



ThingWorx Manufacturing Apps Customization Guide

8.0.1

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About This Guide

This guide describes how to customize ThingWorx Manufacturing Apps by editing the extension in ThingWorx Composer or by customizing through Launch Point Configuration Thing.

This guide assumes that prerequisite products are installed and configured, including a KepServerEX with connected devices. For more information, see the Product Requirements section in the *ThingWorx Manufacturing Apps Setup and Configuration Guide* located at the [PTC Reference Documents](#) website.

Comments

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Customizing the Extension in ThingWorx Composer

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Certain entities delivered within the extension are editable. You can edit these entities in ThingWorx Composer directly in order to customize the extension. Note that the changes you make to these entities are not maintained upon software upgrade.

Scheduler Configuration

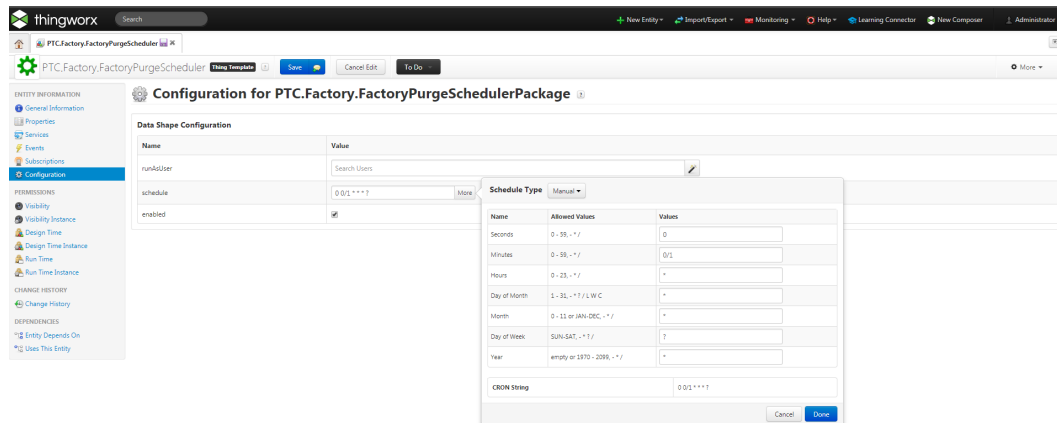
There are three editable schedulers in the extension.

- `PTC.Factory.StatusEvaluationScheduler`
- `PTC.Factory.MidnightDeviceDiscoveryScheduler`
- `PTC.Factory.MidnightPurgeWeekOldHistoryScheduler`

You can set the launch schedule as well as enable or disable the schedulers. For `PTC.Factory.MidnightPurgeWeekOldHistoryScheduler`, you can also set how much data to keep for each purge.

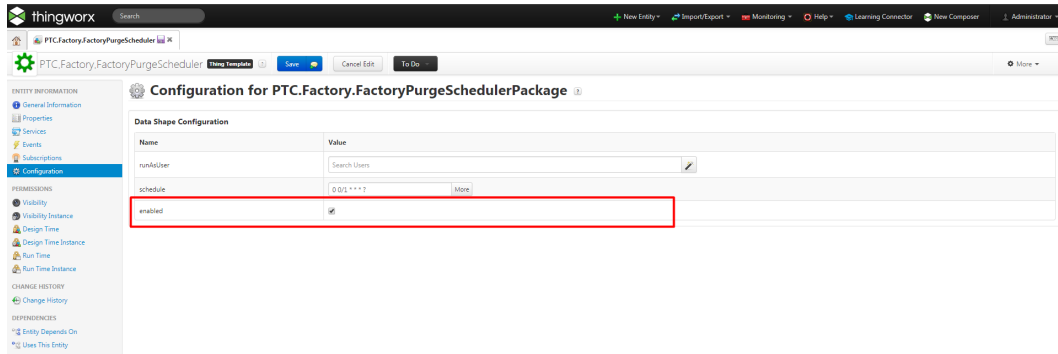
To configure the Launch Schedule:

1. Open the scheduler in ThingWorx Composer.
2. Click **Edit** and select **Configuration**.
3. Modify the **schedule** field to set the launch schedule for a scheduler, then click **Done**.
4. Click **Save** to save the configuration.



To enable or disable the Scheduler:

1. Open the scheduler in ThingWorx Composer.
2. Click **Edit** and select **Configuration**.
3. Change the **Enabled** field to true or false to enable or disable the Scheduler.



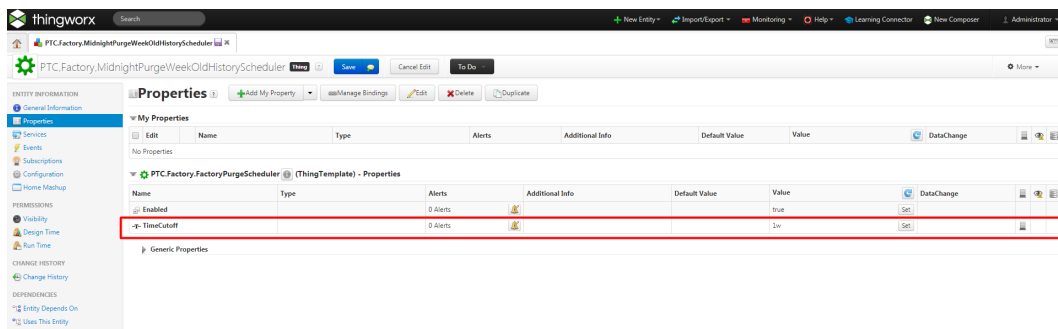
To set data to keep after each purge:

1. Open `PTC.Factory.MidnightPurgeWeekOldHistoryScheduler` in ThingWorx Composer.
2. Click **Edit** and select **Properties**.
3. Change the **TimeCutoff** property to set the amount of data to keep after each purge.



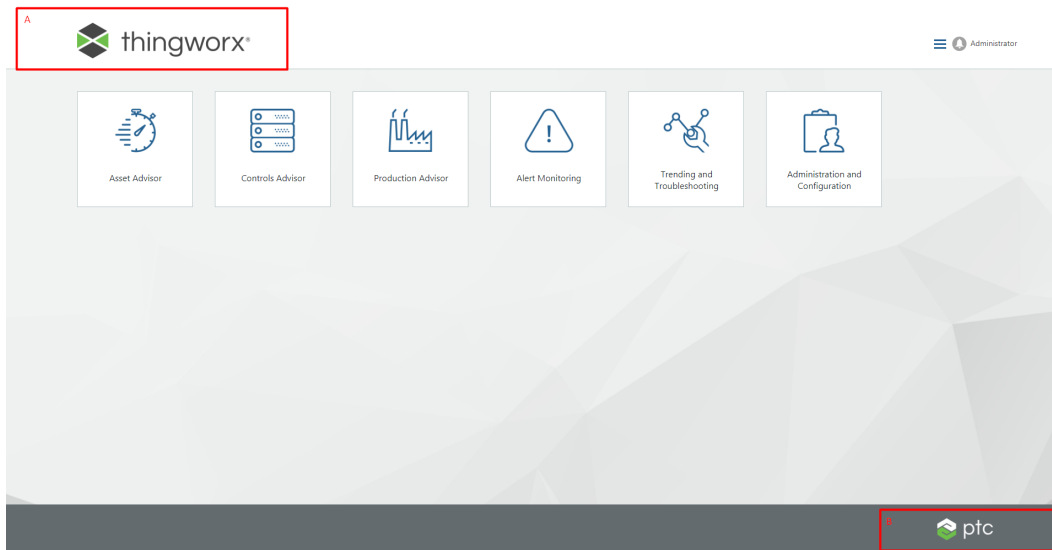
Tip

The format required is a combination of numbers and letters w, d, h, m and s, where w = weeks, d = days, h = hours, m = minutes, and s = seconds. Order, case, and whitespace are insignificant. For example, if you wanted to purge all data older than three and one half days, you can enter “84h” or “3d 12h”.



Changing the Logos in the Master Console

A common requirement for PTC customers and partners is the ability to change the logos, or add additional logos in the master console to meet their requirements.

