driven survey step

Use the user-driven survey step when the workflow participant is the assigned resource to distribute the survey to specified recipients. You can configure only active surveys that are not automated.

1. Access the process workflow layout window.

2. Drag the icon onto the design area.

   The **User-driven survey** dialog box appears.

3. In the **Step name** field, enter the name for the step.
4. In the **Instructions** field, enter instructions for the workflow participant to complete the step.
5. To assign the step to a participant, click the **Assignment** tab. For more information, see "Selecting a workflow step participant" on page 430.
6. To configure escalation rules, click the **Escalation** tab. For more information, see "About workflow escalation" on page 432.
7. To configure a join decision, click the **Join decision** tab. For more information, see "About workflow join decisions" on page 434.
8. To configure a split decision, click the **Split decision** tab. For more information, see "About workflow split decisions" on page 436.
9. Click the **Survey** tab.
10. In the **Surveys** list, select a survey.
11. To allow this step to be marked Complete before all survey recipients have responded, select the **Auto-complete survey** check-box, and then in the **Response** fields, do the following:

    - Optionally, in the **%** field, enter the percentage of survey responses that must be received for this process workflow step to be marked Complete.
    - In the **day(s)** field, enter the number of days that the process workflow will wait before this process workflow step is marked Complete.

    The process workflow step is marked Complete when either the percentage of responses received condition or the number of days condition is satisfied.

12. Click **Save**.

Configuring a process workflow upload step

Use the upload step when the workflow participant is required to upload a file as part of the process workflow.

Participants who are assigned an upload step receive a workflow notification in their **My Reminders** portlet in Changepoint. The available statuses for upload steps are: Done, On hold, and Reassigned.

1. Access the process workflow layout window.
2. Drag the icon onto the design area.

   The **Upload** dialog box appears.
3. In the **Step name** field, enter the name for the step.
4. In the **Instructions** field, enter instructions for the workflow participant to complete the step.
5. To assign the step to a participant, click the **Assignment** tab. For more information, see "Selecting a workflow step participant" on page 430.
6. To configure escalation rules, click the **Escalation** tab. For more information, see "About workflow escalation" on page 432.
7. To configure a join decision, click the **Join decision** tab. For more information, see "About workflow join decisions" on page 434.
8. To configure a split decision, click the **Split decision** tab. For more information, see "About workflow split decisions" on page 436.
9. Click **Save**.

Configuring a process workflow step transition

After you have configured the steps in the process, you can configure the transitions between steps.

1. Access the process workflow layout window.
2. Drag the icon onto the design area.

   The **Transition Step** dialog box appears.
3. In the **Transition name** field, enter the name for the transition.

   Tip: Give each step transition a unique name so that you can unambiguously identify the transition with the link in the process workflow layout.
4. In the **Description** field, enter a description for the transition.

5. In the **From** list, select the starting step for the transition.
6. In the **To** list, select the ending step for the transition.
7. Click **Save**.

About assigning workflow steps to participants

If user action is required for a step, you must assign the step to one or more workflow participants. Participants who are assigned to a step receive a workflow notification in their Changepoint **My Reminders** portlet.

> **Tip:** When you assign a step to a workflow participant, be sure to configure escalation rules so that the step is automatically escalated if it is not resolved within a certain period of time. Otherwise the workflow is stalled if the participant cannot complete the step.

Workflow participants include:

- Resources
- Roles
- System-defined participants
- Configurable field participants

Resources

If a resource is assigned to a step and the resource's user account is later deactivated, the process workflow stalls.

Roles

When you assign a role, all resources with the specified role are assigned to the step. If you select a role as a participant in the workflow step, ensure that there are resources who are assigned to the role. Otherwise, the workflow step stalls.

System-defined participants

System-defined participants are resources who have been assigned to a system-defined function on a specific entity. For example, for a request entity, the **Request responsible** function refers to the resource selected in the **Responsible** field.

Make the appropriate field mandatory to ensure that a value is entered in the field. If the field is empty or invalid, the workflow step is skipped, and this is noted in the workflow log.

> **Note:** Client Portal users that have been granted workflow participant access rights can also be a assigned to a system-defined function, such as a **Request initiator**.

You can assign a participant who has a system-defined relationship (for example, **Manager**) with the assigned resource from a previous step in the process workflow. To do so, assign the step to the appropriate system-defined participant, and select the previous step. Previous steps are available for selection once the steps and transitions have been configured in the design area.

Configurable field participants

If you use a configurable field as a participant in a workflow step, make the field mandatory to ensure that a value is entered in the field. If the field is left blank, the active step is not assigned to anyone and the workflow stalls.

Only resource and role entity-based configurable fields are supported. The step assignment may be changed based on user selection of the configurable field. For example, if a user selects a value in the configurable field that has a role associated to it, the step will be assigned to that role.

