



thingworx[®] utilities

Installation Guide

8.1

ThingWorx Utilities

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1

Overview

This guide provides instructions for installing and importing ThingWorx Utilities into ThingWorx and for importing ThingWorx Utilities utility extensions.

 **Note**

ThingWorx must be installed and configured properly on your system prior to installing and importing ThingWorx Utilities. For more information on installing ThingWorx, see the [Installing ThingWorx](#) guide.

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Prerequisites

The following should be installed prior to installing ThingWorx Utilities:

- ThingWorx 8.1.0

Note

ThingWorx Utilities is only compatible with the matching version of ThingWorx Core. It is not compatible with earlier or later releases.

- The following ThingWorx extensions are not required, but it is highly recommended that they be installed so that all features are available and work properly. These extensions are available from the ThingWorx Marketplace:
 - [Google Maps Widget](#)
 - [Mail Extension](#)
 - [Web Sockets Tunnel Widget and Library](#)

Note

You will be able to upgrade these extensions after installing ThingWorx Utilities.

- The following ThingWorx extensions that were bundled with ThingWorx Utilities have been deprecated and removed:
 - LabelTooltip_ExtensionPackage
 - LinkTooltip_ExtensionPackage
 - ButtonTooltip_ExtensionPackage

- NavigationTooltip_ExtensionPackage

If you are using any of the widgets available in these extensions, you can continue to download them from the PTC eSupport page, under **Release 8.0 ▶ ThingWorx Utilities Deprecated Tooltip Widgets**.

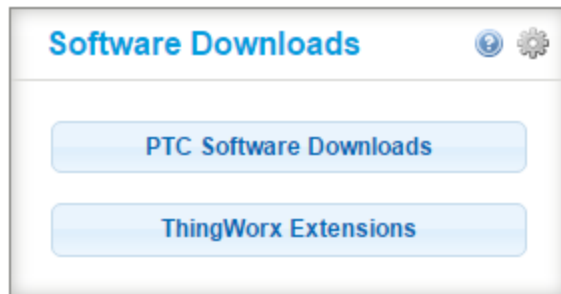
- Tomcat 8
- Java 8

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Installing ThingWorx Utilities

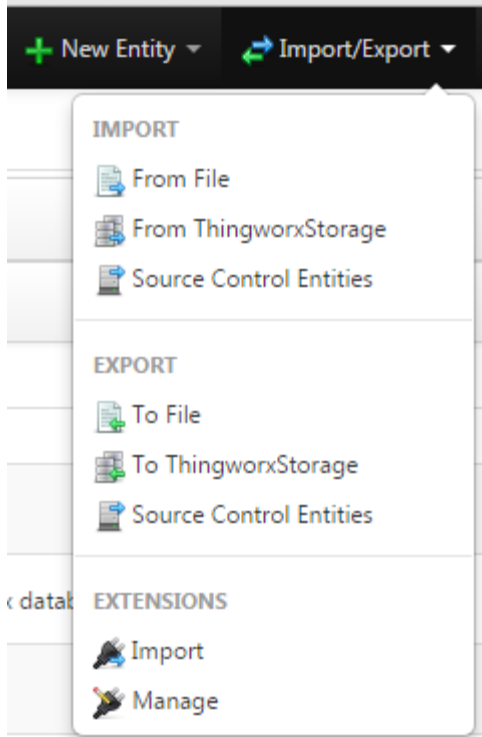
The following are included in the ThingWorx Utilities ZIP file:

- ThingWorx Asset Management
 - ThingWorx Alert Management
 - ThingWorx Product Relationship Management
 - ThingWorx Workflow Management
 - ThingWorx Software Content Management
 - ThingWorx Remote Access and Control
1. Navigate to the [PTC ThingWorx & Axeda eSupport](#) page.
 2. In the **Software Downloads** section, click **PTC Software Downloads**.

