Deltek Costpoint® 8.0

Screen Customization and Business Logic Extensibility Guide

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Deltek

Contents

Overview

This document contains information on Costpoint's screen customization and business logic extensibility features. These extensibility features allow customers to perform screen customizations for existing Costpoint applications as well as extend Costpoint application business logic using custom software. These enhancements provide customers with the capability to perform many customizations for Costpoint applications that were only possible through customizing production codes or embedding license trigger codes in earlier versions of Costpoint.

You manage screen customization and business logic extensibility using the Extensibility Designer and the following application screens:

- **Enter/Manage User Interface Profiles**: This screen allows you to create, modify, and delete user interface profiles.

- **Manage Extensibility Units**: This screen allows you to associate extensibility units with user interface profiles.

Costpoint features user interface profiles, which are used as the basis for enabling customization. After you set up or install customizations or extensibility units, you must assign them to users and/or user groups using UI (user interface) profiles. Although you can assign multiple profiles to a single user or user group, only one profile is actually used for that user or user group.

> **Attention:** For more information, see the "Manage User Interface Profiles" section.

Customers who would like to take advantage of the Extensibility functionality will need to get a new license to enable this functionality. This additional license will be provided for free, but it will require signing an additional agreement with Deltek.

> **Attention:** For more details about obtaining the license, contact your Account manager at Deltek.

Context Diagram

Figure 1 represents the relationship between various user classes, the extensibility console, and Costpoint.
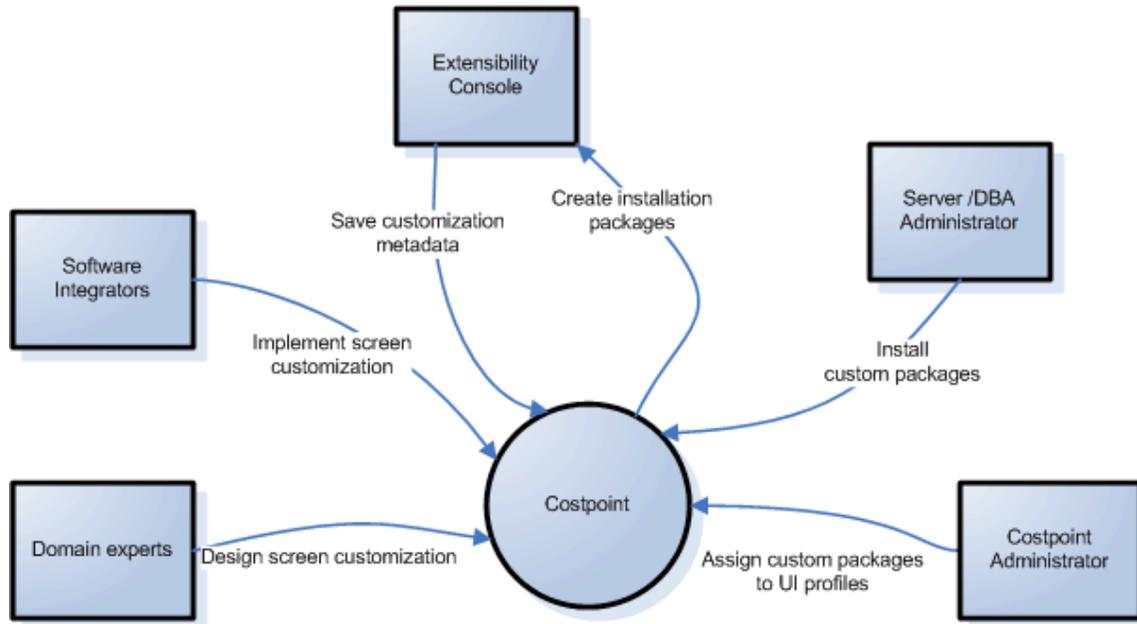
Figure 1: Context Diagram for Extensibility Implementation

As you can see in the diagram, an extensibility implementation normally has the following steps:

1. The domain experts identify and design the customization.

2. The software integrators (from Deltek's Global Services team or your own IT organization) implement the customization design using the Extensibility Designer.

3. The server/database administrator installs the package into the application/database server using the DB Wizard (see "DB Wizard").

4. The Costpoint administrator assigns customizations to companies/UI profiles.

The following table lists the user classes involved in the context diagram illustrated in Figure 1.

User Class	Definition
Domain Experts	This user class consists of end users or subject matter experts in a particular application. They understand the specific requirements for customization. They define and design the customization (user interface and business logic) that needs to be implemented.
Software Integrators	This user class consists of Deltek's Global Services team or your own IT organization.
Server/Database Administrators	This user class manages the application and database server. They deploy the custom software on the application server and/or to the database.

User Class	Definition
Costpoint Administrator	This user class activates and assigns the custom software to appropriate UI profiles within Costpoint.

Costpoint Application Extensibility Designer

The Extensibility Designer allows a software integrator to create changes to screen objects and layouts. Changes are stored in custom metadata schema and can be retrieved and packaged in an installation package using this same tool. Custom metadata is stored separately from regular application metadata in the ADMIN database segment. Figures 2 and 3 show the process by which the Extensibility Designer creates extensibility units.