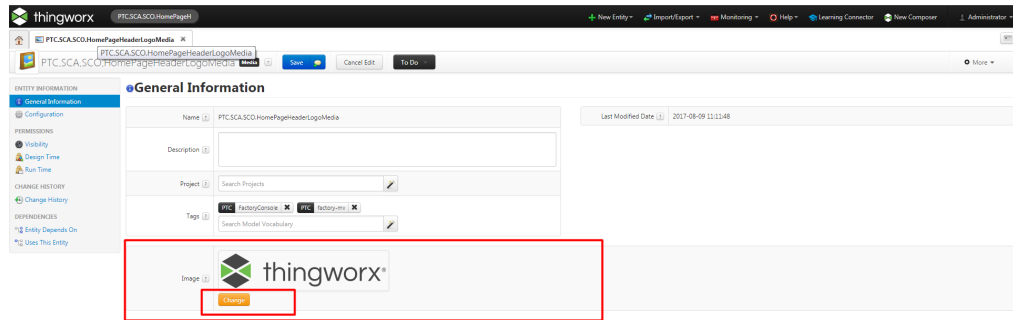


To change the PTC logos in the master console:

- Edit media entities `PTC.SCA.SCO.HomePageHeaderLogoMedia` and `PTC.SCA.SCO.HomePageFooterLogoMedia` in ThingWorx Composer.

Tip

- The size of the logo is fixed.
 - The server needs to be restarted to see your change.
-



To keep the PTC logos and add an additional logo in the master console:

1. Use image editing software to create your new logo image.
2. In ThingWorx Composer, add the image to one or both of the media entities PTC . SCA . SCO . HomePageHeaderLogoMedia and PTC . SCA . SCO . HomePageFooterLogoMedia.

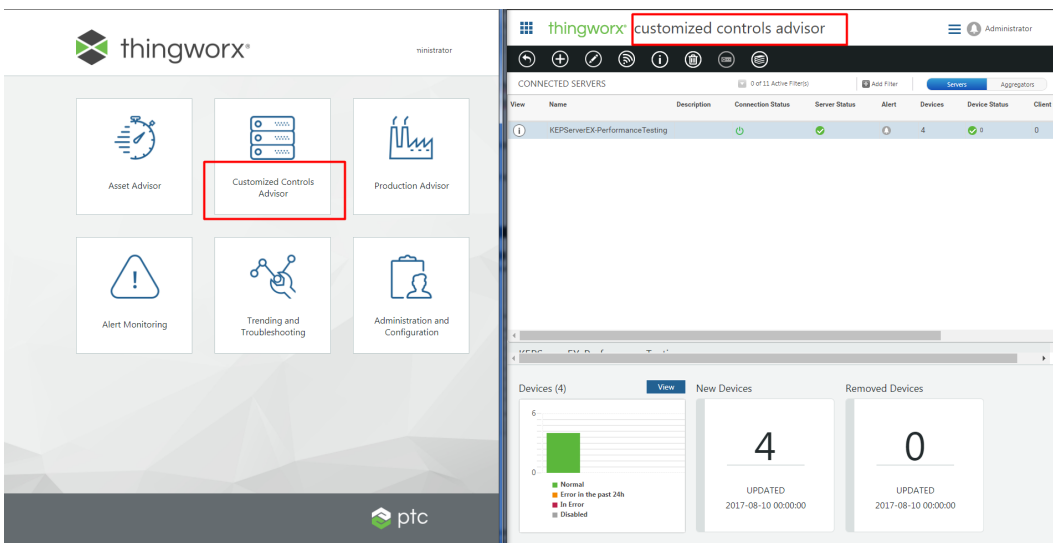
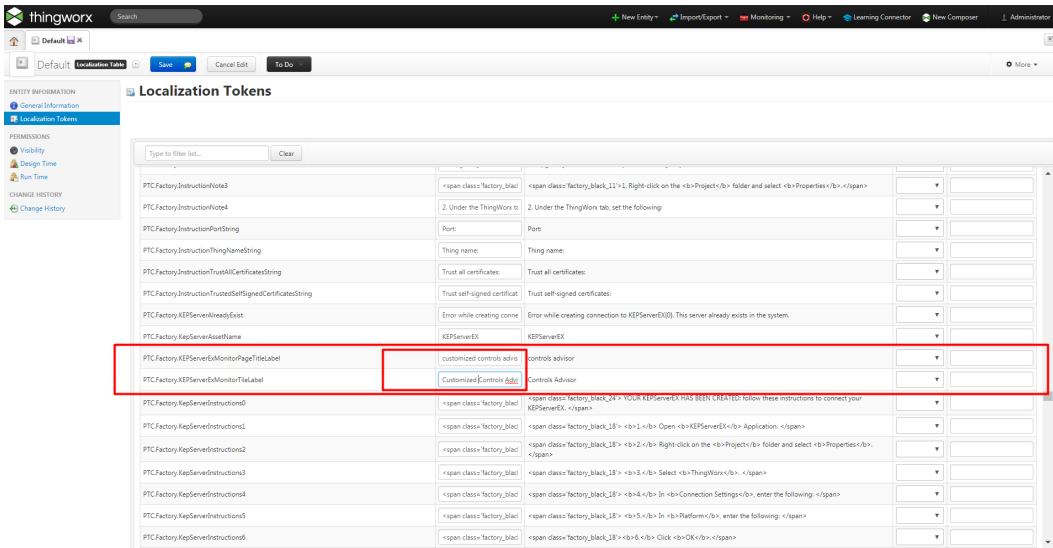
To change labels in ThingWorx Manufacturing Apps:

Note

Modification of the label names must be done in the localization tables.

1. In ThingWorx Composer, open the **System ► Localization Tables**.
2. Choose the localization table corresponding to the current language.
3. Modify the applicable tokens.

Following is an example showing how to change the Controls Advisor label shown in the tile and title.



Tip

- You need to restart the server to see the change.
- The localization tables are overwritten when new upgrades are installed.

In order to keep the modification in the localization tables, we suggest that you export the customized localization table and import it back once the update is complete.

Customized KPI Evaluation

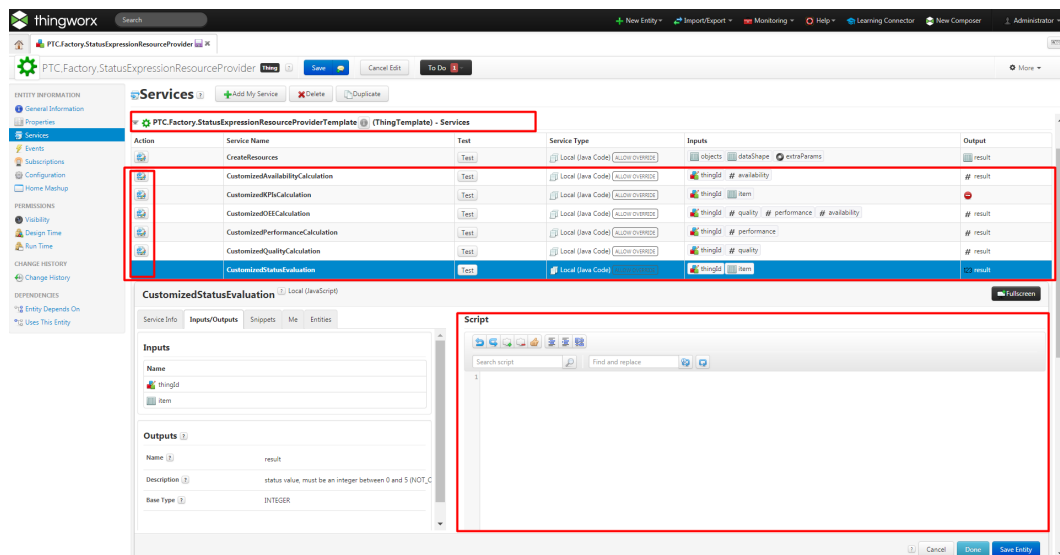
Instead of using the default KPI evaluation formulas provided out-of-the-box, you can choose your customized formulas to calculate the Availability, Quality, Performance, OEE, Status, and Overall KPIs.