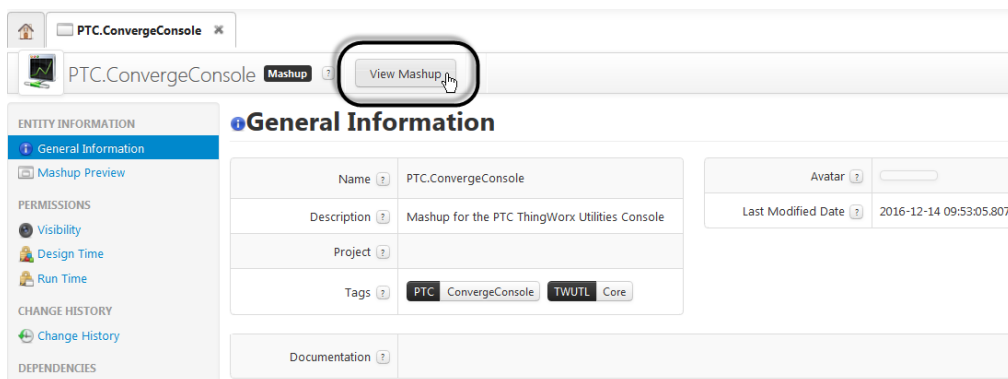


3. Click **Order or Download Software Updates**. Enter your **Customer Name** and **Customer Number** and click **Next**.
4. Under **Step 1: Select the Product Family**, click **ThingWorx Platform**.
5. Under **Step 2: Choose Release & Download**, select **Release 8.1.0 ▶ ThingWorx Utilities ▶ Most Recent Datecode**.
6. Click **HTTPS** or **Download Manager**.

- From the ThingWorx Composer, navigate to **Import/Export** ► **Import**.



- The **Import Extensions** window appears.
- Navigate to the ZIP file, and click **Import**.
- Click **Close**. When prompted to refresh your browser, click **Yes**.
- Verify that the extension has been successfully imported by searching for the **PTC.ConvergeConsole** mashup. Select the mashup and click **View**, then click **View Mashup**.



- On the ThingWorx Utilities Console, click **Asset Management** and verify that it loads.

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Importing the ThingWorx Utilities Demo Data Extension

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Note

Because the demo data requires specific thing shapes and thing templates, all ThingWorx Utilities extensions, including Workflow Management and Software Content Management, must be loaded prior to importing the demo data.

Before working with the demo data or completing the configuration, you must import the **ThingWorx Utilities Demo Data** extension and the imports XML file into ThingWorx Composer. The download ZIP file (**ThingWorx-Utilities-Demo-Data-version**) contains the extension ZIP file and the imports XML file you will need for the following steps.

Name	Type	Compressed size
 README.txt	TXT File	1 KB
 utl-demo-data-extension.zip	Compressed (zipped) Fol...	16 KB
 utl-demo-data-imports.xml	XML Document	342 KB
 utl-demo-data-simulator-zip.zip	Compressed (zipped) Fol...	26,025 KB

Importing the Extension ZIP File

The **utl-demo-data-extension** ZIP file contains the minimum supporting objects for running the MRI demo data. Complete the following steps to import the **ThingWorx Utilities Demo Data** extension ZIP:

1. Extract the contents of the **ulto-demo-data-extension** ZIP file to your system.
2. From ThingWorx Composer, navigate to the **Import/Export** menu. Under **Extensions**, select **Import**.
3. Click **Choose File**, and navigate to the `utl-demo-data-extension` ZIP file and select it.
4. Click **Import**.

Importing the Imports XML File

The **utl-demo-data-imports** XML file contains many of the files that you will want access to when working with the MRI demo data. Complete the following steps to import the **utl-demo-data-imports** XML file:

1. From ThingWorx Composer, navigate to **Import/Export** ► **Import** ► **From File**.
2. On the **Single File** tab, click **Choose File**, and navigate to the `utl-demo-data-imports` XML file and select it.
3. Click **Import**.

Extracting the Core Data Simulator

1. Extract the contents of the **ult-demo-data-simulator-zip** ZIP file to your system.
2. In the extracted `ult-demo-data-simulator-zip` directory on your system, create 8 new directories, one for each MRI machine. Name these directories SN0001, SN0002, and so on, through SN0008.

Note

You must follow this naming convention, as the simulator relies on these identifiers.

3. In each of those 8 new directories, create 4 more directories:
 - `in`
 - `out`
 - `staging`
 - `updates`


These directories are used for file transfer and are used for File Transfer and Software Content Management capabilities.