The Deltek Costpoint Extensibility Designer is provided with the Costpoint installation.
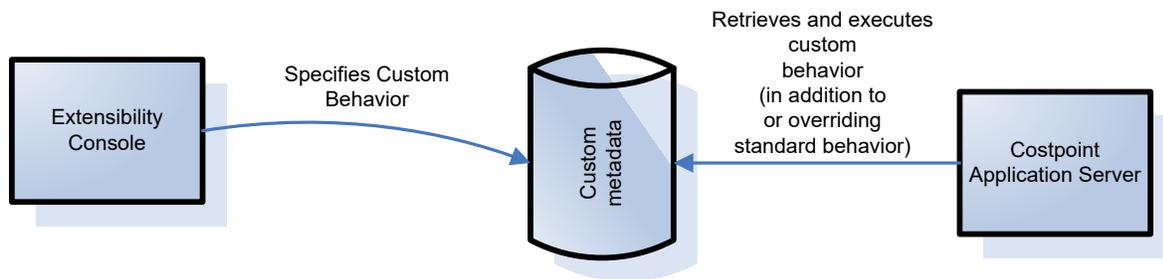
Figure 2: Extensibility Designer Behavior Diagram (Screen Customization Extensibility)
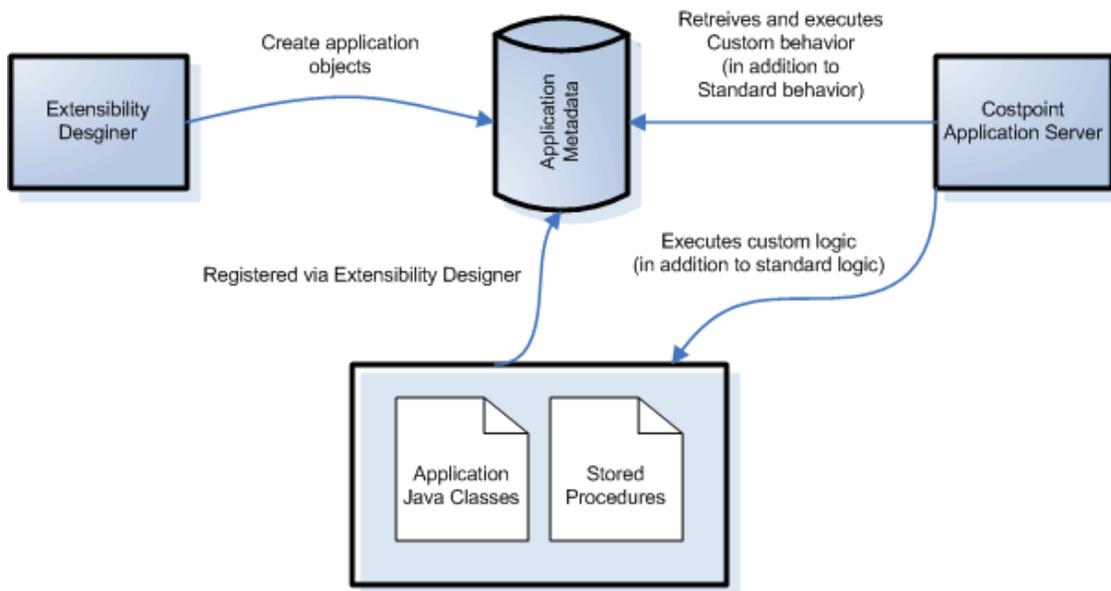
Figure 3 : Extensibility Designer Behavior Diagram (Business Logic Extensibility)

The Extensibility Designer workflow normally includes the following steps:

1. The software integrator creates an extensibility project using the Extensibility Console. A project consists of one or more units.

   Each unit constitutes a set of custom behaviors to be applied to a UI profile. If all users require the same behavior, only one unit is needed. If the behavior is different by company/user group or role, multiple units are needed for each unique set of behaviors.

   A unit can contain customization for one or more applications.

2. The software integrator selects a particular application screen and designs the changes. Changes are saved separately in a custom metadata schema.