Open `PTC.Factory.StatusExpressionResourceProvider` thing in ThingWorx Composer, go to the Services tag and you will find the following six services under

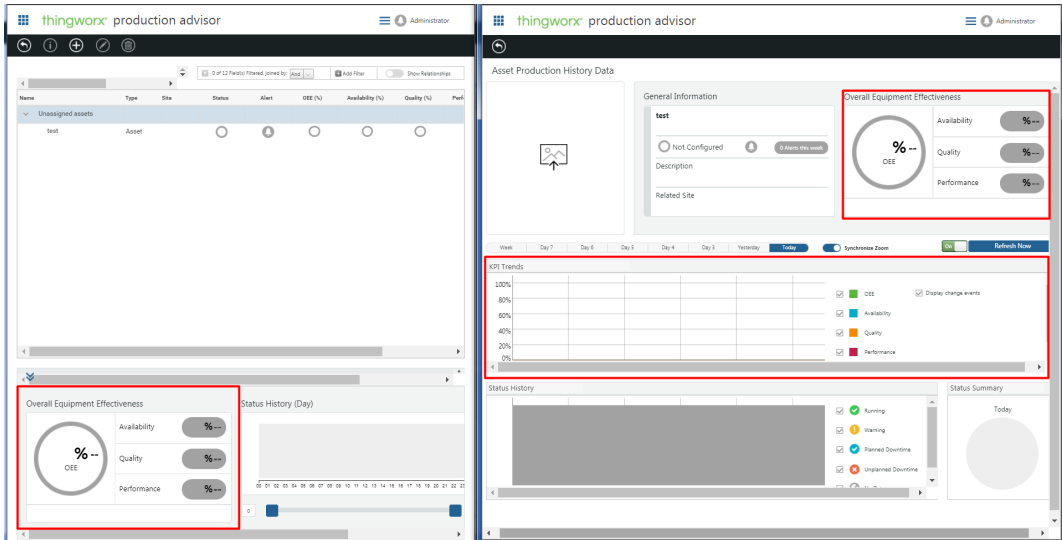
`PTC.Factory.StatusExpressionResourceProviderTemplate (ThingTemplate) –Services`.

- CustomizedAvailabilityCalculation
- CustomizedOEECalculation
- CustomizedPerformanceCalculation
- CustomizedQualityCalculation
- CustomizedStatusEvaluation
- CustomizedKPIsCalculation

The input `thingId` is the name of the thing representing the asset or line whose status or EPIs are evaluated. Inputs `quality`, `performance`, or `availability` are the default KPI values calculated out-of-the-box. For `CustomizedStatusEvaluation` and `CustomizedKPIsCalculation`, the input item is a one-row `InfoTable` containing the default KPIs. Click the **Override and Edit** action button to override these services. You can then implement the customized KPI evaluation formulas or expressions by writing scripts.



The status of the KPIs are shown in the **Production Advisor** and **Asset Production History Data** page in the application as shown in the following figure.

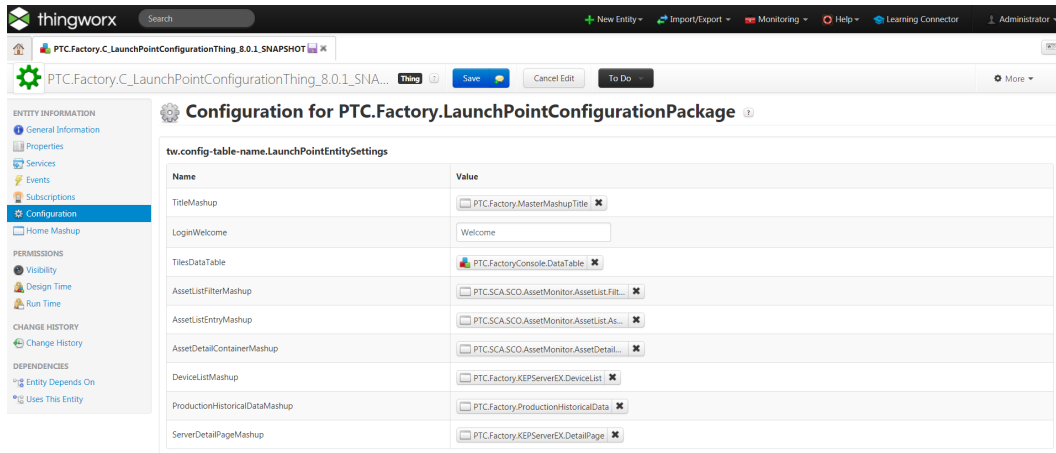


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Customization through Launch Point Configuration Thing

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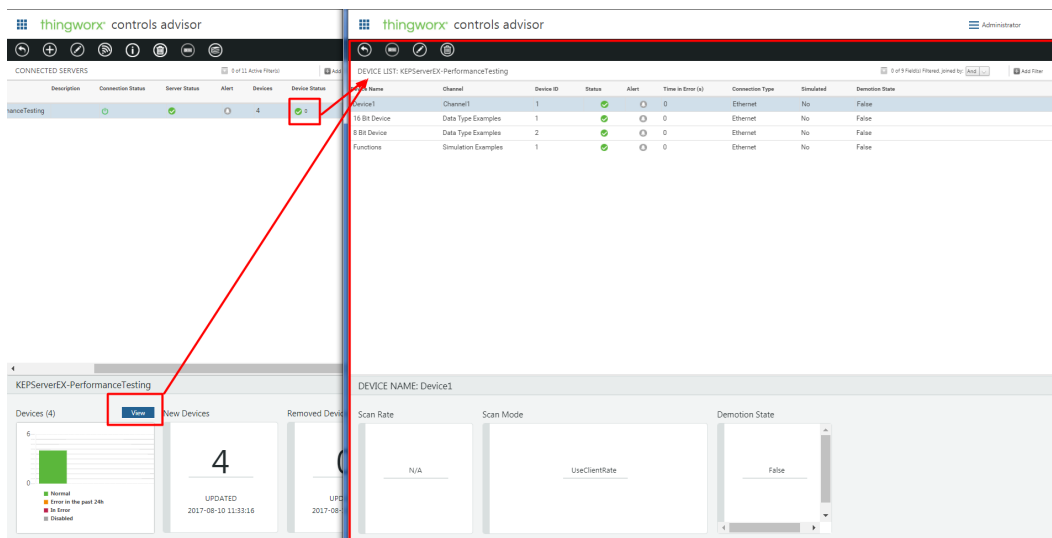
In general, for each released version, we provide a configuration thing named `PTC.Factory.C_LaunchPointConfigurationThing_{ReleaseVersion}`, for example `PTC.Factory.C_LaunchPointConfigurationThing_8.0.1`. This gives you the ability to link some customized mashups to certain launch points, rather than using default mashups delivered with the application.



The details of each entry in this Configuration LaunchPointEntitySettings are explained in the following subsections.

A Simple Example

The following figure shows the default device list mashup. The launch points for this mashup are the **View** button and the link under **Device Status** in the Controls Advisor main mashup.



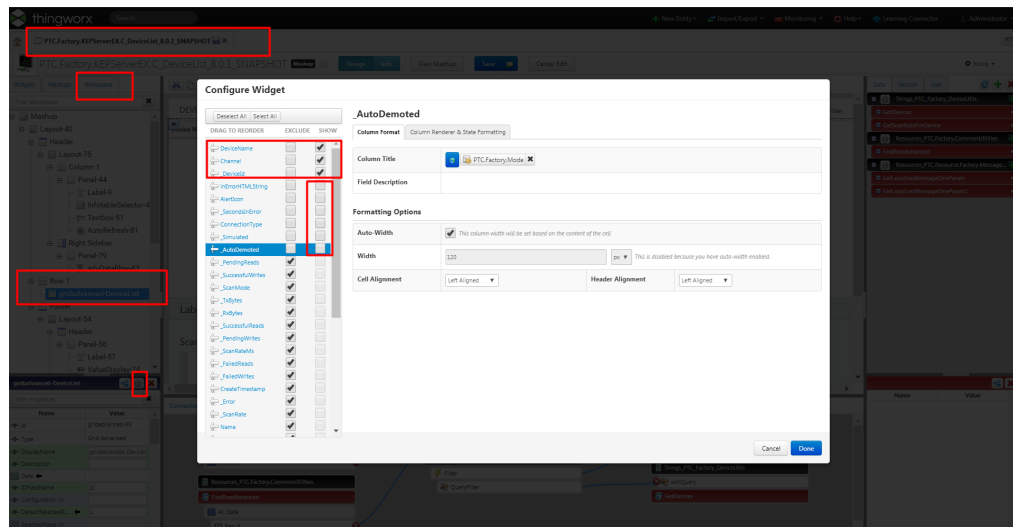
In this example, we assume that you want to create a new customized mashup for the device list page, that is redirected when you click the **View** button or the **Device Status** link instead of the default one. The following procedure accomplishes this with `PTC.Factory.C_LaunchPointConfigurationThing_[ReleaseVersion]`.