Configuring Email Server Details

After you have installed ThingWorx Utilities, you must specify the email server that will be used for ThingWorx Software Content Management notifications:

1. From ThingWorx Composer, navigate to the **TW.RSM.SFW.Thing.MailServer** thing.
2. Under **Entity Information**, click **Configuration** and then click **Edit**.
3. Enter the appropriate information for **Mail Server Connection Parameters**.

Configuration for MailThing

Mail Server Connection Parameters	
Name	Value
SMTP Server	<input type="text" value="smtp.domain.com"/>
SMTP Server Port	<input type="text" value="465"/>
POP3 Server	<input type="text" value="pop3.domain.com"/>
POP3 Server Port	<input type="text" value="995"/>
Use TLS	<input type="checkbox"/>
Use SSL	<input checked="" type="checkbox"/>
Mail Account User	<input type="text" value="account@domain.com"/>
Mail Account Password	<input type="button" value="Change Password"/>
Connection Timeout	<input type="text" value="30000"/>
Operation Timeout	<input type="text" value="30000"/>
Socks Host	<input type="text"/>
Socks Port	<input type="text" value="1080"/>
Attachment File Repository	<input type="text" value="SystemRepository"/> 

4. Click **Save**.
5. Restart the **TW.RSM.SFW.Thing.MailServer** thing to begin using the new settings:
 - a. Click **Services**.
 - b. Under **Generic Services**, find the **RestartThing** row and click **Test**.

-
- c. On the **RestartThing - Test Service** window, click **Execute Service**.

 **Note**

These entities are not considered part of the extension, but are created after the ThingWorx Utilities has been installed. If these entities are deleted for any reason, ThingWorx Utilities will recreate them, but they must be reconfigured.

MRI Demonstration Data Post-Import Configuration

After you have imported the MRI demo data extension, complete the following steps:

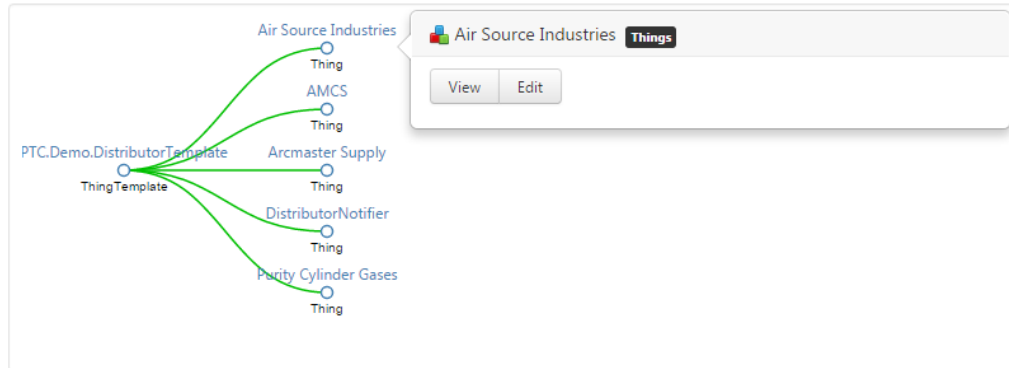
Configure DistributorNotifier Email Addresses

1. From ThingWorx Composer, navigate to the **PTC.Demo.DistributorTemplate** thing template.
2. In the left panel, under **Dependencies**, click **Use This Entity**. A list of distributors that you will update appears.
 - Air Source Industries
 - AMCS
 - Arcmaster Supply
 - Purity Cylinder Gases

For each of these entities, complete Steps 3 and 4.

3. Click the entity, and then click **Edit**.

Uses This Entity ?





4. Under **Entity Information**, click **Properties**. Click **Set** next to the email property. Enter the appropriate email address and click **Set** to save your update.


Configure Email Server

1. From ThingWorx Composer, navigate to the **PTC.BPE.BusinessProcessNotifier** thing.
2. Under **Entity Information**, click **Configuration** and then click **Edit**.