3. After creating extensibility units, the software integrator creates an installation package that can be installed into a Costpoint system. Figures 4 through 6 show the extensibility packaging structure and extensibility methods.
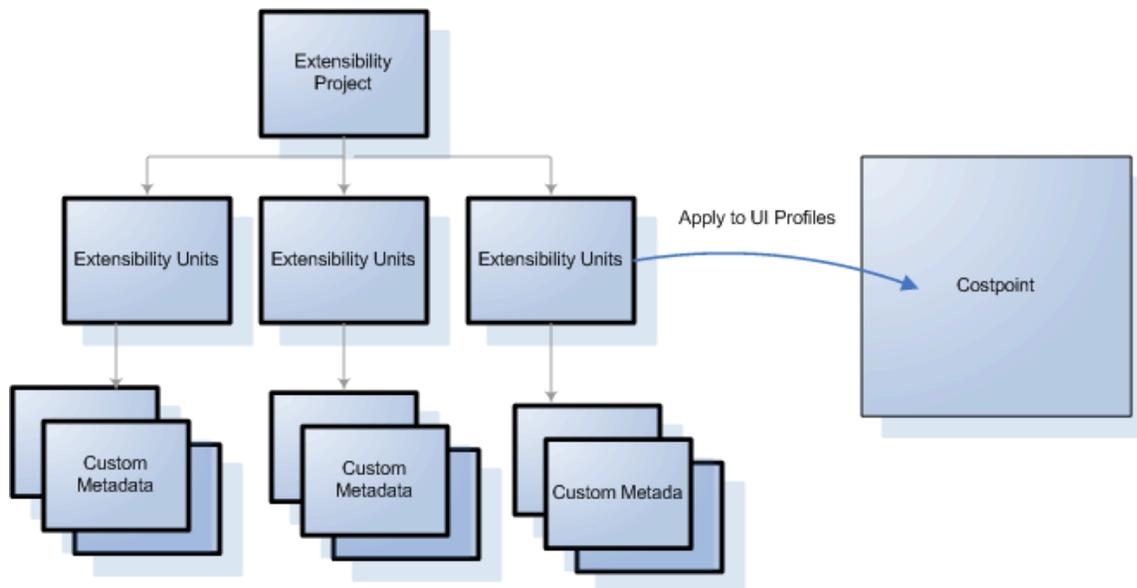
Figure 4: Extensibility Packaging Structure (Screen Customization Extensibility)
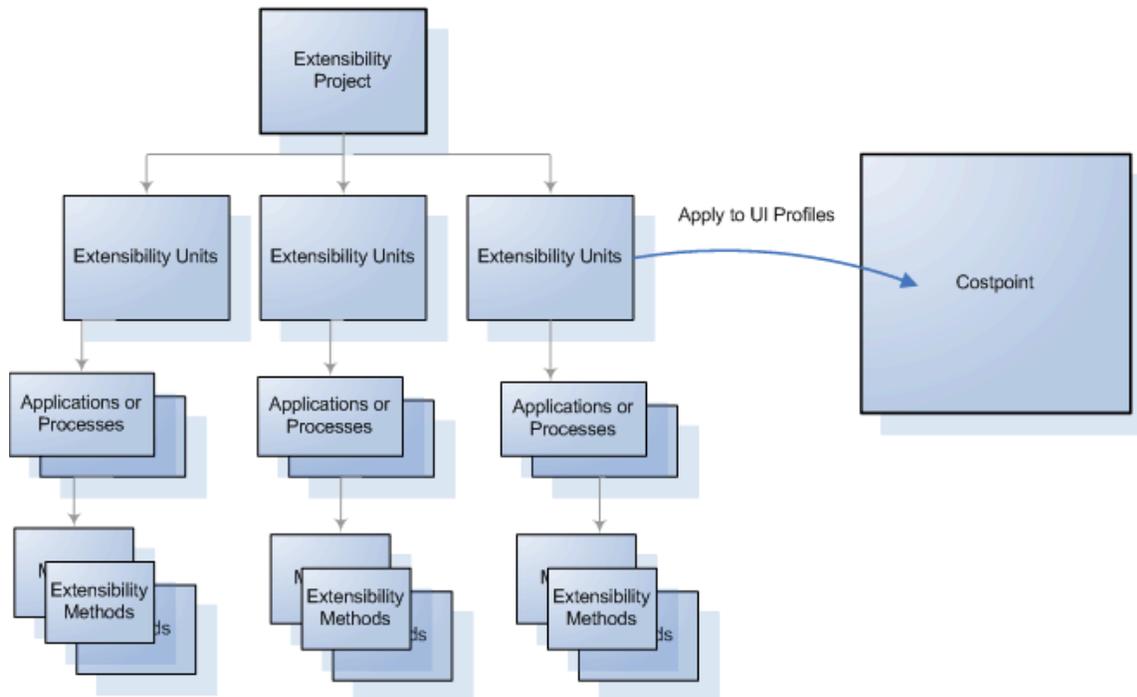
Figure 5: Extensibility Packaging Structure (Business Logic Extensibility)
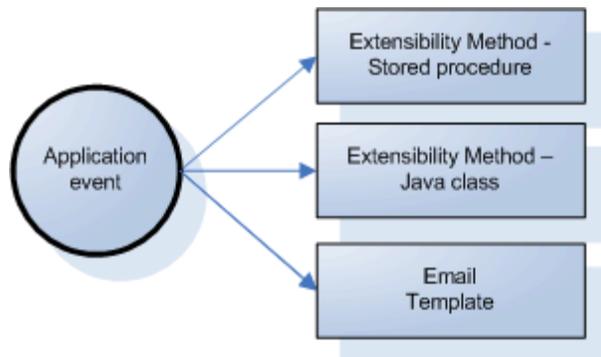
Figure 6: Extensibility Methods (Business Logic Extensibility)

DB Wizard

The DB Wizard is the installation tool that Costpoint customers use to install Costpoint software, upgrades, service packs, and hot fixes. This tool also allows customers to install extensibility units or customization software created using the Extensibility Designer.

For a production upgrade, the DB Wizard identifies conflicts or potential conflicts between custom objects and the change in the production upgrade. An extensibility unit will be disabled when a conflict or potential conflict is detected. Customers must resolve this conflict or acknowledge that a potential conflict is not a conflict before the extensibility unit can be enabled for production.

> **Note:** If you have application Extensions, Deltek recommends deploying the application or system hotfixes first to your testing environment where you can verify that the hotfix did not change the application in a significant manner, making your Extensions no longer valid or usable. Even though the DBWizard has built in logic to check each Extension Unit against the standard application, some features like screen layouts or your business Java or Stored Procedure plug-ins can be verified only by testing.