To create a new customized device list mashup:

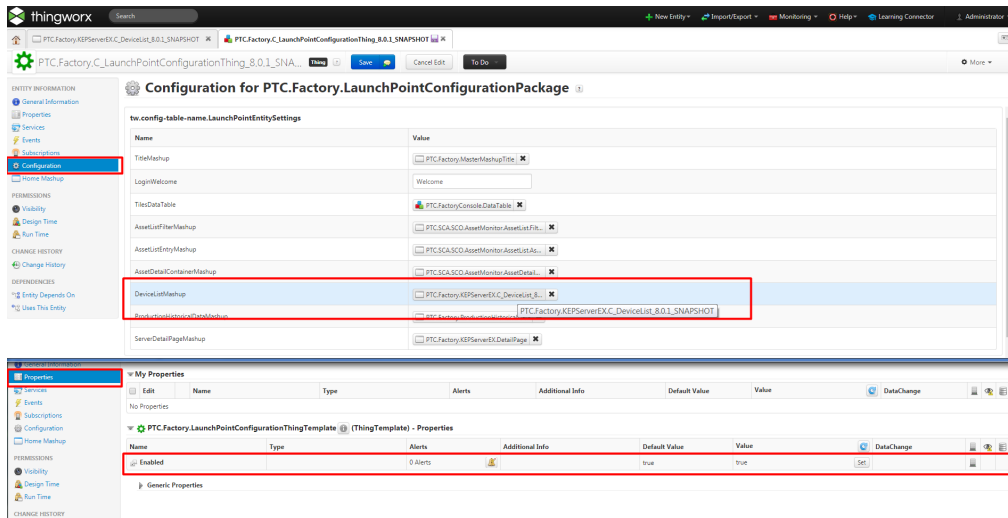
1. Duplicate `PTC.Factory.KEPServerEX.DeviceList` mashup, or use the out-of-box duplication of `PTC.Factory.KEPServerEX.DeviceList:PTC.Factory.KEPServerEX.C_DeviceList_[ReleaseVersion]`.

Note

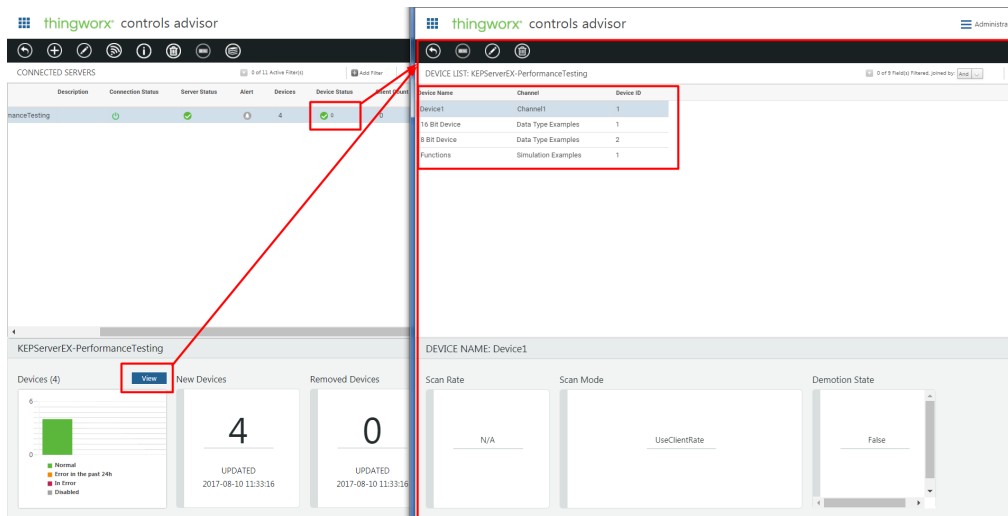
It is assumed that the you only want to keep the Device Name, Channel, and Device ID in the grid and thus edit the `girdadvanced-DeviceList` widget.



2. Open `PTC.Factory.C_LaunchPointConfigurationThing_[ReleaseVersion]` in ThingWorx Composer and change the value for `DeviceListMashup` in the Configuration to the name of the customized mashup edited in the previous step.
3. Go to Properties, and set the **Enabled** property to true. This is the default value.



- In the application, verify that the customized mashup can be opened from the same launch points.

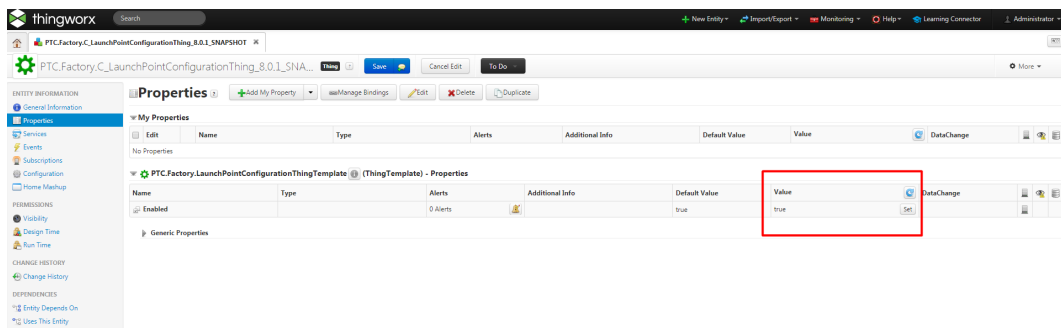


We suggest that you duplicate the corresponding default mashups for a launch point in this configuration table, and then change the configuration table of `PTC.Factory.C_LaunchPointConfigurationThing_[ReleaseVersion]` to link to the new customized version. If you use a standard license and don't have access rights to create or duplicate mashups, we provide copies of the mashups for these launch points, for example, `PTC.Factory.C_MasterMashupTitle_8.0.1`. Therefore, you can directly edit the duplications delivered with the application and configure the launch points.

Note

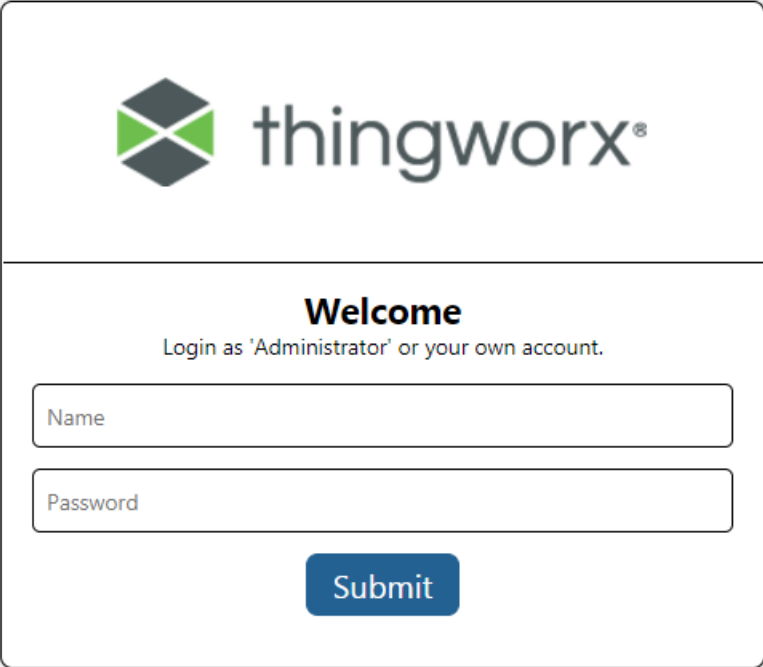
These duplicated mashups are used as examples in the rest of this guide.


If you want to see the default application after changing the launch point settings in `PTC.Factory.C_LaunchPointConfigurationThing_[ReleaseVersion]`, go to Properties for `PTC.Factory.C_LaunchPointConfigurationThing_[ReleaseVersion]` in ThingWorx Composer and change the value of the **Enabled** property to false. This is the easiest way for you to switch between the customized version and the default version. You can also open `PTC.Factory.LaunchPointConfigurationThing` to see the default configuration settings there. However, be sure to use only `PTC.Factory.C_LaunchPointConfigurationThing_[ReleaseVersion]` for customization.



For each new release update, a new `PTC.Factory.C_LaunchPointConfigurationThing_[ReleaseVersion]` is delivered with the application. After you see the new changes in the application, you can compare your old `PTC.Factory.C_LaunchPointConfigurationThing_[OldReleaseVersion]` with the new one, and modify the launch point settings. Your customized `LaunchPointConfigurationThing` and any other customized mashups are not overwritten.

Changing the Logo and Text on the Login Welcome Page



 thingworx®

Welcome
Login as 'Administrator' or your own account.