3. Enter the appropriate information for **Mail Server Connection Parameters**.

 **Configuration for MailThing** 

Mail Server Connection Parameters

Name	Value
SMTP Server	<input type="text" value="smtp.domain.com"/>
SMTP Server Port	<input type="text" value="465"/>
POP3 Server	<input type="text" value="pop3.domain.com"/>
POP3 Server Port	<input type="text" value="995"/>
Use TLS	<input type="checkbox"/>
Use SSL	<input checked="" type="checkbox"/>
Mail Account User	<input type="text" value="account@domain.com"/>
Mail Account Password	<input type="button" value="Change Password"/>
Connection Timeout	<input type="text" value="30000"/>
Operation Timeout	<input type="text" value="30000"/>
Socks Host	<input type="text"/>
Socks Port	<input type="text" value="1080"/>
Attachment File Repository	<input type="text" value="SystemRepository"/> 

4. Click **Save**.
5. Restart the **TW.RSM.SFW.Thing.MailServer** thing to begin using the new settings:
 - a. Click **Services**.
 - b. Under **Generic Services**, find the **RestartThing** row and click **Test**.
 - c. On the **RestartThing - Test Service** window, click **Execute Service**.


 **Note**

These entities are not considered part of the extension, but are created after the ThingWorx Utilities has been installed. If these entities are deleted for any reason, ThingWorx Utilities will recreate them, but they must be reconfigured.

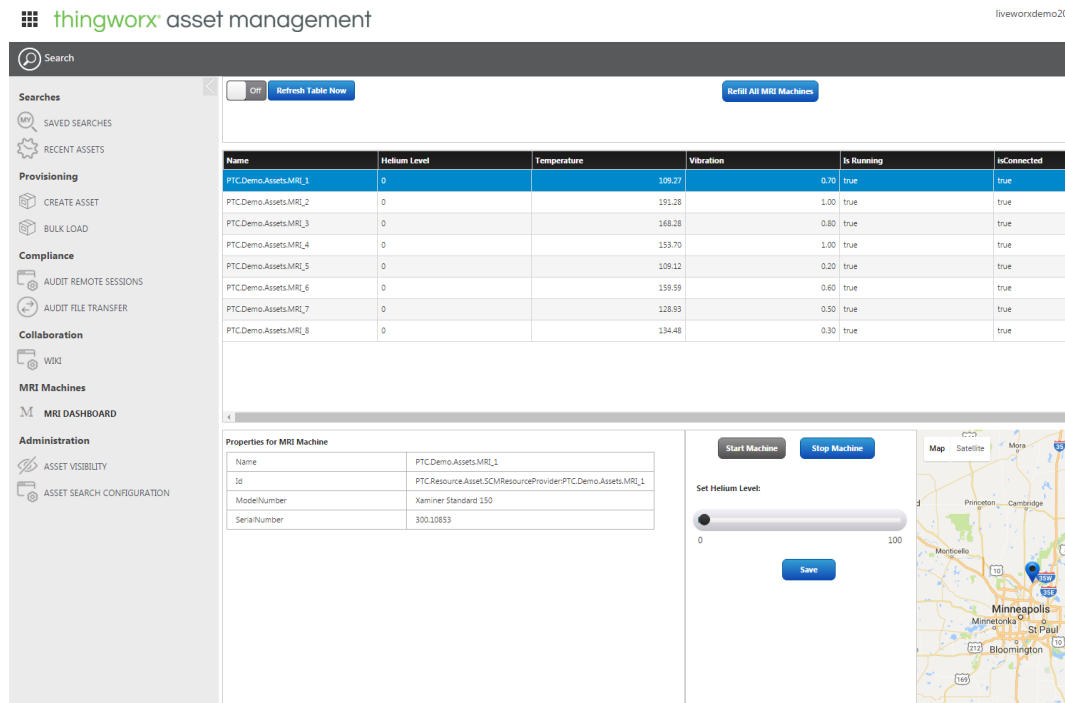
Start the Core Data Simulator

1. Open the extracted Core_DataSimulator-zip directory on your system.
2. Start the simulator by running the appropriate script for your system:
 - Windows—startMRIClient.bat
 - Linux—startMRIClient.sh

Add the MRI Demo Simulator Tile to the Console

1. From the ThingWorx Utilities Console, click the **Add/Remove Tiles** tile.
2. In the tiles table, find **MRI Demo Simulator**.
3. Select the checkboxes in the **In Console** and **In App Switcher** columns.
4. Click .
5. The **MRI Demo Simulator** now appears on the Console.

Once you have imported and configured the MRI demonstration data, a **MRI Machines** section will also appear in ThingWorx Asset Management.