Assigning Extensibility Units or Customization Software

After the extensibility units or customization software are installed, the Costpoint administrator can assign the units or software to the proper UI profiles via the Manage User Interface Profiles or Manage Extensibility Units screen. These screens allow you to view the details of each extensibility unit, assign it to the proper users or user groups, and activate it for use.

> **Attention:** For more information on how to assign extensibility units or customization software, see Manage User Interface Profiles and Manage Extensibility Units.

Screen Customization Extensibility

Screen customization extensibility enables software integrators to perform customizations on the user interface for existing Costpoint applications. This feature provides the ability to:

- Modify screen objects
- Add new objects to the screen
- Change the layout of existing Costpoint application screens
- Create new Result Sets (subtasks)
- Reorder subtasks in Result Sets Trees

Also, software integrators can:

- Create new processes (Actions)
- Add Custom logic to be executed either before or after standard processes (Actions)
- Customize existing reports
- Create new reports

And finally, you can create brand new custom applications with any number of subtasks.

Customize Existing Fields

Screen customization extensibility provides the ability to customize field properties. You can change field properties as long as changing them does not negatively affect the integrity of the application data or metadata that Costpoint requires.

In general, you can always customize a field property to be stronger in validation and type. For example, if Costpoint requires a field, it must remain required. If a field is not editable, you cannot change it to be editable. A field that is not required, however, can be customized to be required.

This customization allows you to:

- Change an optional field to make it required
- Change an editable non-required field to make it editable and required
- Change a visible non-required field to hide it
- Specify or modify the default value for a field if the field is editable
- Specify a Lookup for a field and validate the value entered in such a field against the values in the Lookup. You can do this only if the field does not have a Lookup required by Costpoint.
- Specify a different message for validation when the validation is performed against the Lookup
- Specify the format of a field where the format is currently not set or required by Costpoint
- Change the UI width of a field (but not the maximum size or type of a field)
- Specify or change how a field is calculated based on other fields (JavaScript formula) if the field is set as editable by Costpoint
- Redefine and reorder the list of fields (columns) available for Query by adding or removing them from the standard Costpoint list. You can add a field to the Query list only if it exists in the current result set's database query (for example, if it is not a calculated field). A field added as a custom field cannot be added to the Query list.

- Specify the rule of how a space is allowed for a field. If a rule already exists, the rule can only be strengthened, not weakened. For example, if the standard rule is "No leading space," you cannot change it to "Not containing space."

- Specify that text in an input text control field can be displayed and edited in a popup dialog box (for text fields with long text)

- Change the label and the related status text of a field. The field label includes the label in form view and table view. If an error message contains the label value as part of the text, the error message reflects the custom value instead of the default text.

- Change the labels displayed as selection options in a combo box or drop-down list (excluding the special combo box for selecting a range in a report or process parameter)

- Change the labels displayed as application, report, action, or subtask titles

Add Customized Fields

In addition to customizing existing fields, you can add new fields. Since the additional fields are not governed by Costpoint, you can set their properties without any existing constraint. You can also create custom rules for data validation. In a future release, when the ability to customize reports is available, you will be able to add these fields to reports.

This customization allows you to:

- Add fields to application screens and specify the settings attributed to these fields. Settings include the following:

    - UI control type

    - Field label

    - Status text

    - Data type (alphanumeric, numeric, currency, date, calculated)

    - Size

    - Default value

    - Nullable

    - Visible

    - Editable

    - Required

    - Valid values

    - Lookup table

    - Value and entity type template

- Specify the database table and column names of the additional fields so that users can query and retrieve them using an external query or reporting tool

- Provide the ability to save values in additional fields into the database when users save records

- Provide additional validations for new and existing Costpoint fields as well as create custom messages for new validations

If one or more of the editable extensibility fields are not empty and a row in the custom table is not present, Costpoint inserts a new row into the custom table. If all of the editable custom fields are empty, Costpoint deletes a corresponding row from the custom table if it exists.

In other words, if a physical row exists in a main table, but not in a custom table and a user enters something in one of the custom fields, Costpoint inserts a new row into the custom table. And if a user clears all the editable custom fields from an existing row in the custom table, Costpoint deletes a corresponding row from the custom table.

> **Note:** Costpoint executes the defaulting functionality only when the user actually clicks the **Add New Row** button, not when a corresponding row is missing from the extensibility tables.

Customize Screen Layout

You can rearrange the layout of an application screen to suit a customer's preferences.

This customization allows you to:

- Rearrange the position of objects on the screen. Objects on the screen include fields, labels, and group boxes.
- Move an object from one tab to another tab within the same screen or result set
- Change the titles of group boxes
- Create new group boxes
- Rearrange the tabbing order of fields
- Rearrange the columns in a table. This is a company-wide custom option which is in addition to standard options available to the individual user.
- Change the titles of tabs
- Create new tabs
- Change the order of tabs on the screen

Add New Result Sets (Subtasks or Lookups)

You can create new custom Result Sets (RS). As a developer, you have full control of the behavior of those new RS. New custom RS can be used as:

- New subtasks
- Lookups in other RSs
- New Data Source RS when customizing Reports

Data in those new custom RS can come (and be stored) in any custom or standard DB table from any configured data source.

