

Introduction to ThingWorx 6.0

Overview

Course Code TRN-4490-T

Course Length 5 Days

This course is applicable to ThingWorx 5.0 and higher. All features taught in this course apply to ThingWorx 5.0 with the exception of:

- Value Stream functionality, which is applicable to ThingWorx 5.1 and higher.
- Dashboard functionality, which is applicable to ThingWorx 5.2 and higher.
- Persistence provider extensions, which is applicable to ThingWorx 6.0 and higher.
- Restrictions on using ?method=post in REST API calls, which is applicable to ThingWorx 6.0 and higher.

In this course, you will learn how to use ThingWorx to model applications that communicate with smart, connected things. You will model your solution using things, thing shapes, and thing templates. Then, you will combine those elements into mashups (Web pages). You will add functionality to your things using properties, services, events, and subscriptions to automate tasks and communicate with external data sources. You will store information in data tables, streams, and files, as well as gain experience using data shapes. You will also learn about security and how to apply it to your model. Lastly, you will receive a brief overview of how to create a user dashboard.



Course Objectives

- Use ThingWorx as a development platform
- Create thing shapes, thing templates, and things
- Use properties, services, events, and subscriptions
- Understand the different methods for acquiring external data
- Use data shapes, data tables, and streams
- Create mashups using widgets, services, and events
- Understand and apply security features
- Create a user dashboard

Prerequisites

- Knowledge of scripting technologies (preferably JavaScript) is essential
- Basic knowledge of object-oriented programming concepts such as inheritance, services, properties, and events is essential
- Basic knowledge of installing and configuring Apache Tomcat Web server is recommended
- Basic understanding of model-based development is recommended

Audience

- This course is intended for business development professionals, subject matter experts and developers, and model/content and UI/UX developers. People in related roles will also benefit from taking this course.
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Agenda

Day 1

Module	1	Installing the ThingWorx Composer
Module	2	Introduction to the ThingWorx Composer
Module	3	User Login
Module	4	ThingWorx Import and Export Utilities
Module	5	Adding Extensions to Enhance ThingWorx Functionality
Module	6	Creating Model Tags
Module	7	Characteristics of Things
Module	8	Thing Shapes and Properties
Module	9	Thing Templates
Module	10	Creating Things
Module	11	ThingWorx REST API

Day 2

Module	12	Collaborating with Blogs and Wikis
Module	13	Services
Module	14	Consuming External Information Sources
Module	15	Data Shapes
Module	16	Infotable Overview
Module	17	Creating SQL Queries and SQL Commands
Module	18	Property Bindings and Property Values
Module	19	Alerts
Module	20	Predefined Thing Templates

Day 3

Module	21	Streams
Module	22	Predefined Timer Things
Module	23	Creating Data Tags
Module	24	Logging Data in Streams
Module	25	Value Streams
Module	26	Data Tables

Module	27	Info Table Manipulation
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Day 4

Module	28	Events and Subscriptions
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Module	29	Networks
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Module	30	Connection and Binding Techniques
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Module	31	File Repositories and File Transfer
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Module	32	Mashups
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Module	33	Menus
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Module	34	Masters
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Module	35	Media
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Module	36	Style Definitions
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Module	37	State Definitions
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Day 5

Module	38	Monitoring
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Module	39	Localization
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Module	40	Users
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Module	41	User Groups
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Module	42	Application Keys
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Module	43	Organizations
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Module	44	Directory Services
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Module	45	Setting Security
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Module	46	Organizations and Setting Visibility
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Module	47	Dashboards
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Course Content

Module 1. Installing the ThingWorx Composer

- i. Overview of ThingWorx Composer Installation
- ii. Installing Java
- iii. Installing the Java Application Server
- iv. Configuring Tomcat
- v. Deploying ThingWorx

Knowledge Check Questions

Module 2. Introduction to the ThingWorx Composer

- i. Spotlight Search
- ii. ThingWorx Explorer
- iii. Documentation and Change Tracking