The screenshot displays the ThingWorx Asset Management interface. At the top, it shows the 'thingworx asset management' logo and the user 'liveworxdemo2C'. Below the header, there is a search bar and a 'Refresh Table Now' button. The main content area features a table with columns: Name, Helium Level, Temperature, Vibration, Is Running, and isConnected. The table lists eight MRI machines (PTC.Demo.Assets.MRI_1 through MRI_8) with their respective values. Below the table, there is a 'Properties for MRI Machine' section for PTC.Demo.Assets.MRI_1, showing details like Id, ModelNumber (Xaminer Standard 150), and SerialNumber (300.10853). To the right of the properties, there are 'Start Machine' and 'Stop Machine' buttons, a 'Set Helium Level' slider (set to 0), and a 'Save' button. A map of Minneapolis is visible in the bottom right corner.

Name	Helium Level	Temperature	Vibration	Is Running	isConnected
PTC.Demo.Assets.MRI_1	0	109.27	0.70	true	true
PTC.Demo.Assets.MRI_2	0	191.28	1.00	true	true
PTC.Demo.Assets.MRI_3	0	168.28	0.80	true	true
PTC.Demo.Assets.MRI_4	0	153.70	1.00	true	true
PTC.Demo.Assets.MRI_5	0	109.12	0.20	true	true
PTC.Demo.Assets.MRI_6	0	159.59	0.60	true	true
PTC.Demo.Assets.MRI_7	0	128.93	0.50	true	true
PTC.Demo.Assets.MRI_8	0	134.48	0.30	true	true

Properties for MRI Machine	
Name	PTC.Demo.Assets.MRI_1
Id	PTC.Resource.Asset.SCMResourceProvider:PTC.Demo.Assets.MRI_1
ModelNumber	Xaminer Standard 150
SerialNumber	300.10853

5

Updating to a New Version of ThingWorx Utilities

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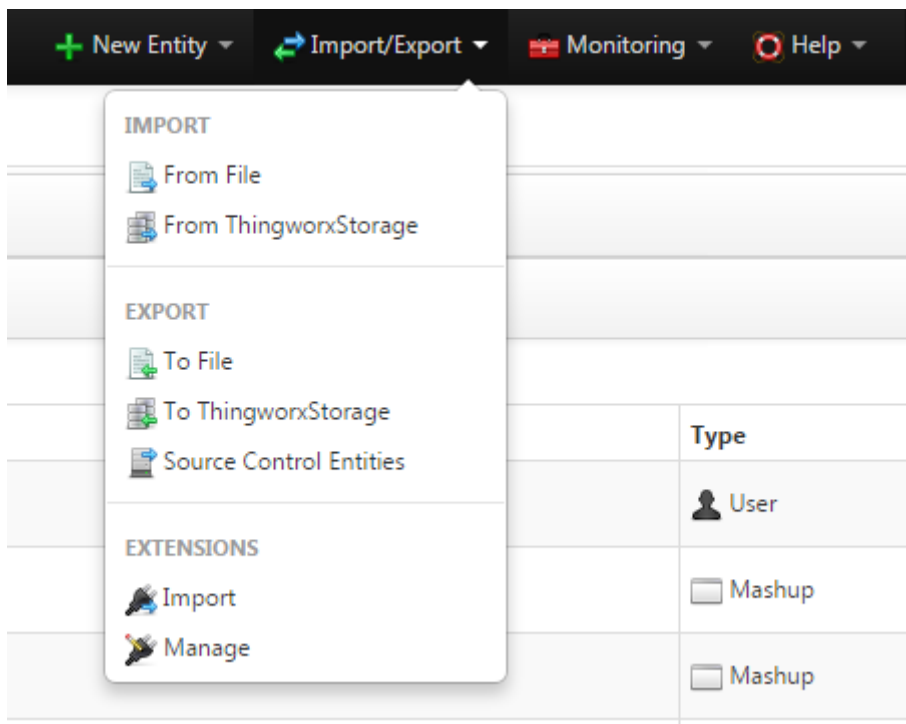
To update to a new version of ThingWorx Utilities, complete the following steps:

 **Note**

When upgrading from version 8.0.0 to 8.1.0, you can directly import ThingWorx Utilities after an in-place upgrade of ThingWorx foundation 8.1.0 and it is no longer necessary to follow the Export/Import extension upgrade process.

