

Three Model Viewer Version 1.0

User Guide

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[Software Change Log 2](#_Toc460343402)

[Introduction and Installation 2](#_Toc460343403)

[About the EXTENSION 2](#_Toc460343404)

[Installing the THREE MODEL VIEWER Extension 2](#_Toc460343405)

[Configuration and Usage 4](#_Toc460343406)

[Configuration 4](#_Toc460343407)

[Usage 5](#_Toc460343408)

[Compatibility 5](#_Toc460343409)

# Software Change Log

|  |  |  |
| --- | --- | --- |
| Version | Release Date | Changes |
| 1.0 | 1/1/2016 | Initial Release |

# Introduction and Installation

Extensibility is a core aspect of the architecture and design of ThingWorx. Partners, third parties, and general ThingWorx users can easily add new functionality into the system, seamlessly. Extensions can be in the form of Service (function/method) Libraries, Connector Templates, Widgets, and more.

This document provides installation and usage instructions for the THREE MODEL VIEWER Extension.

## About the EXTENSION

THREE MODEL VIEWER allows you to visualize 3D models in a lot of different formats.

The THREE MODEL VIEWER Extension for ThingWorx also provides advanced capabilities of using scenes created in other programs. This extension utilizes the Three.js libraries and modern web technologies like WebGL. For more information, visit <http://threejs.org/>

The THREE MODEL VIEWER Extension allows you to use the Three Model Viewer widget. This responsive widget allows visualization and interaction of the most commonly used 3D data formats.

## Installing the THREE MODEL VIEWER Extension

|  |  |
| --- | --- |
| 1. From a web browser, launch ThingWorx. 2. Log into ThingWorx as an administrator. |  |
| 1. Go to **Import/Export > Import**. |  |
| 1. Click Choose File and select [ThreeModelViewer\_ExtensionPackage].zip 2. Click **Import**.  Note: If an **Import Successful** message does not display, contact your ThingWorx System Administrator. | Note: |
| 1. Click **Yes** to refresh Composer after importing the final extension. |  |
| 1. Confirm that the Extension has been imported properly. Check the Application Log for potential problems. |  |
|  |  |

# Configuration and Usage

The following model formats are supported:

|  |  |
| --- | --- |
| **Format** | **Observations** |
| **dae** | Loaded as a 3D model. Also loads textures |
| **3mf** | Loaded as a 3D model |
| **amf** | Loaded as a 3D model |
| **awd** | Loaded as a 3D scene |
| **babylon** | Loaded as a 3D scene |
| **ctm** | Loaded as a 3D model |
| **fbx** | Loaded as a 3D model |
| **gltf** | Loaded as a 3D model |
| **json** | Loaded as a 3D scene. This includes JSON files exported from the ThreeJS editor |
| **md2** | Loaded as a 3D model |
| **obj** | Loaded as a 3D model. Materials are not supported |
| **ply** | Loaded as a 3D model |
| **stl** | Loaded as a 3D model |
| **vtk** | Loaded as a 3D scene. |
| **pvz** | Loaded as a 3D model. INTERNAL ONLY. NOT INCLUDED IN THE MARKETPLACE RELEASE |
| **wrl** | Loaded as a 3D model |
| **assimpjson** | Loaded as a 3D model |
| **ol** | Loaded as a 3D model. INTERNAL ONLY. NOT INCLUDED IN THE MARKETPLACE RELEASE |
| **sea** | Loaded as a 3D scene. Also includes animations |
| **PVT** | Loaded as a 3D model. INTERNAL ONLY. NOT INCLUDED IN THE MARKETPLACE RELEASE |

## 

## Configuration

The widget offers the following properties that can be changed:

* **ModelUrl:** the URL where the 3D data can be found.
* **ModelType:** the type of the model to load. If set on the default, “Auto-Detect”, the ModelURL must contain the file name and the extension that you are trying to load. This extension is used to determine what kind of file it is. For example, a link like <http://example.com/avatar.dae> is explicit that this is a Collada file. If the ModelType is set, then only files of that type can be loaded.
* **DrawAxisHelpers:** Draw Axis Helpers to visualize the the 3 axes in a simple way. The X axis is red. The Y axis is green. The Z axis is blue
* **DrawGridHelpers:** Draw Grid Helpers on the ground
* **ResetSceneOnModelChange:** Reset the scene whenever the model changes (delete the old models)
* **AddLightsToSceneFiles:** For the files loaded as scene files, add the default lights
* **BackgroundStyle:** The background of the widget. Opacity is supported

## Usage

A general use-case for this widgets is when you want to display 3D models coming from a URL inside a ThingWorx mashup. This widget allows to bind the URL to the **ModelUrl** property and view the model at runtime. If the **ModelUrl** property changes, then the new model is loaded in.

At runtime, the user can also interact with the model by controlling the camera. It has set of controls performs orbiting, dollying (zooming), and panning.

The following commands are available:

* Orbit - left mouse / touch: one finger move
* Zoom - middle mouse, or mousewheel / touch: two finger spread or squish
* Pan - right mouse, or arrow keys / touch: three finter swipe

The widget is also compatible with mobile devices.

# Compatibility

This extension was tested for compatibility with the following ThingWorx Platform version(s) and Operating System(s):

|  |  |
| --- | --- |
| ThingWorx Platform Version | ThingWorx 7.1.0 |
| OS | Windows 7, Service Pack 1, IOS 10, Android 5, OSX 10.12 |