Customize Reports

Software Integrators can customize existing reports to suit a customer's preferences. They can change the report title that end users see when invoking the report. Software Integrators can also customize the report template (which requires the use of the BIRT report designer).

This customization allows you to:

- Rearrange the position of all fields on the reports

- Remove fields from the report that are not relevant to the customer

- Change the titles of all objects in the report

- Add new fields to the report. If new field values are coming from a database, they need to be added to the data Source Result sets first.

- Create new Data Sources (RS) to supply data in the reports

Create New Reports

Software Integrators can create new reports to suit a customer's preferences. They can assign those reports into existing or new RS (subtasks) or Applications. As a developer, you have full control of the behavior of the new Reports.

Create New Applications

Software Integrators can create brand new custom applications to suit a customer's preferences. They can include new custom objects (for example, Result Sets, RS Trees, Reports, and Actions), standard product objects, or any combination thereof. As a developer, you have full control of the behavior of the new Applications. The applications can be included in the menu and Administrators can assign rights to the custom Applications the same way as they do with standard Product Apps.

Business Logic Extensibility

Business logic extensibility enables customers to extend Costpoint application business logic using custom software. When Costpoint executes the standard business logic, it also executes the additional logic contained in the custom software. This process does not alter the standard logic. The types of supported software include database-stored procedures and java classes.

> **Note:** Costpoint supports execution of multiple logical operations with different software types for the same event in an application. You can also specify the order of these multiple logical operations.

Customize Data on Save

This customization allows custom logic to be triggered when a data save event occurs. Data save events include updating, deleting, and/or inserting a row into the database.

This is the order of events that occur during a Save process:

1. A user initiates a save event in an application.
2. Costpoint executes normal validation and starts the database transaction.
3. Costpoint checks the custom metadata for presence of custom logic.
4. Costpoint executes the custom logic before the standard save logic.
5. Costpoint executes the standard save logic.
6. Costpoint executes the custom logic after the standard save logic.
7. Costpoint commits the database transaction.

Customize Data Validation

This customization allows custom logic to be triggered for data validation. Custom validation occurs in addition to standard validation.

This is the order of events that occur during validation process:

1. A user initiates an event that requires a validation (examples: save, move to another line).
2. Costpoint checks the custom metadata for the presence of custom logic.
3. Costpoint executes the custom logic before the standard validation logic.
4. Costpoint executes the standard validation logic.
5. Costpoint executes the custom logic after the standard validation logic.
6. The custom and standard validation logics complete or fail as a unit.

Customize Data Population

This customization allows custom logic to modify data displayed on the screen.

This is the order of events that occur: during Data population

1. A user initiates an event that requires data population (examples: query, report).
2. Costpoint checks the custom metadata for the presence of custom logic.
3. Costpoint executes the custom logic before the standard population logic.
4. Costpoint executes the standard population logic.
5. Costpoint executes the custom logic after the standard population logic.

Customize an Application Process

This customization allows custom logic to execute in a process in addition to the standard logic. In this context, a process is usually a long-running process in a report or process application. However, it can also be any other process that can be executed in a maintenance application.

This is the order of events that occur during execution of the process/action:

1. A user initiates an event that starts a process (examples: process, report)
2. Costpoint checks the custom metadata for the presence of custom logic.
3. Costpoint executes the custom logic before the standard process logic.
4. Costpoint executes the standard process logic.
5. Costpoint executes the custom logic after the standard process logic.
6. Costpoint completes the process.

Add Email Notification

You can set the custom software to send email notifications after data have been saved or a process has been completed. Email templates are created as part of the custom software. Upon installation, you can modify email templates as often as necessary to suit the end user's environment.

This is the order of events that occur:

1. A user initiates a save event or a process.
2. Costpoint checks the custom metadata for email notifications.
3. Costpoint executes the custom logic (if present) before the standard logic.
4. Costpoint executes the standard logic.
5. Costpoint executes the custom logic (if present) after the standard logic.
6. Costpoint executes the email notification.
7. Costpoint completes the save event or process.

Create New Application Processes

This customization allows software integrators to create new custom logic processes. In this context, a process is usually a long-running process in a report or process application. However, it can also be any other process that can be executed in a maintenance application.

In addition, software integrators can remove or hide standard Costpoint processes if they are determined to be unnecessary or undesired to be exposed to end users.

Customization by User Interface Profile

Customization may not be the same for all end users. Depending on the specific companies, groups, or roles within a Costpoint system, the customization may be different. For example, one user/user group may want a different default value than another user/user group for the same field in an application. You can then apply customization by assigning UI profiles to users/user groups within Costpoint.

Insulating Customization

Product upgrades should have minimal impact on customizations. When customers upgrade Costpoint, there may be work necessary to make sure the customization still works. However, they should not have to re-install the customization.

Software integrators can enable this capability by separating the customization layer (code and metadata) from the product layer. With this separation, they can implement customization separately at design time and install it into a production system at run time. This promotes efficiency and scalability in custom work development and distribution. Software integrators are able to develop customizations without needing live access to the production system during development. This also enables third party software vendors to independently develop vertical industry customizations as well as distribute and service multiple customers. At run time, this enables the customer to activate a unit for production or inactivate it for maintenance and repair.