If the participant is a Client Portal user, the validation for workflow steps is performed when the user signs into Client Portal. The Client Portal user is considered valid if:

- they are assigned to the configurable field
- they are associated to the company of the workflow entity
- they have the workflow participant access rights.

If the participant is invalid, the workflow stalls.

Note: You cannot select contact configurable fields as participants for **Copy project** steps or **User-driven survey** steps.

Selecting a workflow step participant

1. Access the process workflow layout window.
2. Double-click the step icon.

   The step dialog box appears.
3. Click the **Assignment** tab.
4. In the **Assigned to** field, expand the tree view and select the participant.

   Tip: Right-click in the tree view or on one of the elements in the tree view to display a context menu that you can use to quickly expand or collapse the elements.
5. To assign the step to a participant who has a system-defined relationship with the resource assigned to a predecessor step in the process workflow, do the following:

   a. Select a system-defined participant in the **Assigned to** field.

   b. Select the predecessor step in the **Previous step** field.
6. Click **Save**.
7. To send a notification to the participant to inform them about the assignment, see "Sending an email notification to a workflow participant" on page 431.

About sending notifications to workflow participants

To send a notification to a workflow participant, you can use either a **Notification** step, or the **Notification** section of the **Assignment** tab in the step dialog. The following table shows the features of each method.

Notification step	Notification section of the Assignment tab
You *must* configure an email message	You can optionally configure an email message to the participants
You can send the email message to any resource	The email message is sent only to the participants assigned to the step

Notification step	Notification section of the Assignment tab
The participants do not receive a workflow notification in the **My Reminders** portlet	The participants receive a workflow notification in the **My Reminders** portlet
There is no associated escalation	If escalation is configured, it uses the same email template that you select in the **Notification** section of the **Assignment** tab

One default workflow notification email template is included with Changepoint.

Note: Only the following parameters are supported in workflow email notifications:

- ÿNameÿ – name of the entity, or number of the request.
- ÿDescriptionÿ – the request short description field, or the description from the **Comments** field for an entity other than a request.
- ÿIDÿ – internal GUID of the entity or request.
- ÿQuickLinkÿ – quicklink parameter allowing you to sign in to Changepoint and directly access the entity profile page.

For information on creating custom email templates, see the "About email notifications" section on page 286.

System-defined and configurable field participants

To send the notification to a resource who has a system-defined relationship with the resource assigned to a predecessor step, you select the appropriate system-defined participant and then the predecessor step. For example, if you select **Manager** from the system-defined participant list and select a previous step, the notification is sent to the manager of the resource who is assigned to the selected previous step. Previous steps are available for selection once the steps and transitions have been configured in the design area.

If you select a configurable field participant, and the configurable field is associated with resources, the notification is sent to the list of resources. If the configurable field is associated with roles, the notification is sent to the list of resources with the roles.

Sending an email notification to a workflow participant

1. Access the process workflow layout window.
2. Double-click the step icon.

The step dialog box appears.

3. Click the **Assignment** tab.
4. Select a participant. For more information, see "Selecting a workflow step participant" on page 430.
5. Click the **Send an email** check box.
6. In the **Template** list, select the workflow notification email template.
7. Click **Save**.

Adding attachments and links to a workflow step

You can attach documents and/or links to a URL or shared folder repository to steps in a process workflow to provide reference information (for example process guidance or templates that the user needs to complete the step).

After the state definition is activated, the name of the attachment or link displays in the **Guidance** section of the workflow step dialog in Changepoint.

Note: The **Create Knowledge Item** link on the step dialog box is only available after the step has been saved.

1. Access the process workflow layout window.
2. Double-click the step icon.

   The step dialog box appears.
3. Click **Create Knowledge Item**.

   The **Create Knowledge Item** dialog box appears.
4. Complete the fields as required.
5. Click **Save**.

About workflow escalation

You can configure escalation rules to escalate steps automatically if they are not resolved within a certain period of time, to avoid delays in the workflow. The following escalation options are available:

- **Email notification only** – an email is automatically sent to the participants to remind them to complete the step. If you select this option, make sure that the notification settings are set up in the **Assignment** tab. Escalations use the same email template as you selected in the **Notification** section of the **Assignment** tab.
- **Reassignment** – the step is reassigned to another participant. The new participant receives a workflow notification in the **My Reminders** portlet in Changepoint.
- **Conclude** – the process moves to the next step, even if the participant did not completed the required action. In the case of a split decision, the workflow is marked as completed or rejected, depending on the configuration of the default status for the step type.

To avoid escalation, workflow steps must be marked as follows:

- Action step – Accepted or Rejected
- Status step – Completed
- Upload step – Done
- User-driven survey step – Done
- Copy project step – Done
- Tri-state approval step – Accepted, Rejected, or Routed To

Workflow escalation is processed by a scheduled job. For more information about scheduled jobs, see the *Changepoint Installation Guide*.