Knowledge Check Questions

Module 3. User Login

- i. Creating ThingWorx-Compatible Names
- ii. Creating a User Login
- iii. Adding Users to Groups
- iv. Multi-User Experience in Composer

Knowledge Check Questions

Module 4. ThingWorx Import and Export Utilities

- i. Import/Export
- ii. Export to ThingworxStorage
- iii. Import from ThingworxStorage
- iv. Export to File
- v. Import from File

Knowledge Check Questions

Module 5. Adding Extensions to Enhance ThingWorx Functionality

- i. Extensions Overview
- ii. Acquiring Extensions
- iii. Acquiring Extensions from the ThingWorx Community Site
- iv. Acquiring Extensions from the ThingWorx Marketplace
- v. Importing an Extension
- vi. Managing Extensions

Knowledge Check Questions

Module 6. Creating Model Tags

- i. Model Tags Overview
- ii. Creating a Model Tag

Knowledge Check Questions

Module 7. Characteristics of Things

- i. Characteristics of Things

Knowledge Check Questions

Module 8. Thing Shapes and Properties

- i. Thing Shapes Overview
- ii. Creating a Thing Shape
- iii. Structure of a Thing Shape
- iv. Creating a Property
- v. Structure of a Property

Knowledge Check Questions

Module 9. Thing Templates

- i. Creating a Thing Template
- ii. Extending a Thing Template
- iii. Inherited Information in a Thing Template

Knowledge Check Questions

Module 10. Creating Things

- i. Creating Things

Knowledge Check Questions

Module 11. ThingWorx REST API

- i. ThingWorx REST API Overview
- ii. REST API Method and Headers
- iii. REST API Root
- iv. REST API Entity Options
- v. REST API Advantages

Knowledge Check Questions

Module 12. Collaborating with Blogs and Wikis

- i. Blog Overview
- ii. Wiki Overview
- iii. Creating a Blog and Wiki
- iv. Using a Blog and Wiki

Knowledge Check Questions

Module 13. Services

- i. Creating a Service
- ii. Defining Input and Output Parameters
- iii. Using Snippets
- iv. Using Information from Other Entities
- v. Testing a Service

Knowledge Check Questions

Module 14. Consuming External Information Sources

- i. Consuming External Information Sources

Knowledge Check Questions

Module 15. Data Shapes

- i. Uses of a Data Shape
- ii. Creating a Data Shape
- iii. Characteristics of a Data Shape
- iv. Creating Field Definitions

Knowledge Check Questions

Module 16. Infotable Overview

- i. Creating Services with Infotable Output
- ii. Creating an Infotable in a Service
- iii. Adding Rows to an Infotable in a Service

Knowledge Check Questions

Module 17. Creating SQL Queries and SQL Commands

- i. SQL Queries and SQL Commands
- ii. Database Thing Template Extensions

Knowledge Check Questions

Module 18. Property Bindings and Property Values

- i. Property Bindings
- ii. Property Values

Knowledge Check Questions

Module 19. Alerts

- i. Alerts Overview
- ii. Creating an Alert
- iii. Alert Summary and Alert History
- iv. Monitoring Alerts

Knowledge Check Questions

Module 20. Predefined Thing Templates

- i. Extending a Predefined Thing Template
- ii. Using a Predefined Template in a Model
- iii. Configuring an Entity

Knowledge Check Questions

Module 21. Streams

- i. Creating a Stream
- ii. Persistence Provider Extensions

Knowledge Check Questions

Module 22. Predefined Timer Things

- i. Creating a Timer Thing

Knowledge Check Questions

Module 23. Creating Data Tags

- i. Data Tags Overview
- ii. Creating a Data Tag Vocabulary
- iii. Adding Terms to a Vocabulary

Knowledge Check Questions

Module 24. Logging Data in Streams

- i. Populating a Stream
- ii. Recording Information in a Stream

Knowledge Check Questions

Module 25. Value Streams

- i. About ThingWorx Value Streams
- ii. Creating a Value Stream
- iii. Defining a Value Stream
- iv. Linking a Value Stream to a Thing Template or Thing
- v. Defining Logged Properties
- vi. Using A Value Stream in a Mashup