To insulate customization:

1. The Deltek Global Services team creates custom components and metadata for applications.

2. The customer's server administrator installs the components and metadata.

   These components must be installed separately from the Costpoint standard programs and metadata.

3. The Costpoint administrator assigns customization units to the appropriate UI profiles.

4. End users can activate the customization units when ready.

Overview of Process for Creating and Deploying Customizations

The following diagram shows the steps involved in creating and deploying customization for Costpoint clients.

1. Gather requirements for extensibility project

2. Enable extensibility for your system in Configuration Utility

3. Create extensibility project

4. Create one (or more) extensibility unit(s)

5. Customize/extend Costpoint objects for each unit

6. Assign extensibility unit(s) to user(s) and test Costpoint application(s)

8. Package entire extensibilty project

9. Deliver extensibilty package to customer

10. Customers install extensibilty project

11. Assign extensibility units to UI profiles

After software integrators create the extensibility units and your system administrator install them in the Costpoint system, your Costpoint administrator can then assign the extensibility units to UI profiles using the Manage User Interface Profiles and Manage Extensibility screens.

> **Note:** Please note that Step 2, "Enable extensibility for your system in Configuration Utility," should be done only once for your system—when you create or deploy your first Extensibility Project. There is no need to repeat it for subsequent extensibility projects.

Manage User Interface Profiles

A UI profile is a collection of UI preferences for layout, My Menu, and screen or business logic extension. After you set up a profile, you can assign it to users or user groups.

The Manage User Interface Profiles screen allows you to create, modify, or delete user interface profiles available to your user ID. A user interface profile is a collection of screen and functional logic customizations that can be assigned to users or user groups to provide custom user capabilities. These UI profiles allow you to assign different layouts or processes to different users or user groups, depending on their jobs or function in the organization.

Your system administrator can create multiple UI profiles. Only one profile should be assigned to any one user or user group. In a case where multiple profiles are assigned to a user or user groups, Costpoint uses the profile with the lowest priority number.

Subtasks

The Manage User Interface Profiles screen consists of four subtasks that allow you to specify more detailed settings for your UI profiles.

Assigned Users/User Groups

Use the Assigned Users/User Groups subtask to specify which users and/or user groups can access a UI profile.

To associate users/user groups with a UI profile:

1. Click **New Record** to add a new row in the **Assigned User/User Groups** table window.

2. In the **User / User Group** field, enter, or use **Lookup** to select, the user/user group you want to associate with this UI profile.

3. In the **Company** field, enter, or use **Lookup** to select, the company to which this UI profile applies.

Screen Customizations

Use the Screen Customizations subtask to view the current customizations applied to a UI profile. The following are the three types of customization:

- **Toolbar**: This type indicates that there are screen customizations applied to the toolbar. These are customizations made to the data entry, inquiry, process, and report tools.

- **Lookup**: This type indicates that there are screen customizations applied to the lookup dialog box.

- **Application**: This type indicates that there are screen customizations applied to an application.

Extensibility Units

Use the Extensibility Units subtask to associate extensibility units to a UI profile. You can also select which extensibility units are activated for a UI profile.

> **Attention:** See <u>Manage Extensibility Units</u> for more information about extensibility units.

To associate an extensibility unit with a UI profile:

1. Click **New Record** to add a new row in the **Extensibility Units** table window.

2. In the **Extensibility Unit** field, enter, or use **Lookup** to select, the extensibility unit you want to associate with this UI profile.

3. Select the **Active** check box to enable this extensibility unit for this UI profile.

My Menu

Use the My Menu subtask to set up My Menu for a UI profile. My Menu allows you to access shortcuts to the applications you use frequently, without navigating through the entire Costpoint menu. The preferences you set up on this subtask will be applied as the default for My Menu when you set the UI profile as first priority.

The My Menu subtask consists of two table windows that you can use to customize My Menu. The **My Menu Application List** table window lists all the Costpoint applications from which you can make your selection, while the **My Menu** table window allows you to select the applications, set up headers, and arrange the sequence of your My Menu items.

To add an application shortcut to My Menu:

1. Select an application from the **My Menu Application List** table window.

2. Click **Select** to move the selected application to the **My Menu** table window.

3. Enter the order number in the **Sequence** column of the **My Menu** table window.

   This number determines the order in which applications display in My Menu.

To make My Menu more organized, you can insert headers to group applications in My Menu.

To add headers to My Menu:

1. Click **New Record** to add a new row in the **My Menu** table window.

2. From the **Line Type** drop-down list, select **Header**.

3. In the **My Menu Title** field, enter a descriptive name for this header.

4. Use the **Sequence** column to arrange the applications you want to group under this header.

Creating UI Profiles

This section contains instruction on how to create a UI profile.

To create a new UI profile:

1. Click **New Record** on the UI Profile block to add a new row.

2. In the **UI Profile ID** field, enter a unique ID code to identify this user profile.

3. In the **UI Profile Name** field, enter a descriptive name for this UI profile ID.

4. In the **Priority** field, enter a number to determine this UI profile's priority level.

5. On the Assigned User Groups subtask, specify the user or user group profile that can access this UI profile.

> **Attention:** See Assigned Users/User Groups for more information.