Configuring a workflow escalation

1. Access the process workflow layout window.
2. Double-click the step icon.

   The step dialog box appears.
3. Click the **Escalation** tab.
4. In the **Required time to complete step** field, enter the time (in hours) given to participants to complete the step.
5. To define an escalation rule, do the following:

   a. In the table, right-click and select **Insert**.

b. In the **Timer (hours)** column, enter the number of hours before the escalation is triggered.

c. In the **Escalation type** column, select the escalation type.

d. In the **Participant** column, select the participant. For more information, see "Selecting a workflow step participant" on page 430.

To assign a participant who is organizationally related to the resource assigned to a predecessor step, do the following:

- Select a system-defined participant.
- In the **Previous step** column, select the predecessor step.

6. Click **Save**.

About workflow join decisions

Use the join decision step, or the join decision tab, to converge two or more steps into a single subsequent step. The join decision determines the number of incoming steps that must be completed before the single step begins.

Join decision types

- **ALL previous steps are completed** – If all of the incoming steps must be completed to converge into this step.
- **ONE previous step is completed** – If only one of the incoming steps must be completed to converge into this step.
- **Specify number of steps to be completed** – If you have more than 2 incoming steps and only some of them must be completed to converge into this step.

  Note: In this situation, the term “completed” does not mean that a step was necessarily marked as **Completed**. It means that it was marked as **Approved**, **Rejected** or **Completed** by the user, all of which are considered by workflow to indicate that no further action is required or possible.

In the following example, as soon as the assigned workflow participants mark both the **Create Resource Plan** step and the **Create Project Plan** step as “completed”, the steps converge to the **Identify project team** status step.

To have the process move to the **Identify project team** step only when both previous steps are marked as status = **Completed**, configure each of the **Create Resource Plan** step and the **Create Project Plan** step with a split decision to continue to the **Identify project team** step only if the step is **Completed**, and to redirect the process to another point in the workflow otherwise.

Configuring a workflow join decision

1. Access the process workflow layout window.
2. Double-click the step icon.

   The step dialog box appears.
3. Click the **Join decision** tab.
4. In the **Join decision type** list, select one of the following:
   - If all of the incoming steps must be completed to converge into this step, select **ALL previous steps are completed**.
   - If only one of the incoming steps must be completed to converge into this step, select **ONE previous step is completed**.
   - If you have more than 2 incoming steps and only some of them must be completed to converge into this step, select **Specify number of steps to be completed**, and then enter a number in the **Number of steps to be completed** field.
5. Click **Save**.

About workflow split decisions

Use the split decision step, or the split decision tab, to diverge one step into two or more parallel paths. The split decision determines which paths the workflow process takes after the current step finishes processing.

For example, you can set the split to follow one path if the workflow participant changes the status on an action step to **Accepted**, and another path if the status is set to **Rejected**.

In the following example, the **Upload and create project charter** step branches out to two status steps and two upload steps. The split decision is configured on the **Upload and create project charter** step.

Use the **Split Decision** tab to create one or more expressions to determine the possible outcomes of a split decision. The expressions can use the status from the current or previous step, or a result from a stored procedure.

- When the split decision is executed, each expression that is true causes the process to follow the corresponding process transition to the next step.
- When you create the second and subsequent expression, they must be either all Numeric or all Text, and must all be of the same decision type (or use the same stored procedure).
- You must configure at least one expression that results in a "Go to step" for each step that the split can transition to.

Split decision type

- **Transition to ALL steps** – Use this decision type to follow all process transitions that branch out from this step.

  When you select this type, all steps that branch out from the current step display in the table. The process proceeds to each of these steps when the current step is completed.

- **Current Step Status** – Use this decision type to determine which process transition to follow based on the outcome of the current step.

  This decision type is available only for steps that require user interaction, such as action or status steps.

- **Previous Step Status** – Use this decision type to determine which process transition to follow based on the outcome of a predecessor step.

  This decision type is available only if the current step has at least one predecessor step. The previous step status is not available if the step has a join condition.

- You can use the result of a stored procedure (including a custom stored procedure) as the basis to determine which process transition to follow. When you select a stored procedure, you specify whether the result that is passed is treated as text or numeric.

  - The procedure must exist before you can build the expression.
  - The procedure name must begin with `WFSPLIT_`.

Configuring a workflow split decision

1. Access the process workflow layout window.
2. Double-click the step icon.

   The step dialog box appears.
3. Click the **Split decision** tab.
4. In the **Split decision type** list, select one of the following:

   - To transition to all steps that branch out from this step, select **Transition to ALL steps** and click **Save**.
   - To base the decision on the outcome of the current step, select **Current step status** and complete the expression.