Name

Password

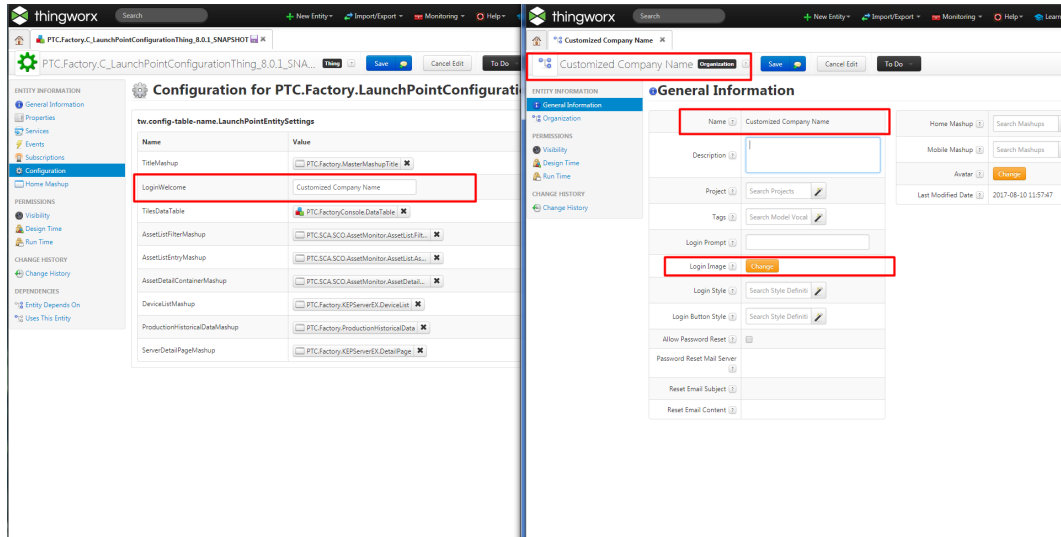
Submit

To change the logo and text on the Login Welcome page:

1. Create a new Organization in the ThingWorx Composer.
2. Choose the name and logo image.
3. Change the Login Welcome launch point value in `PTC.Factory.C_LaunchPointConfigurationThing_[ReleaseVersion]` to the newly created Organization entity name.

 **Note**

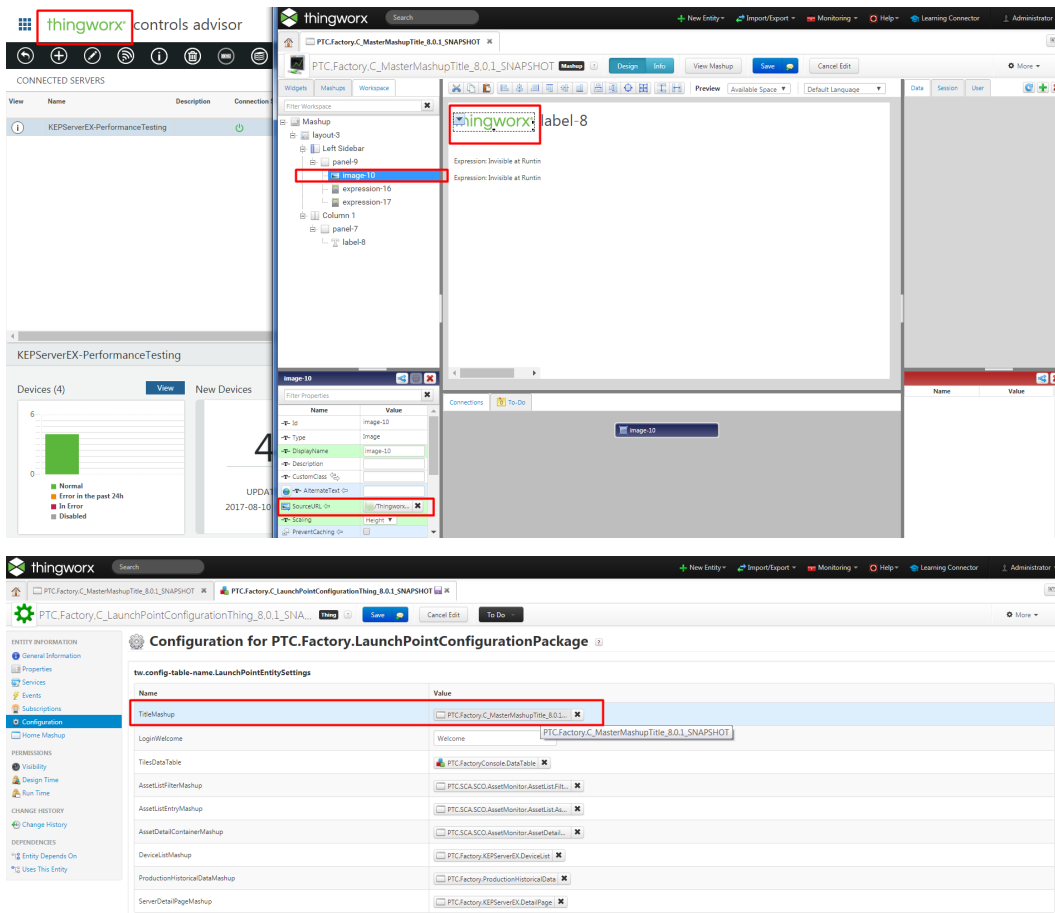
The default Organization is Welcome and can be used as a template or reference for customization.



Changing or Adding New Logos in the Application Headers

To change or add logos in the application headers:

1. Edit `PTC.Factory.C_MasterMashupTitle_[ReleaseVersion]` in ThingWorx Composer.
2. Change the `SourceURL` of the image for the header in the mashup to any media entity. This may already exist or can be created.
3. You can do other styling changes on this mashup. For example, you can keep the ThingWorx logo, and add your company logo.
4. Change the `TitleMashup` launch point value in `PTC.Factory.C_LaunchPointConfigurationThing_[ReleaseVersion]` to `PTC.Factory.C_MasterMashupTitle_[ReleaseVersion]`.



Changing the Tiles in the Main Application Console

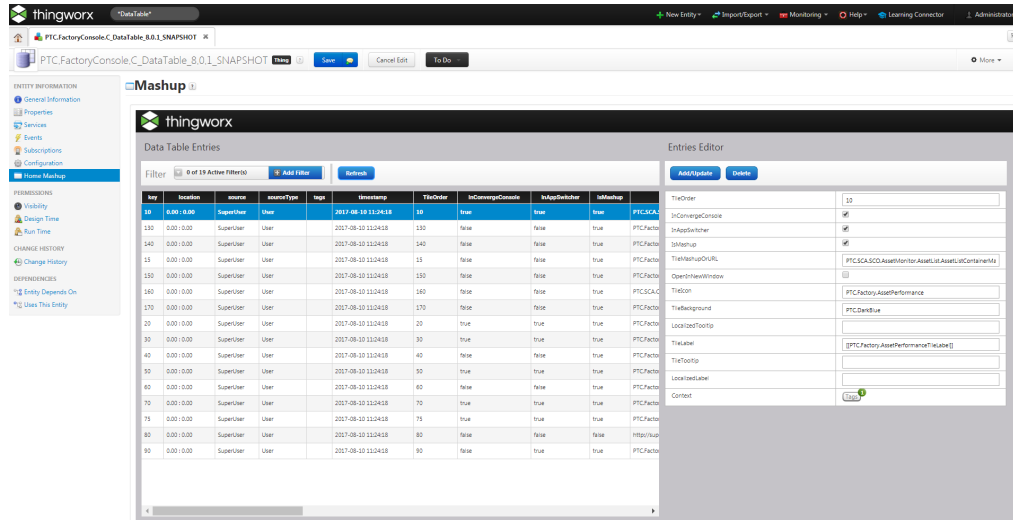
You can add a tile or update a current tile to point to and launch a new customized module. The tiles in the application are controlled by `PTC.FactoryConsole.DataTable`. However, we don't recommend editing this `DataTable` directly for the purpose of customization. Instead, we suggest that you duplicate `PTC.FactoryConsole.DataTable` for your customization.

Note

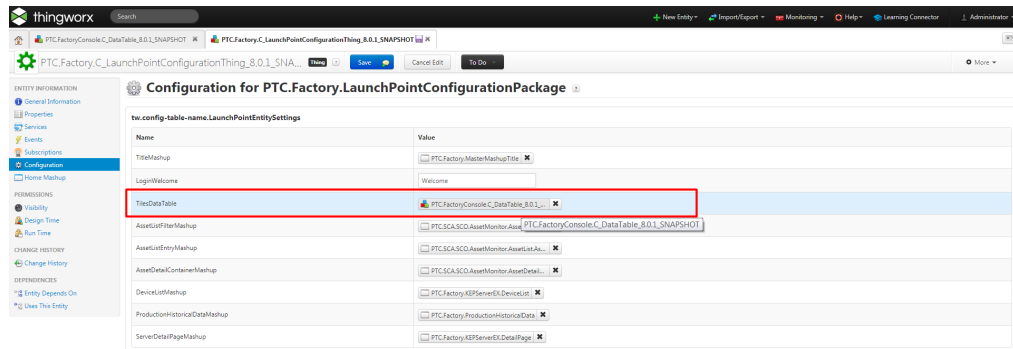
A duplication of `PTC.FactoryConsole.DataTable` named `PTC.FactoryConsole.C_DataTable_[ReleaseVersion]` is delivered with the extension package.