After performing the import, you must restart Tomcat. You may also need to run the AdjustUtilitiesVisibility service in the TW.UTL.UtilSetupHelper resource to ensure the visibility and permissions are properly set.

1. Export data:
 - a. Export everything that has been developed in your current version of ThingWorx from ThingWorx Utilities using the **Import/Export** drop-down and selecting **To ThingWorxStorage** under **Export**.



- b. Select the **Include Data** checkbox.

Export to ThingworxStorage

Exporting All by default exports all of your entities asynchronously to the ThingworxStorage/exports directory on your server. Check the box to export all your data as well.

Include Data:

- c. Click **Export**.
 - d. Once the export completes successfully, a directory is created in /ThingworxStorage/exports. Create a ZIP file of the exports directory.
2. Ensure that the ThingWorx 8.1.0 platform is installed.
 3. Install the ThingWorx Utilities 8.1.0 extension and any other optional ThingWorx Utilities extensions that you previously had installed. For more information, see [Installing ThingWorx Utilities on page 7](#).
 4. Import data:
 - a. Navigate to the ZIP file that you created in step 1, and extract the contents of the file to the newly installed ThingWorx Utilities 8.1.0 /ThingworxStorage/exports directory.
 - b. From ThingWorx Composer, import the extracted files from the ThingWorx Utilities 8.1.0 /ThingworxStorage/exports directory using the **Import/Export** menu and selecting **From ThingWorxStorage** under **Import**.
 - c. After the import has completed successfully, restart the application server. This enables ThingWorx Workflow Builder to create dynamic subscriptions correctly.
 5. Depending on the version you are updating from, follow the appropriate instructions in [Post-Update Steps on page 19](#).

Post-Update Steps

After updating to a new version of ThingWorx Utilities, you may need to perform post-update tasks depending on the version of ThingWorx Utilities you are updating from:

Updating from ThingWorx Utilities 8.0.0

No post-update steps are required when updating from ThingWorx Utilities 8.0.0.

Note

There will be no migration for Package Version updates. If an existing package contains non-numerical characters for any version, it can only be used in the dependency check for its package name. All package version dependencies will not be allowed for legacy packages containing non-numerical characters.

Updating from ThingWorx Utilities 7.4.0

No post-update steps are required when updating from ThingWorx Utilities 7.4.0.

Updating from ThingWorx Utilities 7.3.0

No post-update steps are required when updating from ThingWorx Utilities 7.3.0.

Updating from ThingWorx Utilities 7.2.1

No post-update steps are required when updating from ThingWorx Utilities 7.2.1.

Updating from ThingWorx Utilities 7.1.0

If you are updating from ThingWorx Utilities 7.1.0, you must complete the following tasks.

If You Have Multiple Organizations

If you have more than one organization, you must manually add the following tags after updating your ThingWorx Utilities version:

- ThingWorx Workflow Builder
 - TW.UTL.WB.Master.CommonHeader, TWUTL:Workflow

-
- TW.UTL.WM.Master.CommonHeader, TWUTL:Workflow
 - ThingWorx Core
 - TW.UTL.Alert.Master.CommonHeader, TWUTL:Core
 - PTC.Asset.CommonHeader, TWUTL:Core
 - TW.UTL.AssetDetail.Master.CommonHeader, TWUTL:Core
 - TW.UTL.AssetSearch.Master.CommonHeader, TWUTL:Core
 - TW.UTL.CommonHeader, TWUTL:Core
 - TW.UTL.PRM.Master.CommonHeader, TWUTL:Core
 - PTC.Asset.FlattenedOwnablesResourceProvider, TWUTL:Core
 - PTC.Asset.FlattenedOwnablesDataShape, TWUTL:Core
 - PTC.Resource.Asset.ThingworxAssetResourceProvider, TWUTL:ResourceProvider
 - PTC.Resource.Asset.ThingworxAssetDataShape, TWUTL:ResourceProvider
 - PTC.Resource.CRM.OperatorContactRelationshipResourceProvider, TWUTL:ResourceProvider
 - PTC.Resource.CRM.OperatorContactRelationshipDataShape, TWUTL:ResourceProvider
 - PTC.Resource.CRM.OperatorRelationshipResourceProvider, TWUTL:ResourceProvider
 - PTC.Resource.CRM.OperatorRelationshipDataShape, TWUTL:ResourceProvider
 - PTC.Resource.CRM.OwnerContactRelationshipResourceProvider, TWUTL:ResourceProvider
 - PTC.Resource.CRM.OwnerContactRelationshipDataShape, TWUTL:ResourceProvider
 - PTC.Resource.CRM.OwnerRelationshipResourceProvider, TWUTL:ResourceProvider
 - PTC.Resource.CRM.OwnerRelationshipDataShape, TWUTL:ResourceProvider
 - PTC.Resource.CRM.ThingworxCustomerResourceProvider, TWUTL:ResourceProvider
 - PTC.Resource.CRM.ThingworxCustomerDataShape, TWUTL:ResourceProvider
 -
 - Salesforce
 - PTC.Resource.CRM.SalesforceAccountResourceProvider, TWUTL:ResourceProvider