- To base the decision on the outcome of the previous step, select **Previous step status** and complete the expression.
- If workflow stored procedures are available for selection, select the stored procedure and complete the expression.

To complete the expression for the current or previous step status

Note: For the **Current step status** or the **Previous step status** decision type, the **Text** option is selected because the status is always a text string.

1. In the **Condition** list, select the condition. For more information, see "Available conditions in the workflow split expression builder" on page 439.
2. In the **Value** field, enter the value to complete the expression.
   - If the expression is based on the current or previous step status, and the step is not a tri-state approval step, only the statuses that cause the step to be marked as completed (for example **Done**) or that do not transition the step to a state (for example **On hold**) are available.
   - If the step is a tri-state approval step, you can configure the step to transition to up to three different states as a result of the split decision, by creating expressions with different outcomes.
3. In the **Go to step** list, select the step that the process proceeds to when the result matches the condition and value set for this expression.
4. Click the **Save** button above the table to add the expression to the table.
5. Add another expression, if required.
6. Click the **Save** link.

To complete the expression for a stored procedure

1. Select one of the following options to determine how the result is returned:
   - To return a numeric value, such as the estimated effort for a project, select **Numeric**.
   - To return a text value, such as a project name, select **Text**.
2. In the **Condition** list, select the condition. For more information, see "Available conditions in the workflow split expression builder" on page 439.
3. In the **Value** field, do the following:

- If you selected the **Numeric** option, enter a number to return the result as a numeric value.
- If you selected the **Text** option, enter a text string to return the result as text.

4. In the **Go to step** drop-down list, select the step the process is routed to when the result matches the condition and value set for this expression.
5. Click the **Save** button above the table to add the expression to the table.
6. Add another expression, if required.
7. Click **Save**.

Available conditions in the workflow split expression builder

The available conditions vary depending on whether the expression is configured to return a text value or a numeric value.

For text results, the process proceeds to the step selected in the expression:

- Equal to – If the returned text is a case-insensitive match for the Value in the expression.
- Not equal to – If the returned text does not match the Value in the expression.
- Like – If the returned text contains the Value in the expression.

For numeric results, the process proceeds to the step selected in the expression:

- Equal to – If the returned number is equal to the Value in the expression.
- Less than equal to – If the returned number is less than or equal to the Value in the expression.
- Less than – If the returned number is less than the Value in the expression.
- Greater than or equal to – If the returned number is greater than or equal to the Value in the expression.
- Greater than – If the returned number is greater than the Value in the expression.

Sample stored procedure used in workflow split decision

The name of a stored procedure for a split decision must begin with `WFSPLIT_`.

In the following example, the stored procedure retrieves the estimated effort for a request in hours.

```
CREATE PROCEDURE dbo.WFSPLIT_Request_EstimatedHours (@EntityId as
UNIQUEIDENTIFIER, @Entity as VARCHAR(25), @StepId as UNIQUEIDENTIFIER,
@strOutput as NVARCHAR(255) output)
AS
select @strOutput= convert(varchar(255),cast(isnull(EstimatedHours,0) as int))
from Request where RequestId = @EntityId
return
GO
```

If you create a custom stored procedure for a split decision, follow these rules:

- begin the procedure name with `WFSPLIT_`
- the parameters are positional. Do not modify the names or types of the four mandatory parameters shown in the sample above
  - @EntityId represents the GUID of the entity associated with the workflow step, and can be used, for example, in a select statement to retrieve information about the entity
  - @Entity represents the name of the entity type, for example, Request
  - @StepId is the GUID of the process step instance
  - (as in the example), convert @strOutput to NVARCHAR(255)
- if needed, you can add your own variables

About editing a workflow process

Unlocked workflow state definition

If a state definition is not locked, you can edit or delete steps, transitions and states in a process workflow layout that belongs to a state transition in the state workflow layout.

You cannot delete the initial or end states from a process workflow (that is, the states that belong to the corresponding workflow state transition).

When you delete a state or step from a process workflow layout, all process step transitions connected to the state or step are also deleted.

Locked workflow state definition

If the workflow state definition is locked, the only fields that can be edited are those that do not affect the workflow:

- process state names and descriptions

- process transition names
- step names and instructions
- the value in the **Required time to complete step** field for escalations.

You can also create knowledge items.

To make other changes to a process when the workflow state definition is locked, copy the state definition, then make the changes to the copy before you activate it.

Editing a workflow process

1. Display the process workflow layout.
2. To rearrange the icons on the layout, use drag and drop.
3. To edit a process step or a process step state, double-click the step or state icon.

   The step dialog box appears.
4. To create a knowledge item for the step, click **Create Knowledge Item**. For more information, see "Adding attachments and links to a workflow step" on page 432.
5. Make the required changes and then click **Save**.
6. To edit a step transition, right-click the transition icon and select **Step transition configuration**.

   The transition step dialog box appears.
7. Make the required changes and then click **Save**.