To change the tiles in the main application console:

1. Modify the DataTable PTC.C_FactoryConsole.DataTable_[ReleaseVersion] using the Home Mashup of this DataTable.



2. Change the TilesDataTable launch point value in PTC.Factory.C_LaunchPointConfigurationThing_[ReleaseVersion] to PTC.FactoryConsole.C_DataTable_[ReleaseVersion].



Copies of the following three mashups are delivered with the application as they are linked with the main tiles. It is easier for you to modify these mashups and then change the DataTable to link certain tiles to customized mashups.

- Asset Advisor Tile: PTC.SCA.SCO.AssetMonitor.AssetList.C_AssetListContainerMashup_[ReleaseVersion]
- Production Advisor Tile: PTC.Factory.C_PlantStatus_[ReleaseVersion]

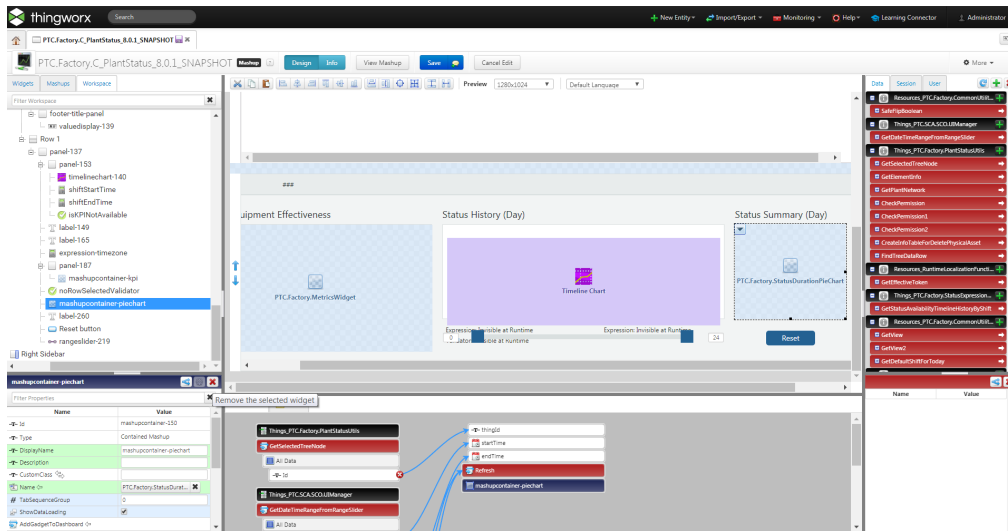
Example

Following is a simple example about modifying the PTC.FactoryConsole.C_DataTable_[ReleaseVersion] to:

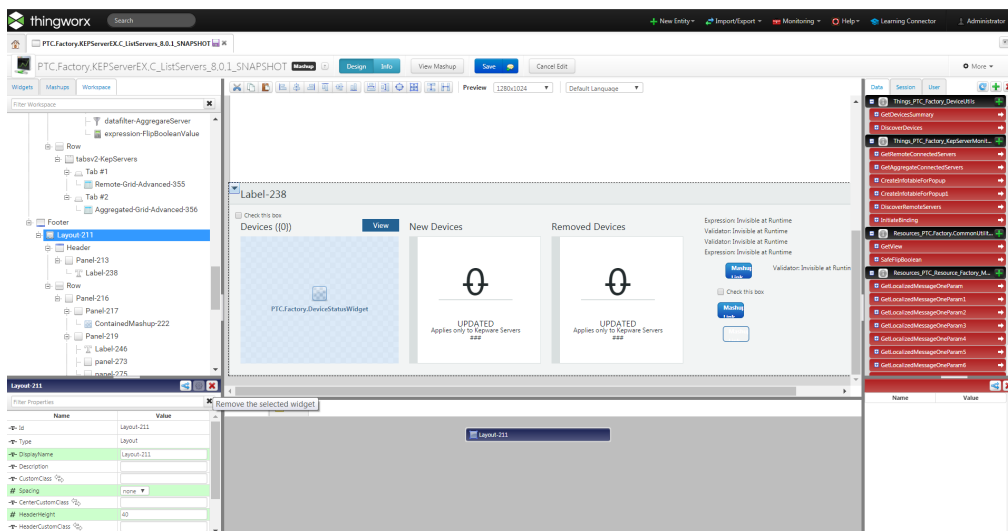
- Add a new tile labeled “Production Advisor” pointing to the mashup without “Status Summary (Day)” pie chart.
- The current Controls Advisor tile opens the main mashup without the contained mashups for device information at the bottom of the page.

Procedure:

1. Edit PTC.Factory.C_PlantStatus_[ReleaseVersion], remove the mashupcontainer-piechart, and save.

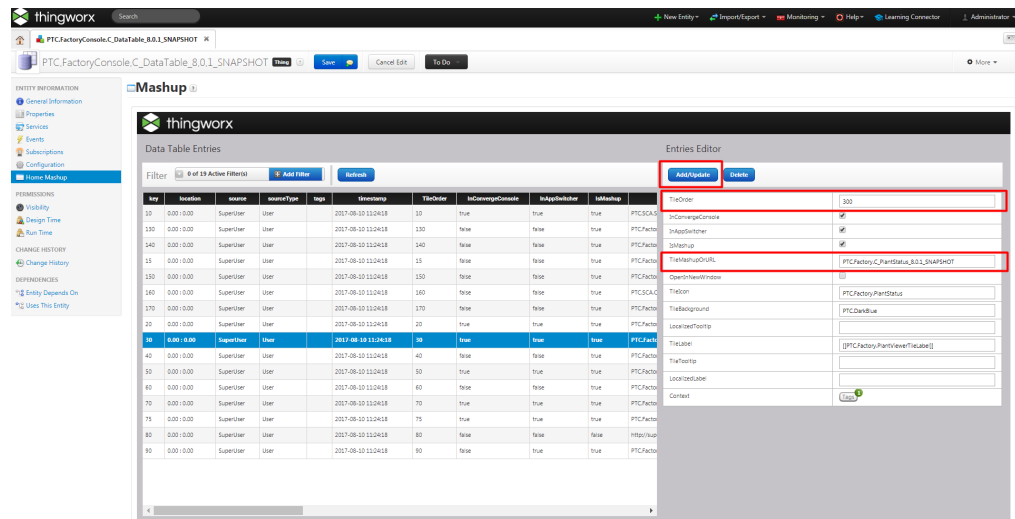


2. Edit PTC.Factory.KEPServerEX.C_ListServers_[ReleaseVersion], remove Layout-211 widget in the Footer Layout, and save.

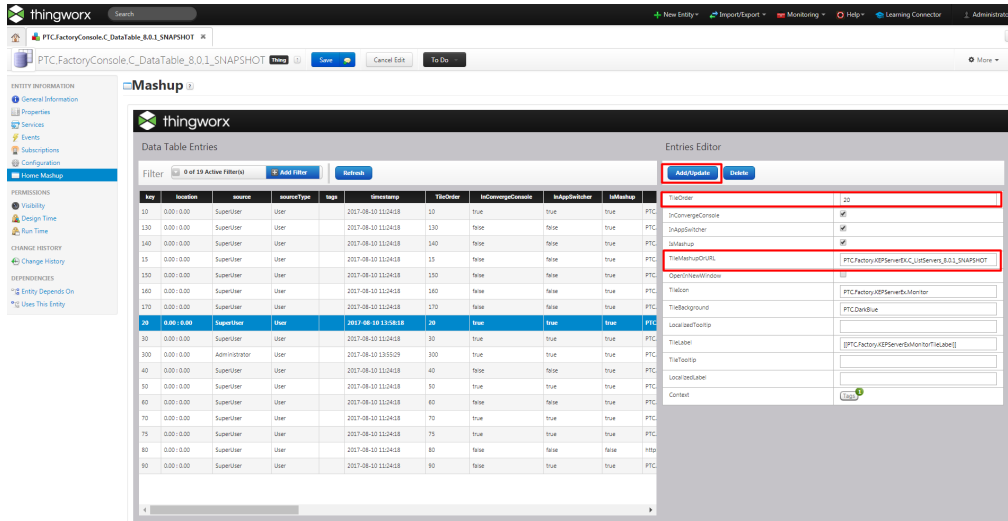


3. Do the following:
 - a. Open **PTC.FactoryConsole.C_DataTable_[ReleaseVersion]** ► **Home Mashup**.
 - b. In the **Entries Editor** on the right side, set **TileMashupOrURL** to `PTC.Factory.C_PlantStatus_[ReleaseVersion]`, and choose a unique **TileOrder**.
 - c. Click the **Add/Update** button.