-
- PTC.Resource.CRM.SalesforceAccountDataShape, TWUTL:ResourceProvider
 - PTC.Resource.CRM.SalesforceContactResourceProvider, TWUTL:ResourceProvider
 - PTC.Resource.CRM.SalesforceContactDataShape, TWUTL:ResourceProvider
 - ThingWorx Software Content Management
 - TW.UTL.SFW.Master.CommonHeader, TWUTL:RemoteServices
 - PTC.Resource.Asset.RSMUpdatableResourceProvider, TWUTL:ResourceProvider
 - PTC.Resource.Asset.SCMResourceProvider, TWUTL:ResourceProvider
 - PTC.Resource.Asset.SCMDDataShape, TWUTL:ResourceProvider
 - TW.RSM.SFW.SoftwareManager.SoftwareAuditHistory, TWUTL:RemoteServices
 - TW.RSM.SFW.SoftwareManager.Configuration, TWUTL:RemoteServices
 - TW.RSM.SFW.SoftwareManager.AccessPrivileges, TWUTL:RemoteServices
 - TW.RSM.SFW.SoftwareManager.DeliveryTarget, TWUTL:RemoteServices
 - TW.RSM.SFW.SoftwareManager.Campaign, TWUTL:RemoteServices
 - TW.RSM.SFW.SoftwareManager.Definition, TWUTL:RemoteServices
 - TW.RSM.SFW.FlattenedOwnablesResourceProvider, TWUTL:RemoteServices
 - PTC.Resource.Asset.RSMAssetResourceProvider, TWUTL:ResourceProvider
 - PTC.Resource.Asset.RSMAssetDataShape, TWUTL:ResourceProvider
 - Styles
 - PTC.ConvergeConsole.Master, TWUTL:Core

Updating from ThingWorx Utilities 7.0.1

For most installations, no post-update steps are required when updating from ThingWorx Utilities 7.0.1.

If you have more than one organization, you must manually add tags as described in the following topic: [Updating from ThingWorx Utilities 7.1.0 on page 19](#).

Updating from ThingWorx Utilities 6.6.0

If you are updating from ThingWorx Utilities 6.6.0, you must complete the following tasks.

Customizations to ThingWorx Utilities Entities

Custom edits to ThingWorx Utilities entities are not supported and must be re-applied after upgrading to ThingWorx Utilities 7.0.1. This includes changes to the master mashups to update logos in the utility banners.

Workflow Definitions

The workflow definitions created prior to ThingWorx Utilities 6.6.0 will continue to be supported. However, if there is a need to edit the events configured for a receive task in a pre-7.0.1 workflow definition, the event must be removed and replaced with a newly created event.

Updating Pre-ThingWorx Utilities 7.0.1 Assets with Appropriate Thing Shapes

Run the **UpdatePre40Assets** utility service, available in the **PTC.Asset.AssetCoreUtils** thing, to update pre-7.0.1 assets with the appropriate thing shapes associated with the new resource providers using the following steps:

1. In ThingWorx Composer, navigate to the **PTC.Asset.AssetCoreUtils** thing.
2. Click **Services**, and find the **UpdatePre40Assets** service. Click **Test**.

The service finds all things which implement the `TW.RSM.ManagedAsset` thing shape, but do not implement the `TW.RSM.SFW.ThingShape.Updateable` thing shape. If they are not currently assigned to any thing-based resource provider, the service adds the resource thing shape, `PTC.Resource.Asset.RSMAssetResourceThingShape` to those things.