Index

A

Access Control dialog box options 325

Actions menu
- adding items, about 213
- submenu header, adding 214
- submenu headers, rearranging 214
- submenu items, adding 215
- submenu items, editing 217
- submenu items, rearranging 217

Add Target dialog box options 96

additional UI fields. See informational fields 249

address types
- field labels, changing 167

adjustment reasons
- creating 161
- modifying 161

alternate names
- setting up 303

Archive Validation scheduled job 384

archiving
- entities, approving, about 382

archiving data
- archived data, accessing 382
- Archiving Log report, about 388
- Archiving Validation Log report, about 386
- engagement validation list 386
- entities, approving/rejecting 383
- entities, canceling, archive administrator 384
- funding source data, retaining 382
- options, about availability 388
- overview 381
- project validation list 385
- running the Archive Aged Entities scheduled job 387
- validation errors/failures, clearing 387
- validation job, running 384

Archiving Log report
- about 388
- accessing. archive administrator 388

Archiving Validation Log report
- about 386
- accessing, archive administrator 387

ASP reports
- removing 258
- settings, editing 258

asset option lookups
- creating 252
- modifying 253

asset options
- creating 251
- modifying 251

asset types
- assigning options to 252
- creating 250
- modifying 251

assets
- about 250

auto-numbering
- about setting up 307
- custom stored procedures 308
- example 311
- options 310
- setting up 308

automated revenue transfers
- configuring 160

automated surveys
about 318
approving respondents 336
rejecting respondents 336

B

background images
adding to surveys 326

batch invoice printing
setting printing options 35

batch invoice printing options 36

billing offices
about 132
about invoice approval settings 141
accessing 132
configuring settings 135
copying 149
creating 133
creating billing roles 142
daily rate conversions 153
granting user access to 146
invoice approval settings, configuring 141
modifying 148

Billing Offices view, Settings tab options 136

budget exchange rates
default dates, configuring 164

budget item types
about 162
configuring default 163
creating 162
modifying 162

budget settings
about 161

budgets
default budget item types, configuring 163
request types for contingency, configuring 163
revision used for calculations, specifying 163

burden rates
configuring for cost centers 104

C

calculated fields
about 188
creating 188
formulas, using stored procedures in 191
rules 189

Changepoint
locking 24

Changepoint Administration
about 21
accessing 21

Changepoint email notification service
about 286

Changepoint Export dialog box options 362

check-in/checkout controls
for knowledge categories, about 229

Client Portal
Client Portal Access view options 278
configuring 277

Client Portal management
about 277

Client Portal User view, General section options 281

Client Portal User view, Security access section options 282

Client Portal users
accessing 279
managing 280

closed periods
about 130
accessing 131
configuring 131
editing 132

Cognos integration in Changepoint Administration 256

Cognos reports
synchronizing 257
viewing in Changepoint, about 256

companies
available customer fields for importing 373
enabling history tracking 286
importing data 379

company report cards
about 342
viewing 344

competencies
about 41
creating 43
modifying 43

concepts and terms 73

configurable field groups
creating 192
headers, about 193
headers, creating 193
rearranging in tab or section 194

Configurable Field Settings view options 173

configurable field values
conditional formulas, creating 185
conditions, modifying 187
drop-down list, creating 182
drop-down list, using entity records for 181
properties, setting up conditions for 184

configurable fields
about 168
access to, restricting 179
access to, restricting, about 178
code, creating 172
creating same field for multiple entities 177
default, about 171
default, enabling 171
editing 180
for engagements, creating 170
layout, specifying 192
rearranging in the Configurable Fields tab 194
setting up conditions for values 183
shared, creating 177
text, creating 172

Configure Theme dialog box options 328

contacts
importing data 379
importing records 376

corporate templates
creating 332

cost centers
about 102
burden rates, configuring 104
changing defaults 104
configuring automated revenue transfers 160
creating 102
modifying 103

cost rates
billing role vs. resource based 150

countries
enabling 284

Create/Edit Metric dialog, General tab options 95

Create/Edit Survey view options 319

currency exchange
about 105

custom ASP reports
adding to Changepoint 257
setting up 257

custom data providers
deleting 269
editing relationship 274
relationship, creating 273
relationships, about 273

custom e-mail templates
about creating scheduled jobs 300

custom help
links, editing 212
links, setting up 212
setting up links to, about 211

custom lookup lists
about 271
creating 271

custom name formatting
setting up 304

custom section items
access, controlling 203
creating 202
modifying 202

custom sections
about 201
creating 201
modifying 202
reordering 203

cutoff dates for closed periods
about 130

D

daily billing rates
modifying 153

data export 361
about 359
manually 360
re-exporting data 361

Data Provider Category view, General tab options 266

Data Provider view, General tab options 268

data providers
about 262
access, granting 269
configuring columns 266
creating 266
creating categories 265
custom and static lookup lists, about 271
exporting 275
importing 275
modifying categories 265

data sources
deleting 264
importing 264
importing, about 264

demand funding
double counting, preventing 69

distribution lists
about 337
accessing 337
adding members 338
creating 337
deleting 340
editing 339
editing members 338
selecting members 339

drop-down lists
entity records, using as values 181
standard, modifying values 181
values, editing 183