6. Click **Extensibility Units** to open the Extensibility Units subtask and specify extensibility units to use in this UI profile.

> **Attention:** See Extensibility Units for more information.

7. Click **My Menu** to open the My Menu subtask and set up My Menu preferences for this UI profile.

> **Attention:** See My Menu for more information.

8. Click **Save** on the toolbar.

Manage Extensibility Units
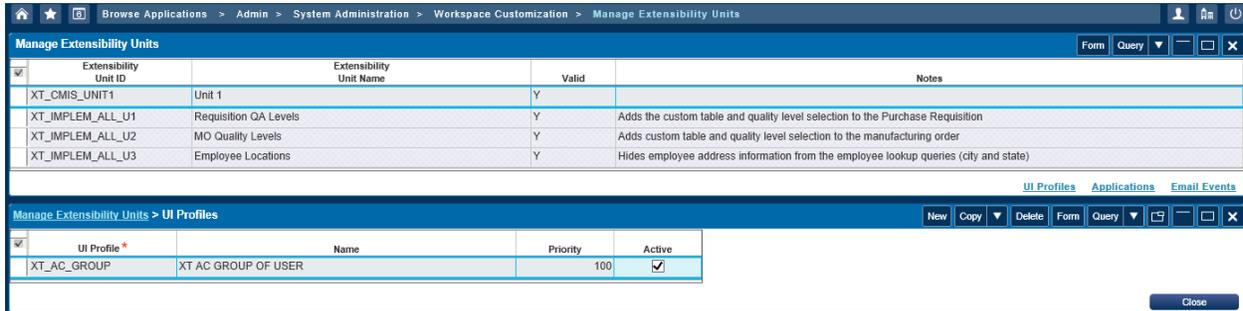
The Manage Extensibility Units screen allows you to associate extensibility units with UI profiles to customize the user environment. An extensibility unit is a logical collection of customized software components that includes business logic modifications and additions as well as screen customization modifications.

> **Note:** Extensibility units are created using the Extensibility Designer, an internal tool used by Deltek. Customers must engage the help of the Deltek Global Services team if they are interested in taking advantage of this capability for their Costpoint applications.

This screen consists of a main screen, which displays information about all available extensibility units that have been installed, and the following subtasks:

- **UI Profiles**: Use this subtask to associate extensibility units with UI profiles.
- **Applications**: Use this subtask to view a list of applications customized by an extensibility unit.
- **Email Events**: Use this subtask to view email events associated with extensibility units.

Subtasks

Use these subtasks to associate extensibility units with UI profiles, view a list of applications customized by an extensibility unit, and view email events associated with extensibility units.

UI Profiles

To customize your user interface using an extensibility unit, you must first associate and activate the extensibility with a UI profile. You can then use that UI profile to apply the extensibility unit. This subtask allows you to specify the UI profiles to which you want to assign the extensibility unit selected on the **Extensibility Units** table window.

> **Attention:** See Manage User Interface Profiles for more information on how to set up and use UI profiles.

To associate a UI profile with an extensibility unit, complete the following steps:

1. Select an extensibility unit from the **Extensibility Units** table window.

2. On the UI Profiles subtask, click **New Record** to add a new row to the table window.

3. In the **UI Profile** field, enter, or use **Lookup** to select, the UI profile you want to associate with this extensibility unit.

4. Select the **Active** check box to enable this extensibility unit for the selected UI profile.

> **Note:** You can also associate extensibility units with a UI profile using the Enter/Manage UI Profiles screen.

Applications

This subtask allows you to view all the applications that are customized by the extensibility unit you selected on the **Extensibility Units** table window. The table window consists of the list of application codes with their corresponding descriptive names.

Email Events

This subtask allows you to view all email events that were delivered with the extensibility unit. It consists of a table window that displays the name of the email event, object, object type, and the event that triggered the notification.

This subtask also consists of the **Email Template** subtask, which allows you to view the email template created for an email event. Each email event has one email template that is used when email notifications are sent.

Troubleshooting Extensibility

To learn whether or not the application has Extensibility Unit applied to it, open the application in question and display the Help About menu for this application. The Open Applications subtask will show you if Extensibility is applied or not:

If the **Extensibility Unit Applied** flag is **N**, you need to check following settings:

- Make sure that Extensibility is enabled for a given system in the Configuration Utility and that it is not disabled for the particular application.

- Open the Manage Extensibility Units application and verify that **Extensibility Unit** is **Valid** and assigned to a UI profile and **Active**.

When deploying a new version of the application/system hotfixes or new Extensibility Units, the DBWizard checks every Extensibility Unit against the standard application descriptions. If the DBWizard finds that some of the Extensibility metadata (application descriptions) are in conflict with the standard product application metadata, it disables the Extensibility Unit(s) by setting the **Valid Flag** to **No**. Examples of conflicts may include:

- Extending or modifying the properties of an Object (Field, Result Set, Action, Report, and so on) when such an object may no longer exist

- Modifying the properties of an Object that no longer valid (like setting a Field as **Required** when it is no longer **Visible**)

- Creating a new Extended Object with properties that interfere with a regular Object or Objects

If the Extensibility Unit is marked as invalid, a more detailed message is written into the hotfix deployment log. You should review the hotfix log for such messages for each invalidated Extensibility Unit. Sometimes simple changes in the Extensibility Console (like reopening and saving an Extended Object) may resolve the conflict. In some cases, repositioning the objects on the screen or adjusting the Extended Object properties is enough.