Knowledge Check Questions

Module 26. Data Tables

- i. About ThingWorx Data Tables
- ii. Creating a Data Table

Knowledge Check Questions

Module 27. Info Table Manipulation

- i. Manipulating ThingWorx Info Tables Overview
- ii. Creating Info Tables

Knowledge Check Questions

Module 28. Events and Subscriptions

- i. Setting Up a Built-In Event
- ii. Creating a Custom Event
- iii. Subscriptions

Knowledge Check Questions

Module 29. Networks

- i. ThingWorx Networks
- ii. Creating a Network

Knowledge Check Questions

Module 30. Connection and Binding Techniques

- i. Bindings
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- ii. Bindings Example
- iii. Binding Techniques
- iv. Binding Remote Things

Knowledge Check Questions

Module 31. File Repositories and File Transfer

- i. Creating a Repository
- ii. Uploading Files from a Mashup
- iii. Connecting to a Remote Repository

Knowledge Check Questions

Module 32. Mashups

- i. ThingWorx Mashups
- ii. Mashup Types, Layouts, and Parameters

Knowledge Check Questions

Module 33. Menus

- i. About ThingWorx Menus
- ii. Creating a Menu
- iii. Defining a Menu
- iv. Adding a Menu to a Mashup

Knowledge Check Questions

Module 34. Masters

- i. Creating a Master Mashup
- ii. Assigning a Master to a Mashup

Knowledge Check Questions

Module 35. Media

- i. About ThingWorx Media Entities
- ii. Creating a Media Entity

Knowledge Check Questions

Module 36. Style Definitions

- i. Creating a Style Definition
- ii. Assigning a Style to Mashup Widgets

Knowledge Check Questions

Module 37. State Definitions

- i. Types of State Definitions
- ii. Creating a State Definition
- iii. Characteristics of a State Definition
- iv. Editing State Definitions
- v. Applying State Definitions to Widgets

Knowledge Check Questions

Module 38. Monitoring

- i. ThingWorx Monitoring
- ii. ThingWorx Monitoring Subsystems

Knowledge Check Questions

Module 39. Localization

- i. About Localization
- ii. Creating a Localization Table
- iii. Defining a Localization Table
- iv. Creating a New Token
- v. Associating a User to a Location

Knowledge Check Questions

Module 40. Users

- i. Creating a User
- ii. User Extensions
- iii. Customizing Users

Knowledge Check Questions

Module 41. User Groups

- i. Creating a User Group
- ii. Editing User Group Membership

Knowledge Check Questions

Module 42. Application Keys

- i. ThingWorx Application Keys
- ii. Create an Application Key

Knowledge Check Questions

Module 43. Organizations

- i. About ThingWorx Organizations
- ii. The Organization Log on Page
- iii. Creating an Organization
- iv. Creating Organization Sub-Units

Knowledge Check Questions

Module 44. Directory Services

- i. Creating a Directory Service
- ii. Configuring a Directory Service

Knowledge Check Questions

Module 45. Setting Security

- i. Set Design Time Permissions
 - ii. Set Run Time Permissions
 - iii. Set Instance Permissions
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- iv. The System User

Knowledge Check Questions

Module 46. Organizations and Setting Visibility

- i. ThingWorx Organizations and Setting Visibility

Knowledge Check Questions

Module 47. Dashboards

- i. Dashboard Definition
- ii. Gadgets
- iii. Groups of Dashboard Components
- iv. Gadget Library Mashups
- v. Configuring Dashboards
- vi. Creating Dashboards Overview
- vii. Creating Dashboards
- viii. Creating the Dashboard Viewer Mashup for Dashboards
- ix. Creating the Gadget Library for Dashboards
- x. Linking Dashboard Mashups
- xi. Configuring the Initial Dashboard
- xii. Creating Gadgets
- xiii. Gadget Sizing
- xiv. Configuring Gadgets
- xv. Sharing Dashboards
- xvi. Selecting Users for Dashboard Sharing
- xvii. Dashboard Visibility

Knowledge Check Questions