E

e-mail links
embedding in templates 287
triggers for embedded links 302

email integration
setting up 303

email links
embedding in templates 287

email notifications
about 286
about grouping 292
adding recipients 296
example 299
grouping examples 293
setting conditions 296-297
setting up 295, 298
SQL statements 296

email templates
creating 288
creating, about 288
email links, embedding 287
enablling 290
modifying 290
trigger-based 294

Email templates view
General section options 289
Template information section options 290

engagement workflows
about 145
configuring 146

event-based export publishing
event notification, setting conditions 367
event notifications, modifying 368

exchange rates
configuring 106
editing 107

expense approval
about 31

expense categories
adding GL account codes 223
creating 222
deleting 224
editing 224

expense reports
attachments, enabling 227

expense taxation
setting up 121

expense taxation setup
editing 123

Expense Taxation Setup options 122

expense types
creating 224
deleting 226
editing 226

expenses
about issuing and reconciling expense advances 227
attachments, enabling 227
creating advances 227
deleting advances 228
setting up, about 222
viewing all advances 228

export batch numbering
example 311
options 310

setting up 357

export batch tracking
enabling, about 358

export categories
creating 353

export columns
column order, changing 356
configuring 355

export data
filtering 355
grouping 355

export data types
creating 352
modifying 352

export definitions
categories, creating 353
creating 353
creating, about 353
editing 361
export columns, configuring 355
export line, configuring 355
file definitions, configuring 354
groups, creating 355
modifying 357

export event setup 368

export groups
creating 355

export lines
configuring 355

export publishing
about 363
data, resending 371
event notifications, setting up 366
new topics, adding 358
verifying status of 369

export publishing schedules
creating 364
modifying 366
recurrence, configuring 365

export setup
about 351

export views
mapping to, creating 351
mapping to, modifying 351

F

fields, hiding 198

file definitions
configuring 354

Financial Settings section options 33

fiscal periods
about 128
creating 129

fiscal years
about 128
accessing 129
creating 129
editing 130

functions
about 44
creating 44
modifying 45

G

generic resources
about 48
profiles, creating 48

GL account codes
about 101
creating 101

modifying 102
selecting revenue types 161

GL account types 101

global workgroups
about 27
accessing 27
creating 28
modifying 28
setting inheritance rules 27

H

history tracking
companies, enabling 286

home page
about 23

I

individual performance
default settings, about 75
default settings, defining 76
reporting periods, defining 76
reporting periods, editing 77

informational fields
displaying on the Request dialog box, about 249
setting up 250

invoice approval
about invoice approval settings 141

invoice approval settings
configuring 141

invoice formats
adding to billing offices 155
modifying 156

invoice numbers
configuring 142

invoices
configuring logos 134

IPM metrics
about 93

K

knowledge categories
about 229
check-in/checkout controls, enabling 230
creating 230
modifying 230
version control, about 229
version control, enabling 230

knowledge item approval workflow
modifying 233
setting up 232

knowledge item attachments
restricting access to, about 232

knowledge item workflows
defining participants 232

knowledge items
configuring a legal disclaimer for attachments 229

knowledge management
about 229

knowledge subcategories
creating 230
modifying 231

knowledge subscriptions
about 231
configuring 231
modifying 232

L

legal disclaimers
configuring 229

licenses
importing 24
information, viewing 23
managing 23

lookup lists
creating 271
modifying 272

M

merge fields
creating parameters 291
editing parameters 292
setting up in email template 291

metadata
about 195
settings, configuring 195

metric calculations
about 78
creating 82
editing 83
examples, rollup 92
viewing 82

metric calculations, setting up 75

metric templates
about 83
accessing 84
creating 84
deactivating 91
deleting 91
editing 91
for adoption metrics, creating 85
for customer feedback, creating 86
for peer feedback, creating 87
for projects, creating 88
for result metrics, creating 85
for user-entered metrics, creating 88
target values, entering 90
thresholds, entering 90
user-entered, configurable fields, about 89

metric types
adoption 79
customer feedback 80
peer feedback 80
project 80
results 79

metrics
about creating metrics 94
about team metrics 97
accessing metrics 94
accessing metrics from a template 94
adding a target to metrics 96
adjusting the weighting of metrics for a resource 99
assigning metrics to a resource 97
assigning metrics to a team 98
categories, about 78
creating from the New menu 95
creating metrics from a template 94
editing metric assignments 98
rollup, example 92
types, about 78