It then finds all things which implement the `TW.RSM.SFW.ThingShape.Updateable` thing shape, and if they are not currently assigned to any thing-based resource provider, adds the `PTC.Resource.Asset.RSMUpdatableResourceThingShape` resource thing shape to those things.

DisplayName Property for ThingWorx Product Relationship Manager

A display name was added for ThingWorx Utilities customer things. A migration script is available to create the new `DisplayName` property for each `PTC.Resource.CRM.ThingworxCustomer` thing and populate it based on its corresponding thing name. Complete the following steps to run the **MigrateCustomerNames** service on the **PTC.Resource.CRM.CustomerManagementUtils** thing:

-
1. In ThingWorx Composer, navigate to the **PTC.Resource.CRM.CustomerManagementUtils** thing.
 2. Click **Services**, and find the **MigrateCustomerNames** service. Click **Test**.

ThingWorx Utilities Help Center

If the Help Center tile is pointing to a previous version of the ThingWorx Utilities Help Center, you must update the tile to point to the ThingWorx Utilities 7.4.0 Help Center using the following steps:

1. Click the **Add/Remove Tiles** tile.
2. Select **ThingWorx Utilities Help Center** in the table.
3. In the **Mashup or URL** field, enter the following: `http://support.ptc.com/help/thingworx_hc/thingworx_utilities_7_hc/[language]/`, where *[language]* is the two-character code for your preferred language:
 - Simplified Chinese—zh_CN
 - Traditional Chinese—zh_TW
 - English—en
 - French—fr
 - German—de
 - Italian—it
 - Japanese—ja
 - Korean—ko
 - Russian—ru
 - Spanish—es
4. Click **Save Tile**.

If You Have Multiple Organizations

If you have more than one organization, you must manually add tags as described in the following topic: [Updating from ThingWorx Utilities 7.1.0 on page 19](#).

Avoiding Upgrade Impacts

When developing on top of ThingWorx Utilities, steps can be taken to avoid issues when upgrading to a newer release in the future. Depending on the updates that are provided in future releases, you may need to ensure that custom code and objects are compatible with the updates made to ThingWorx Utilities. To avoid upgrade issues, we recommend the following:

Resource Providers

- When extending the ThingWorx Utilities ontology to support new domains, avoid modeling specific resource types, such as Customer and Contact. Instead, model the capabilities that are provided by these resources, like Addressable and Contactable.
- Java-based thing templates should not be modified in the ThingWorx Composer. To prevent a Java-based thing template from being modified in the ThingWorx Composer, ensure that the thing template is set to be non-editable when it is imported as part of an extension.

Capabilities

- To avoid naming conflicts, the field name of a capability data shape should contain the prefix of a capability. For example, the Contactable capability has field names such as ContactablePhoneNumber and ContactableEmail instead of PhoneNumber or Email.
- To prevent upgrade impacts due to future changes to any ontology extension you create, the ThingWorx entities that make up the capabilities that are part of your ontology extension (for example, the thing shapes and data shapes) should be set to be non-editable when imported through an extension.

6

Visibility Support for ThingWorx Utilities

Visibility support for multiple organizations is available for non-asset entities (mashups, helper things, and so on). The **TW.UTL.UtilSetupHelper** resource contains the **AdjustUtilitiesVisibility** service to help align visibility and permission for ThingWorx Utilities.

 **Note**


To set visibility you must be an administrator or have the correct permissions.

Complete the following steps to set visibility:

1. In ThingWorx Composer, navigate to **System ▶ Resources**.
2. Click **TW.UTL.UtilSetupHelper**, and then click **Services**.
3. Click **Test** next to the **AdjustUtilitiesVisibility** service.

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4. Enter the organization for which you want to execute the service, or you can also use a colon to enter the unit as well. In the example below, running the service sets visibility for the core entities that are available to ThingWorx Utilities and some platform entities (subsystems, resources, and so on) for the AcmeOrganization and the AcmeUnit.

AdjustUtilitiesVisibility - Test Service

 Please be careful. Only execute services and queries where you understand the impacts.

Inputs:

orgOrOrgUnit

AcmeOrganization:AcmeUnit

5. Click **Execute Service**.