If you have extensibility work, Deltek recommends that you have a technical person on your IT staff who is familiar with the Extensibility Console, the Extensibility framework, your Extensions, and who can do the required changes in Extensibility Console, if necessary. Sometimes more involved changes to Extensions are required to make them valid again. For these cases, Deltek recommends that you contact

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the Extension developer with the information about your system, the application version, the version of the extension to fix the Extensibility Unit, and the hotfix/application logs.

After fixing the Extension, you need to deploy the new (corrected) version of that Extension to your system. The DBWizard will reassess it and set it back to **Valid** when all checks pass.

Even though the DBWizard has built-in logic to check each Extension Unit against the standard application, some features like screen layouts, your business Java, or Stored Procedure plug-ins can be verified only by reviewing your code and testing. Deltek strongly recommends that you test your Extensions after applying the hotfixes in your testing environment before applying the hotfixes in your production system.

- Make sure a User is assigned to the selected UI profiles in Manage User Interface Profiles.

  If you've made any changes to User/UI Profile setup, you will need to log in again to the Product to see the changes.

If you are experience system errors or incorrect application behavior, you will need to deactivate the Extensibility Unit(s) and verify if the incorrect behavior still exists. If it does, contact Deltek Support. If not, contact the Extensibility Unit developer for a corrected version of the Extensibility Unit.

If you and the Extension developer believe that the error is the result of Costpoint Framework not working correctly with Extensibility and you want to contact Deltek Support, you will need to collect and provide following information:

- The latest diagnostic image with the log files that contain the error. Deltek recommends that you change the logging level for Enterprise Logger to Debug in order to capture more details about the application behavior

> **Attention:** For instructions on how to change the logging level, refer to the *Deltek Costpoint 8.0 Configuration Utility* guide.

- The System name, Application, User ID, Date and time of error, and the exact steps to reproduce the error.

- All the Extensibility Projects assigned to given application, not just the one you believe is not working correctly. Each Extensibility project should come with:

  - A full set of custom database objects: tables (with data), views, indexes, stored procedures, and so on. These objects should come in the form of a script that creates those objects and populates the tables with data needed to reproduce the steps.

  - Packaged Extensibility Project (zip) files.

  - Java source code for all classes used by each Project.

- If your case contains Integration (Web Service call), you will need to provide:

  - The Exported Web Service file.

  - The .xml file that was sent to invoke the Web service.

  - The response that was returned by Web service call.

Appendix: Terms

Term	Definition
Costpoint Administrator	A user class who activates and assigns custom software to appropriate UI profiles within Costpoint.
Costpoint Application Extensibility Designer	A tool Costpoint software integrators use to create changes to screen objects and layouts, and then compile them into extensibility units, which Costpoint administrators can install into their Costpoint system.
Custom Logic	The logic defined and implemented by a Costpoint customer. (See also "Standard Logic.")
Database-stored Procedure	A written program executed inside a database. Costpoint supports both Oracle and Microsoft SQL servers, and stored procedures must be written separately for each database platform. Stored Costpoint procedures contain application logic and are generally written in place of java classes to improve the performance of the application. Currently, standard application-stored procedures are not registered in the metadata database. They are executed from within the application java classes.
DB Wizard	The installation tool that Costpoint customers use to install Costpoint software.
Deltek Global Services	The services organization within Deltek that enables the successful deployment of Deltek solutions to customers.
Design Tool	A development tool that Costpoint developers and designers use to create application objects. These application objects include modules, applications, reports, processes, screens, and screen objects. The data is saved in a database schema referred to as the application metadata schema. The metadata does not contain java classes developed for application objects. It contains only the links between these objects and the java class names that will be executed for the events that apply these objects (for example, loading, validating, saving, and so on).
Domain Expert	A user class that consists of end users or subject matter experts of a particular Costpoint application.
Extensibility Unit	A unit of customization. It is the level at which customization can be assigned to a role or company.
Java Class File	A major portion of Costpoint application behavior is described in the form of metadata (see "Design Tool"). For more complex behavior or business rules that metadata cannot accommodate, developers create java classes.

Term	Definition
	Java classes for an application are registered in the metadata for a specific event. At runtime, when the event is triggered (for example, load, validate, save, and so on), Costpoint executes the java class for the event. For example, in the Manage Employee Information application, the **LdmeinfoLineValidation.class** java class file is registered for the line validation event. At run time, when data in the employee record needs to be validated, Costpoint calls this java class to perform the validation.
Javadoc	A tool for generating API documentation (in HTML format) from the doc comments in the java source code.
Server/Database Administrator	A user class that manages application and database servers.
Software Integrator	A user class that consists of IT professionals who can develop software according to the domain expert's requirements and specifications.
Standard Logic	Refers to the logic implemented by Costpoint for validation or data persistence in a maintenance program or for logic in actions/processes. (See also "Custom Logic.")
User Interface (UI)	The part of an application or program that accepts commands from and returns information to the user.
User Interface Profile (UI Profile)	A collection of UI preferences for layout, My Menu, and screen or business logic extension.

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