Modify Global Workgroup section options 28

Modify Metadata Settings section options 195

N

name formates
setting up 304

non-project time
about 220

non-project time items
creating 220
editing 222

nonworking days
about 66
configuring 66
modifying 67

O

opportunities
configuring status values 235
deleting status values 235
editing status values 235

outstanding respondents
sending reminders 340

P

password
configuring rules 304
rules 305
validation 304

payment terms
creating statements 155
modifying 155

payroll information 50

PCIDs
about 199
custom, creating 200

pending resource changes
canceling 61
viewing 61

performance
about individual and team performances 71
about project portfolio performances 72

performance evaluation
using surveys 347

performance management
metric calculations, about 78
metric calculations, creating 82
metric calculations, editing 83
metric calculations, viewing 82
metric categories, about 78
metric types, about 78
overview 71
terminology 73

personal templates
creating 332

PivotTable report
exporting 347
viewing 347

planning units
default, setting, about 64
defaults, setting 65

portals
about 207
access, restricting 208
creating 207
default, prioritizing 209
default, prioritizing, about 209
editing 209
layout, configuring 210

portfolio health
setting up 312

portlets
about 204
access, controlling 206
access, controlling, about 205
creating 204
exporting 207

importing reports into 207
modifying 206

process layout window
accessing 413-414

product taxation setup
creating for a specific product 126
editing 127

Product Taxation Setup options 127

profile page integration 259

project phases
creating 181

project requests
access, restricting 249

projects
project plan editors, specifying default 148

Prompt Tag Selection dialog box options 336

prompt tags
about 323

provinces
changing system-wide
states
changing system-wide 285
editing 285
setting up 284

Q

qualification categories
creating 41
modifying 42

qualifications
about 41
creating 42
modifying 42

question editor
deleting questions 322
editing questions 322

Question editor options 320

question types
about 321

quick links. See e-mail links 302

R

rating questions
about 322

reason codes
adding for write-offs/write-ups 147
modifying for write-offs/write-ups 147

records
removing from a resource 26
transferring, about 25
unlocking manually 26

Recoverable Tax Setup options 120

recoverable taxes
editing 120
setting up 119

reminder emails
sending to outstanding respondents 340

remit to addresses
creating 154
modifying 154

report categories
changing the category of a report 255
creating 255
modifying 256

Report Designer reports
exporting 260
exporting and importing, about 260

importing 260
integrating in entity profiles 259
integration in entity profiles, about 259
moving between databases, about 260

reports
Archiving Log report, about 388
Archiving Validation Log report, about 386
changing the report category 255
configuring, about 255
export publishing 369
granting access, about 261
view access, granting 261

request categories
creating 245
modifying 246

request management
about 237

request numbering
example 311
options 310

request numbers
configuring 239

request queues
about 246
creating 247
modifying 248
restricting access 248
routing criteria 246

request subcategories
creating 245

request time entry
restricting for request statuses 243
restricting to specific resources or roles 243
restricting, about 243

request types
about 241
creating 242
modifying 245
restricting edit access 244
restricting time entry for request statuses 243
restricting time entry for, about 243
restricting time entry to specific resources or roles 243

resource demand analysis
setting up 69
setting up, about 68

resource leveling
enabling 68

resource management worksheet
workgroup settings 36

resource management worksheet options
for workgroups, setting 37

resource managers
specifying for a workgroups 35

resource profiles
attaching a picture 59
copying values, about 59
values, copying 59

resource request workflow
stored procedures for logic execution steps 409

resource requests
resources, exempting from 48

resources
accessing profiles in User Setup 45
billing and cost rates, acessing 54
canceling pending changes 61
confidential information, entering 52
deleting 63

editing 61
editing, about 60
exempting from resource requests 48
new billing or cost rates, adding 54
organizational information, specifying 56
payroll information, specifying 50
profiles, creating 45
qualifications and functions, specifying 55
security access settings, about 55
security access, specifying 56
terminating 63
terminating, about 62
transferring workgroups 62
transferring workgroups, about 62
unlocking accounts 63
user-managed information, specifying 49
viewing pending changes 61

Response Trend Analysis chart
viewing 346

revenue recognition
about 157
configuring 158

Revenue Recognition view options 159

revenue types
selecting for GL account codes 161

role and feature mapping
about 40

roles
creating 40
modifying 40

S

sales methodologies
about 235

scenario comparisons
options 157
setting up 156

scheduled jobs
Archive Validation 384

sections and section item names, editing 201

security
enabling enhanced session management 307
enabling SSL 307

security acces for resources 55

security access changes
tracking 66

server integration
setting up 283

Server Integration view options 283

service taxation setup
creating 124
editing 125

Service Taxation Setup options 124

Single Question Analysis chart
viewing 346

SQL statements
for conditional formulas 369

SQL views
creating in the Changepoint database, about 263

SSL
enabling 307

standard request types
about 241

state definitions
about 394
activating 397
creating 396
filter criteria, about 394
validating 397

state workflow layout
accessing 401
configuring states in 401

states
editing 285
setting up 284

states. See workflow states 402

static lookup lists
about 271
creating 271

submenu headers
editing 215

Submenu Item view, General Options 216

support desks
about 238
creating 238
editing 241
restricting access to requests 239-240

survey analysis
accessing 345
available charts 344
available reports 344
PivotTable 345

survey analysis reports
viewing 345

Survey Email dialog box options 335

survey email messages
configuring 327

survey header
configuring 325

survey management
about 315

Survey Management portlet
adding or removing surveys 330

survey results
about performance evaluations 72
analyzing, about 344
exporting 348
from individual respondents, viewing 341
viewing from contact profiles 342
viewing from resource profiles 342
viewing from survey profiles 341
viewing results associated to entities 342

survey status 315

survey template categories
creating 330
deleting 331
editing 331

survey templates
about 330
accessing 332
creating a survey from 319
deleting 333
editing 332
saving as corporate templates 333
saving as personal templates 333

survey theme configuration
adding background images 326
email messages 327
removing images from surveys 326
survey header 325
uploading images 326

surveys
accessing 316
accessing, about 315
adding questions 320
adding to the Survey Management portlet 330
creating 318
creating, about 317

deleting 323
editing 322
granting access to 324
inserting prompt tags into questions 323
layout, configuring 325
marking as complete 348
previewing 322
question types 321
reactivating after expiry 336
removing from the Survey Management portlet 330
saving as corporate templates 333
saving as personal templates 333
sending 334
sending with prompt tags, about 334
sending, about 333
templates, about 330
tree view options 316
trigger events for automated surveys 318
using for performance evaluation 347

T

Tax Rate Setup options 109

tax rates
about 108
accessing 109
activating 110
creating 109
deactivating 110
deleting 110
editing 110

tax schedules
about 108
accessing 111
activating 114
adding tax rates 112
copying 113
creating 111
deactivating 114
deleting 114
editing, about 113
tax rates, deleting 113

taxation rules settings
about 118

taxation setup
about 107
process 108
troubleshooting 128

team folders
changing the team leader 233
closing 233
configuring 233
reopening 233

terminating resources
about 62

terminology
standard Changepoint, changing 167

threshold expense approval
about 31

time control
settings 219

topics
adding to export publishing 358

triggers
embedded e-mail links 302

U

user access to workgroups
restricting or granting 65

user interface
default language, setting 211
display options, configuring 211
fields, hiding, about 197

user interface strings
about 199
editing 200
translated, entering 199

user setup
about 45

User Setup dialog, Confidential tab options 53

User Setup dialog, Organizational information tab options 57

User Setup dialog, Payroll information tab options 51

User Setup dialog, Resource information tab options 46

User Setup dialog, User-managed information tab options 49

V

version control
for knowledge categories, about 229

W

work code categories
about 114
creating 114
editing 115

work codes
about 114
creating 115
editing 116

work location groups
creating 116
editing 116

work locations
creating 117
editing 117

workflow
disabling 392
enabling 392
resource request defaults 406

workflow management
about 391

workflow process
configuration 416, 418
creating 416
deleting steps 440
editing 441
resetting 393
split decision, configuring 436-437

workflow state definitions
copying 398
editing 397
exporting 399
exporting, about 399
importing 399

workflow state transitions
automatic, configuring 403
configuration 402
deleting 405

workflow states
access, configuring 402
configuration 401
deleting 405
resetting 393
See also state workflow layout 402

workflow steps
action, configuring 420
assignments, configuring 428, 430-431
attachments, adding 432
copy project, configuring 423
decision, configuring 421
deleting 440

escalation, configuring 432-433
join decision, configuring 434-435
logic execution, configuring 418-419
notification, configuring 422
status, configuring 420
system-driven survey, configuring 424
transitions, configuring 427
tri-state approval, configuring 424
upload, configuring 426
user-driven survey, configuring 425

workflows
engagements, configuring 146

workgroup access
about 34
granting 35

workgroup transfer
about 62

Workgroup view, General tab options 30

workgroups
about 27
access rights, granting 35
accessing 29
batch invoice printing, setting options 35
creating 29
default revenue transfer settings, overriding 34
expense approval, about 31
financial settings, configuring 32
granting access, about 34
modifying 39
planning unit options, setting
planning units setup

workgroup level 39
resource management worksheet options, setting 37
resource management worksheet settings 36
resource managers, assigning 34
resource managers, specifying 35
setting inheritance rules 27

write-offs/ups
creating reason codes 147
modifying reason codes 147

Z

zip/postal codes
validations 285