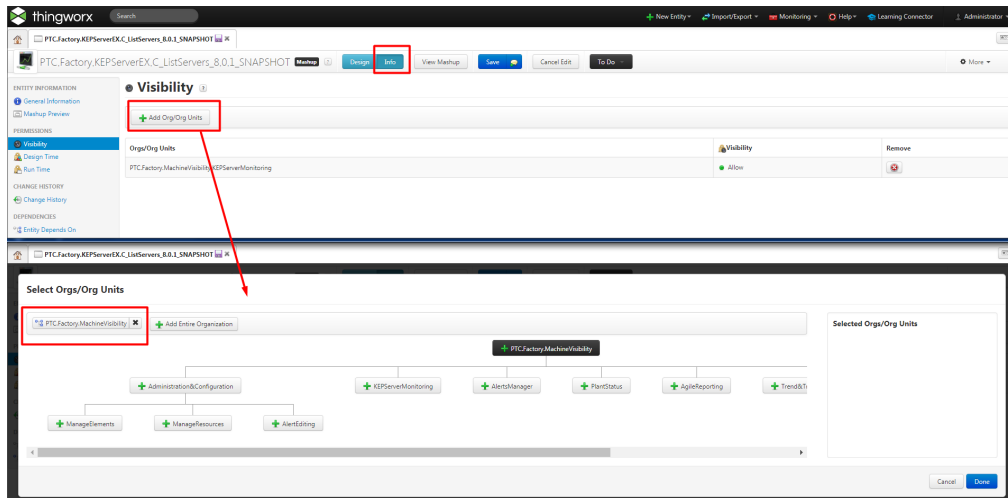
This adds the new Tile.



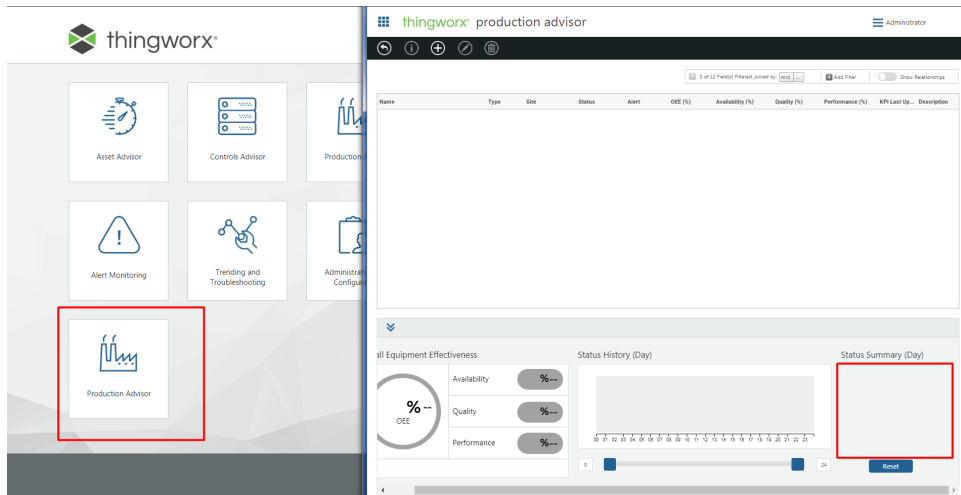
4. Open **PTC.FactoryConsole.C_DataTable_[ReleaseVersion]**>**Home Mashup**>. Update the entry whose current **TileMashupOrURL** is: `PTC.Factory.KEPServerEX.ListServers` (**TileOrder**=20)>. Set **TileMashupOrURL** to `PTC.Factory.C_KEPServerEX.ListServers_[ReleaseVersion]`. This updates the existing tile.



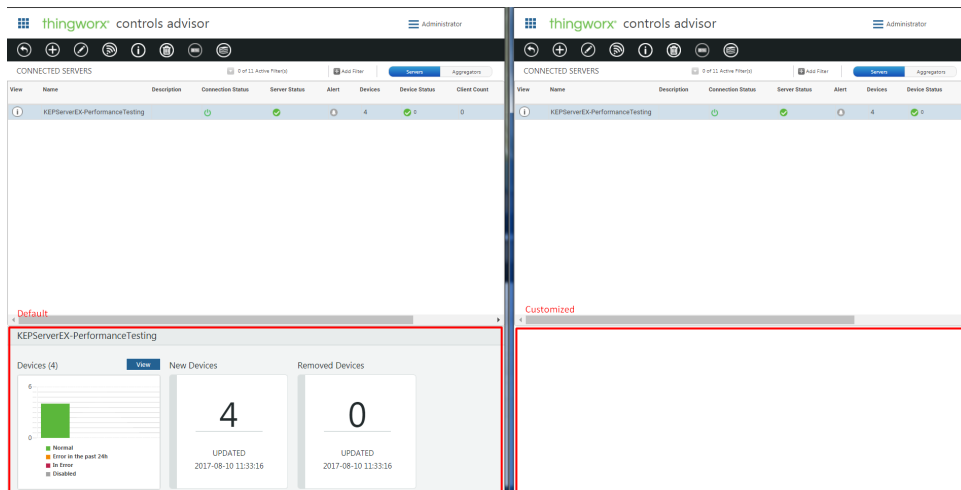
5. Note that the role-based visibility of a tile is the same as its `TileMashupOrURL`. Open `PTC.Factory.KEPServerEX.C_ListServers_[ReleaseVersion]` in ThingWorx Composer, and then choose **Info** ► **PERMISSIONS** ► **Visibility**. The current visibility is visible for `PTC.Factory.MachineVisibility:KEPServerMonitoring`, which is the same as the default mashup `PTC.Factory.KEPServerEX.ListServers`. Therefore, this Controls Advisor tile in the console is seen by a Controls Engineer in the application console, but not by a Production Engineer. You can click **Add Org/ Org Units** to add a new visibility control. and then remove the current one in ThingWorx Composer. In this way, the role-based of the mashup and the tile are customized at the same time.



- a. Now open the Application console. There is a new **Production Advisor** tile that opens the customized mashup without the Status Summary Pie Chart.



- b. Open the application console and click Controls Advisor Tile, and note that the mashup opened doesn't have the bottom container mashup for Device information.



Note

The actual customization of mashups is more complicated than this example.

Other Customizable Launch Point Mashups

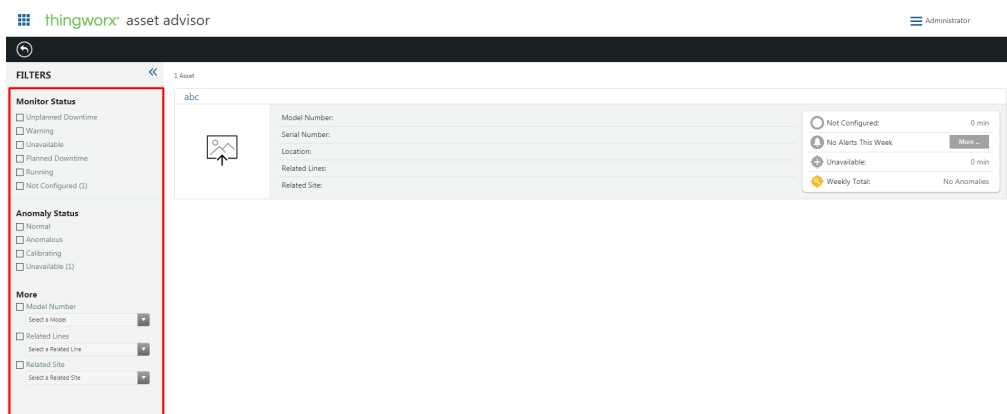
The customization for the remaining six launch point mashups follows the same general work flow.

1. Edit the provided copy of the mashup, for example
`PTC.Factory.KEPServerEX.C_DeviceList_
[ReleaseVersion]`. If you have the license to duplicate the origin mashup, you can make the copy yourself using a different name.
2. Change the mashup name for the corresponding launch point key in
`PTC.Factory.C_LaunchPointConfigurationThing_
[ReleaseVersion]` to the name of your customized mashup.

Following are lists of each launch point key, original default mashup name and image, and the name of the provided duplication mashup.

Asset List Filter Mashup

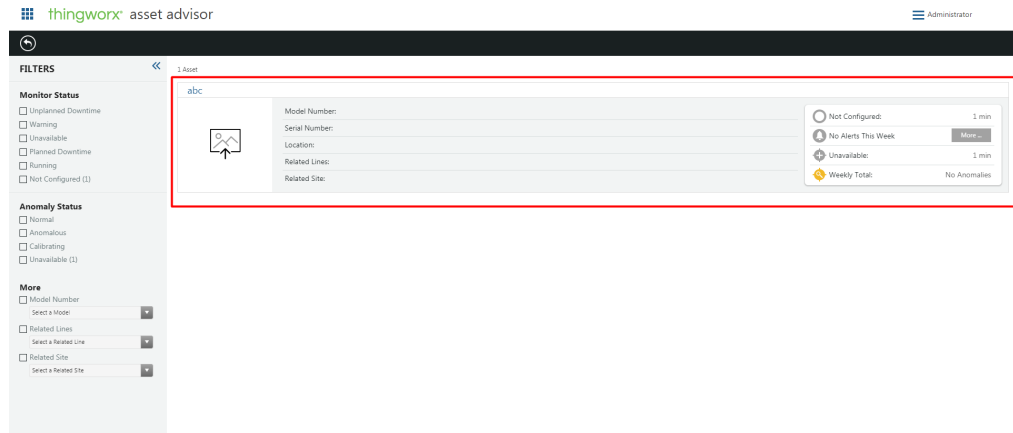
- Launch Point Key: `AssetListFilterMashup`
- Default Mashup:
`PTC.SCA.SCO.AssetMonitor.AssetList.FilterMashup`
- Copied Mashup: `PTC.SCA.SCO.AssetMonitor.AssetList.C_
FilterMashup_[ReleaseVersion]`
- Image:



Asset List Entry Mashup

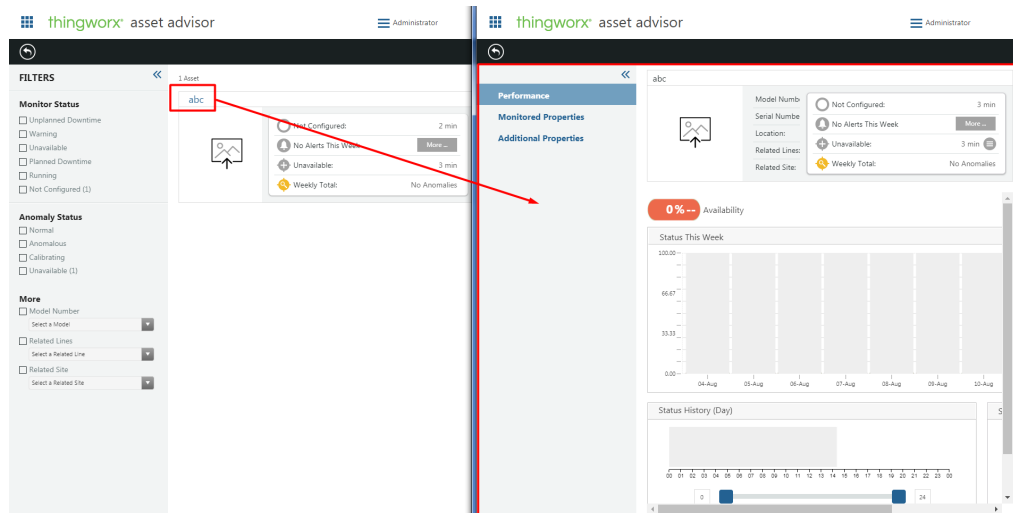
- Launch Point Key: `AssetListEntryMashup`
- Default Mashup:
`PTC.SCA.SCO.AssetMonitor.AssetList.AssetMashup`

- Copied Mashup: PTC.SCA.SCO.AssetMonitor.AssetList.C_AssetMashup_[ReleaseVersion]
- Image:



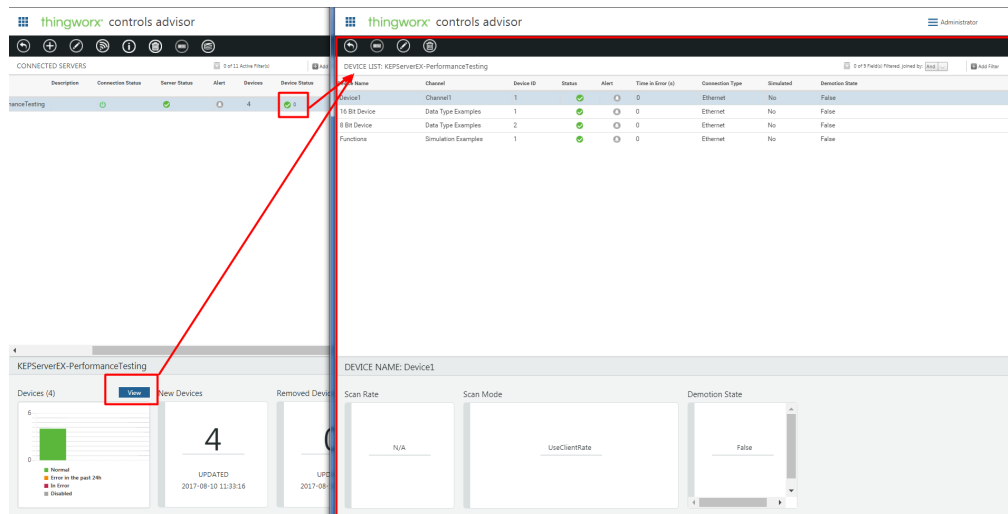
Asset Detail Container Mashup

- Launch Point Key: AssetDetailContainerMashup
- Default Mashup: PTC.SCA.SCO.AssetMonitor.AssetDetailContainerMashup
- Copied Mashup: PTC.SCA.SCO.AssetMonitor.C_AssetDetailContainerMashup_[ReleaseVersion]
- Image:



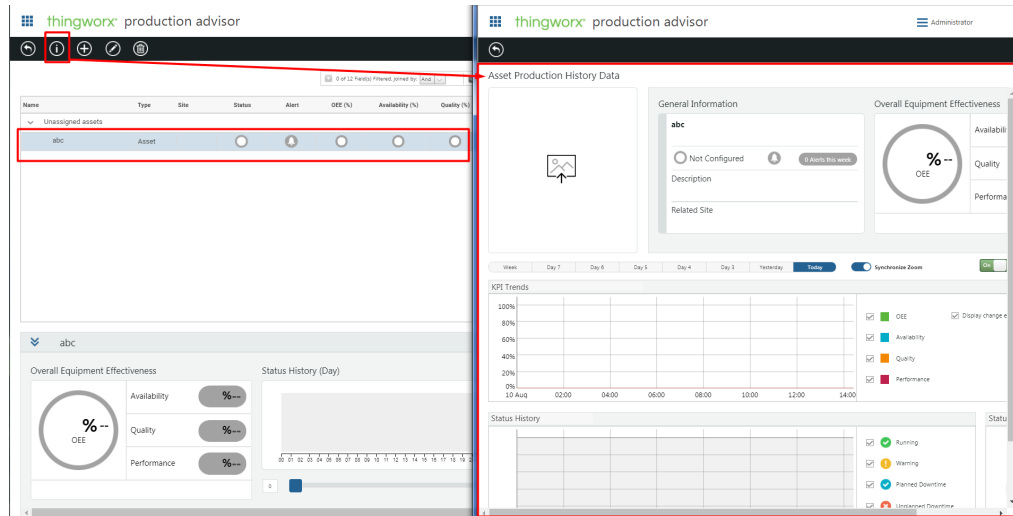
Device List Mashup

- Launch Point Key: DeviceListMashup
- Default Mashup: PTC.Factory.KEPServerEX.DeviceList
- Copied Mashup: PTC.Factory.KEPServerEX.C_DeviceList_
[ReleaseVersion]
- Image:



Production Historical Data Mashup

- Launch Point Key: ProductionHistoricalDataMashup
- Default Mashup: PTC.Factory.ProductionHistoricalData
- Copied Mashup: PTC.Factory.C_ProductionHistoricalData_
[ReleaseVersion]
- Image:



Server Detail Page Mashup

- Launch Point Key: ServerDetailPageMashup
- Default Mashup: PTC.Factory.KEPSEServerEX.DetailPage
- Copied Mashup: PTC.Factory.KEPSEServerEX.C_DetailPage_[ReleaseVersion]
- Image:

