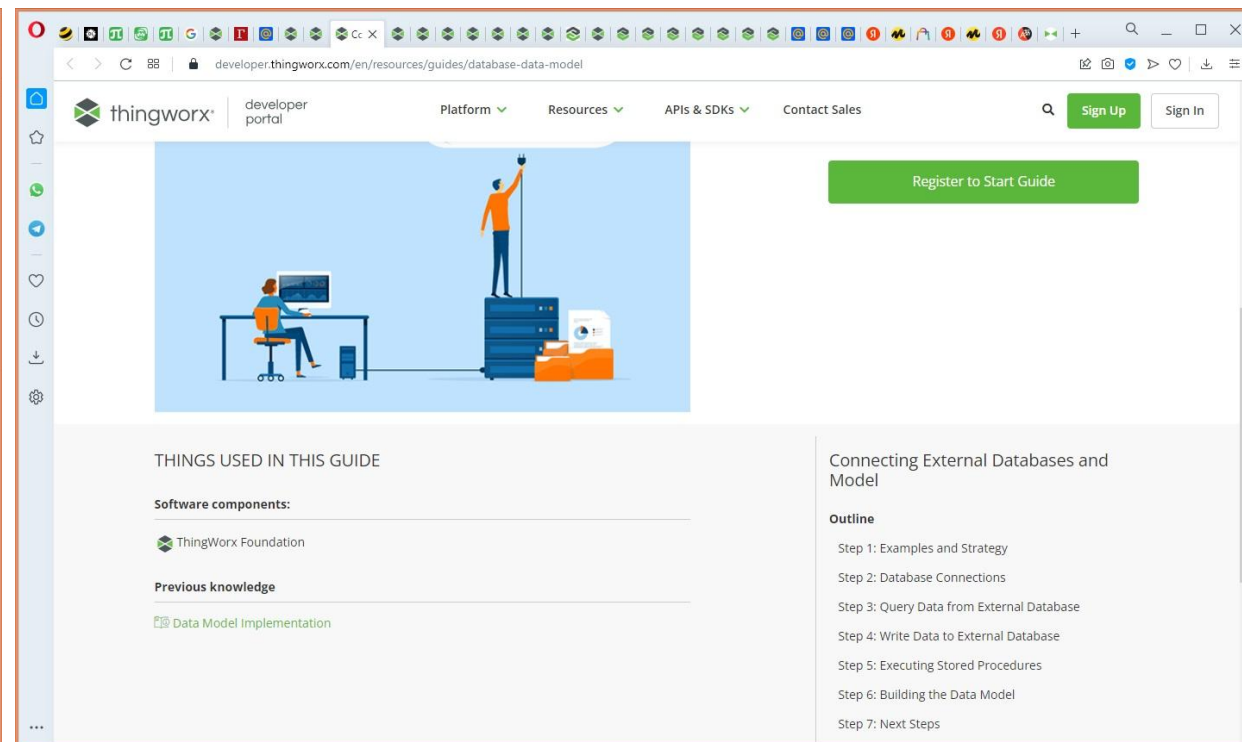
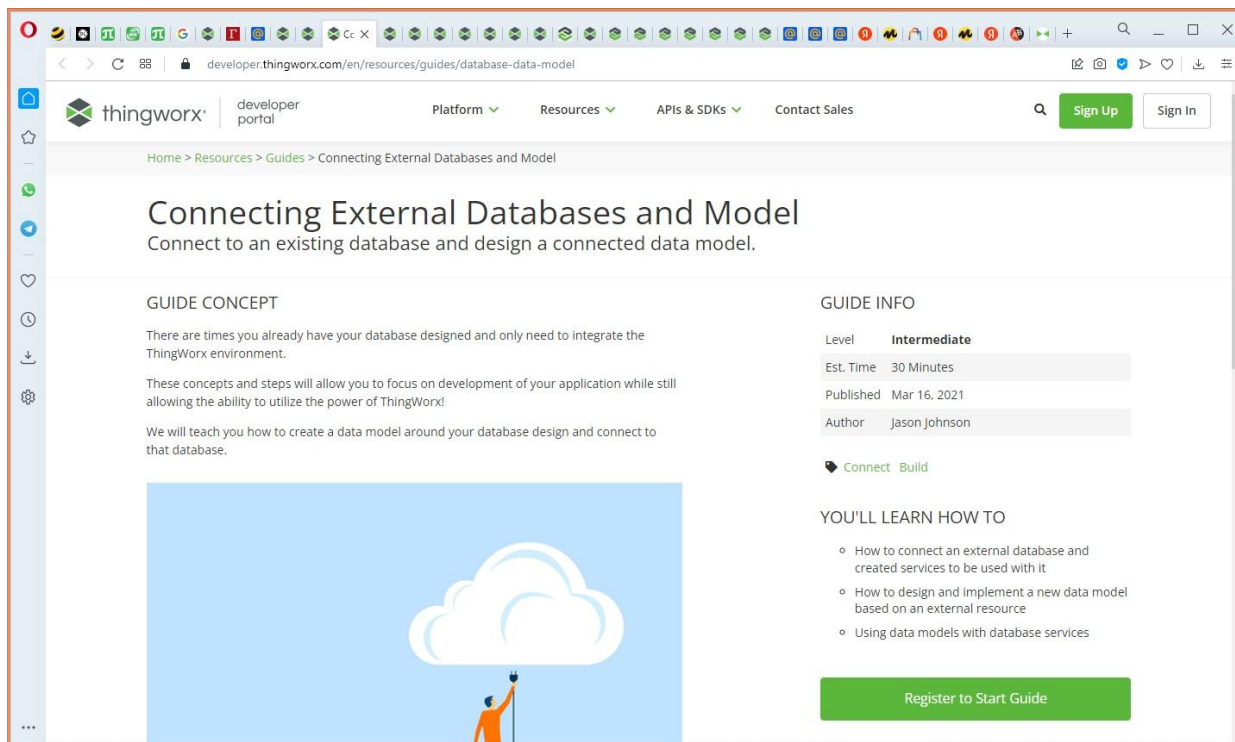


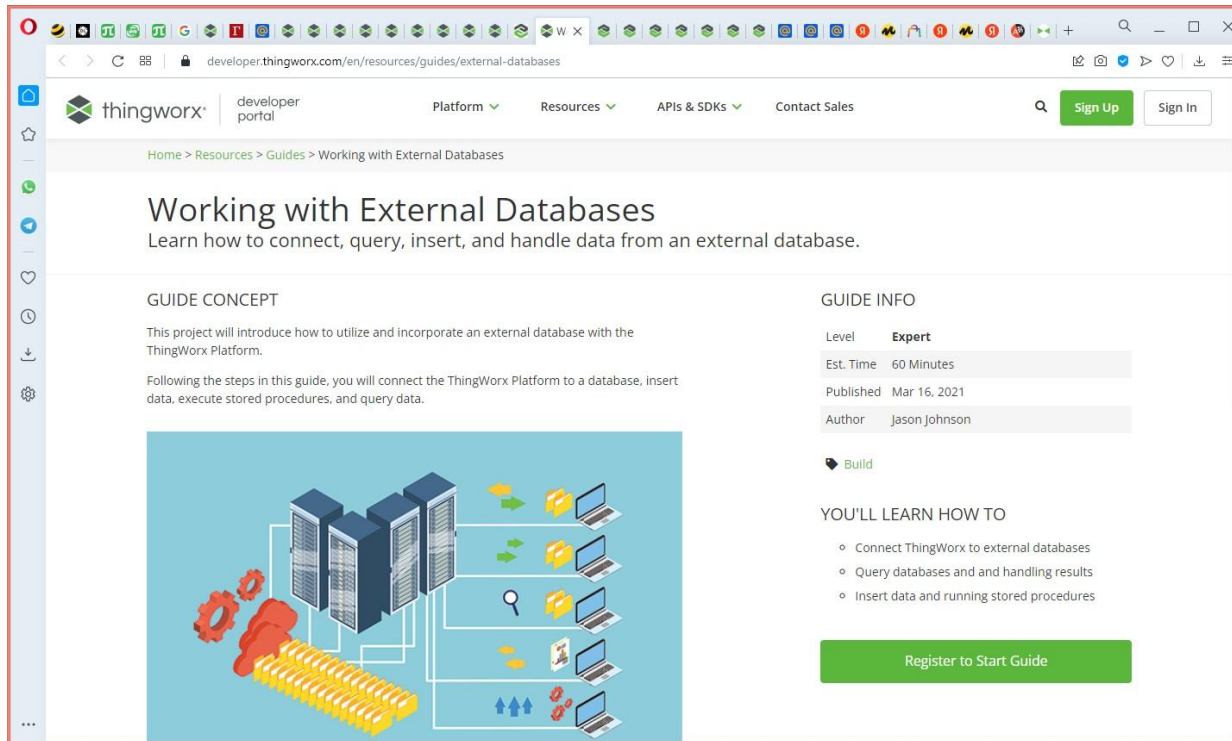


Параметризация моделей.

(Оцифровка и формирование Баз Данных
в среде Thingworx)



Подключение к внешним базам данных и моделям:
<https://developer.thingworx.com/en/resources/guides/database-data-model>



developer.thingworx.com/en/resources/guides/external-databases

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Home > Resources > Guides > Working with External Databases


Working with External Databases

Learn how to connect, query, insert, and handle data from an external database.

GUIDE CONCEPT

This project will introduce how to utilize and incorporate an external database with the ThingWorx Platform.

Following the steps in this guide, you will connect the ThingWorx Platform to a database, insert data, execute stored procedures, and query data.



GUIDE INFO

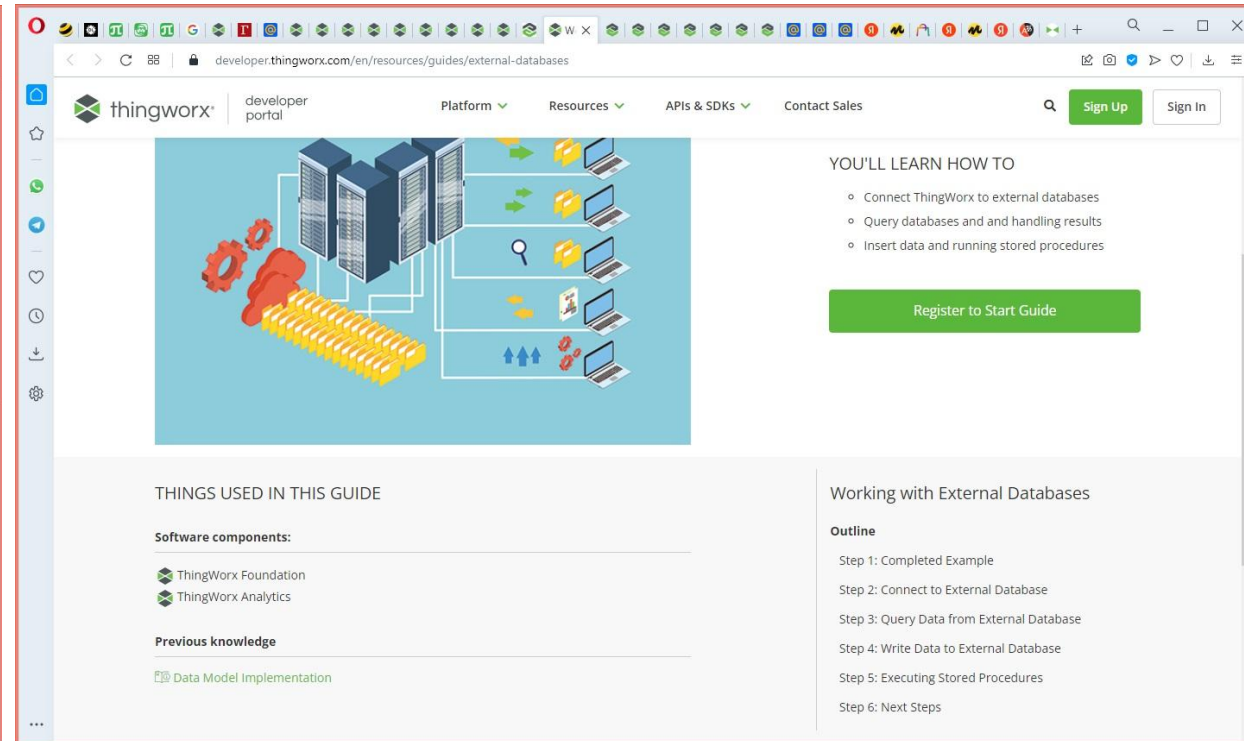
Level	Expert
Est. Time	60 Minutes
Published	Mar 16, 2021
Author	Jason Johnson

Build

YOU'LL LEARN HOW TO


- Connect ThingWorx to external databases
- Query databases and handling results
- Insert data and running stored procedures

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YOU'LL LEARN HOW TO

- Connect ThingWorx to external databases
- Query databases and handling results
- Insert data and running stored procedures

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THINGS USED IN THIS GUIDE

Software components:

- ThingWorx Foundation
- ThingWorx Analytics

Previous knowledge

- Data Model Implementation

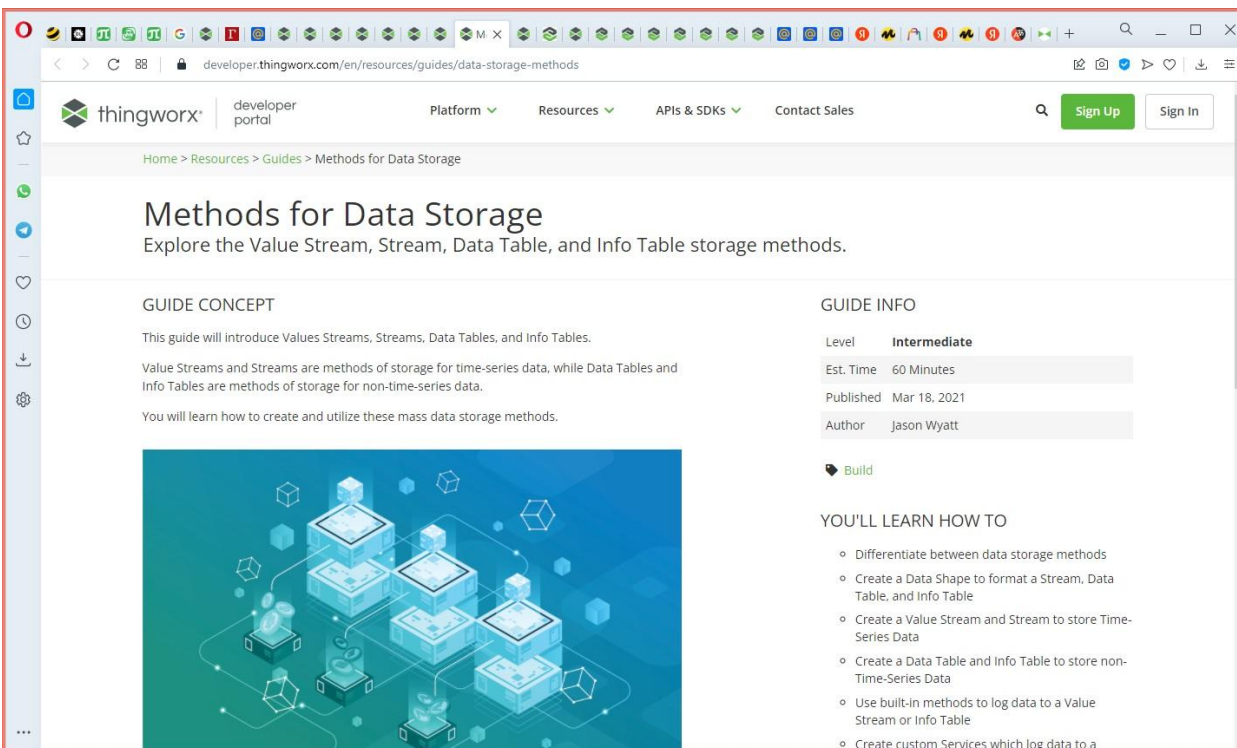
Working with External Databases

Outline

- Step 1: Completed Example
- Step 2: Connect to External Database
- Step 3: Query Data from External Database
- Step 4: Write Data to External Database
- Step 5: Executing Stored Procedures
- Step 6: Next Steps

Работа с внешними базами данных:

<https://developer.thingworx.com/en/resources/guides/external-databases>



developer.thingworx.com/en/resources/guides/data-storage-methods

Home > Resources > Guides > Methods for Data Storage

Methods for Data Storage


Explore the Value Stream, Stream, Data Table, and Info Table storage methods.

GUIDE CONCEPT

This guide will introduce Values Streams, Streams, Data Tables, and Info Tables.

Value Streams and Streams are methods of storage for time-series data, while Data Tables and Info Tables are methods of storage for non-time-series data.

You will learn how to create and utilize these mass data storage methods.



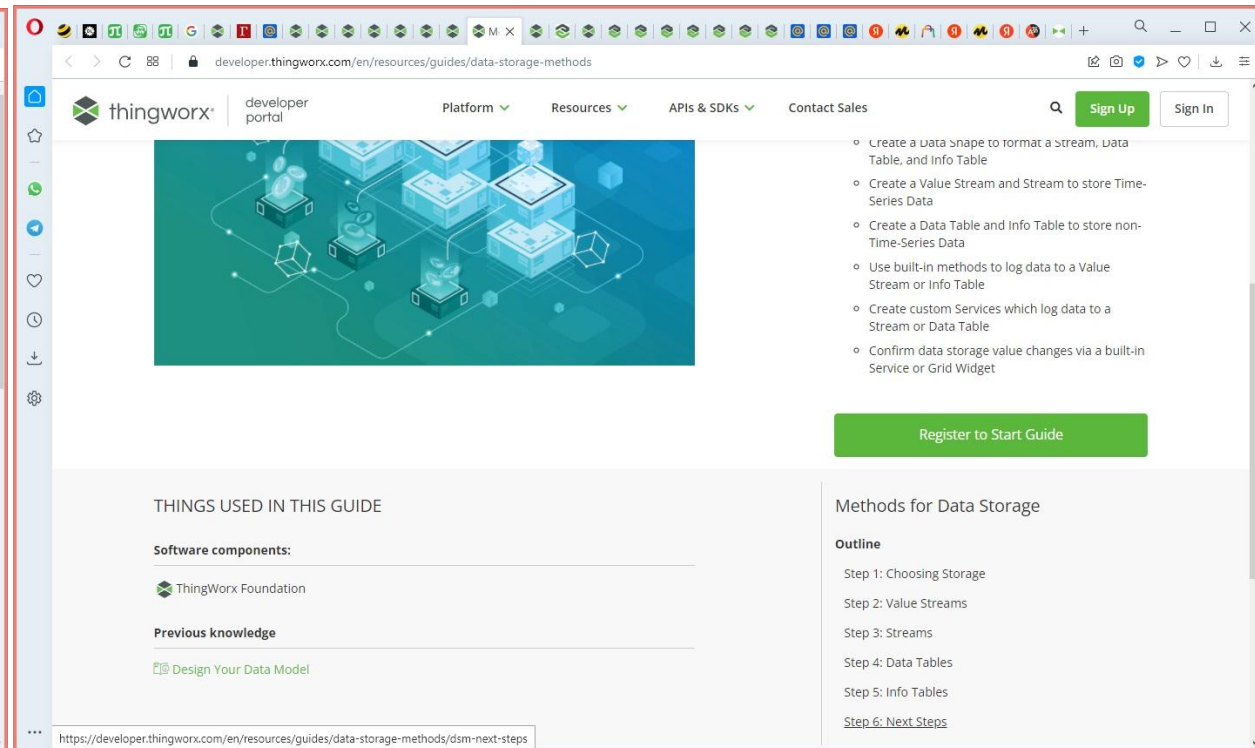
GUIDE INFO

Level	Intermediate
Est. Time	60 Minutes
Published	Mar 18, 2021
Author	Jason Wyatt


Build

YOU'LL LEARN HOW TO

- Differentiate between data storage methods
- Create a Data Shape to format a Stream, Data Table, and Info Table
- Create a Value Stream and Stream to store Time-Series Data
- Create a Data Table and Info Table to store non-Time-Series Data
- Use built-in methods to log data to a Value Stream or Info Table
- Create custom Services which log data to a



developer.thingworx.com/en/resources/guides/data-storage-methods



- Create a Data Shape to format a Stream, Data Table, and Info Table
- Create a Value Stream and Stream to store Time-Series Data
- Create a Data Table and Info Table to store non-Time-Series Data
- Use built-in methods to log data to a Value Stream or Info Table
- Create custom Services which log data to a Stream or Data Table
- Confirm data storage value changes via a built-in Service or Grid Widget

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THINGS USED IN THIS GUIDE

Software components:

- ThingWorx Foundation

Previous knowledge

- Design Your Data Model

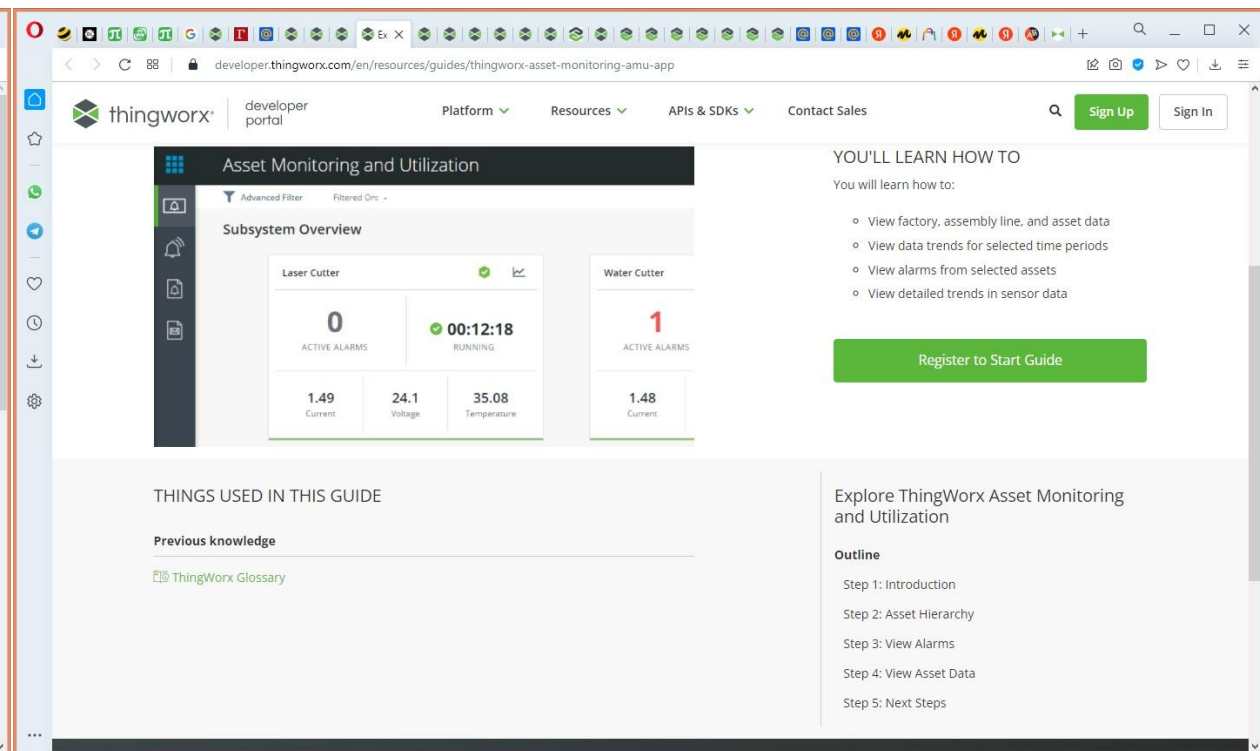
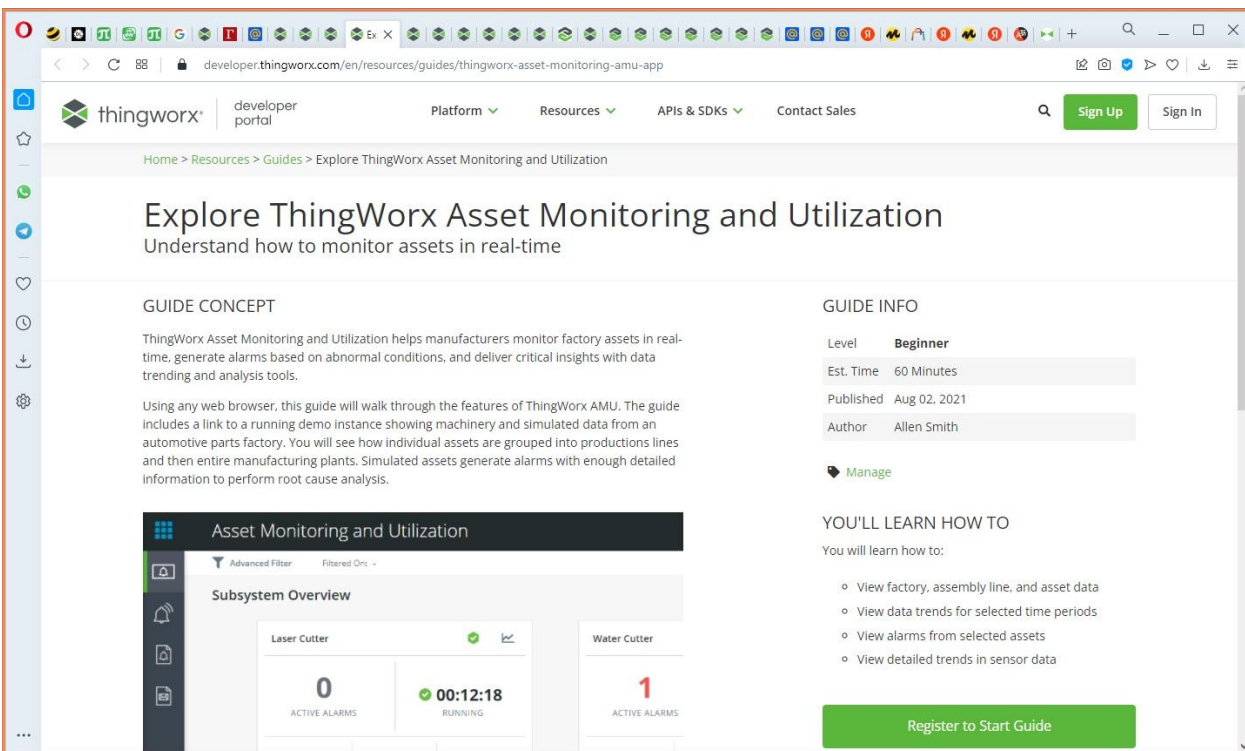
Methods for Data Storage

Outline

- Step 1: Choosing Storage
- Step 2: Value Streams
- Step 3: Streams
- Step 4: Data Tables
- Step 5: Info Tables
- Step 6: Next Steps

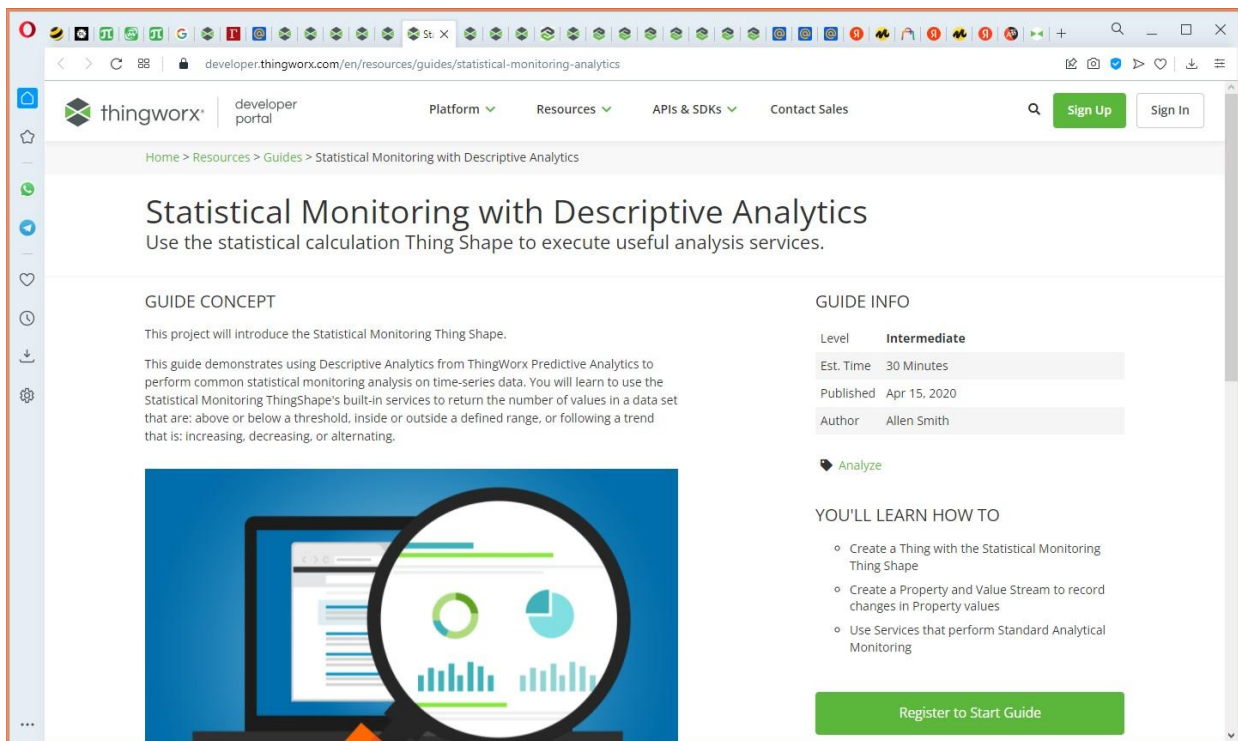
<https://developer.thingworx.com/en/resources/guides/data-storage-methods/dsm-next-steps>

Методы хранения данных:
<https://developer.thingworx.com/en/resources/guides/data-storage-methods>



Получение и визуализация данных о состоянии устройства:

<https://developer.thingworx.com/en/resources/guides/thingworx-asset-monitoring-amu-app>



Statistical Monitoring with Descriptive Analytics
Use the statistical calculation Thing Shape to execute useful analysis services.

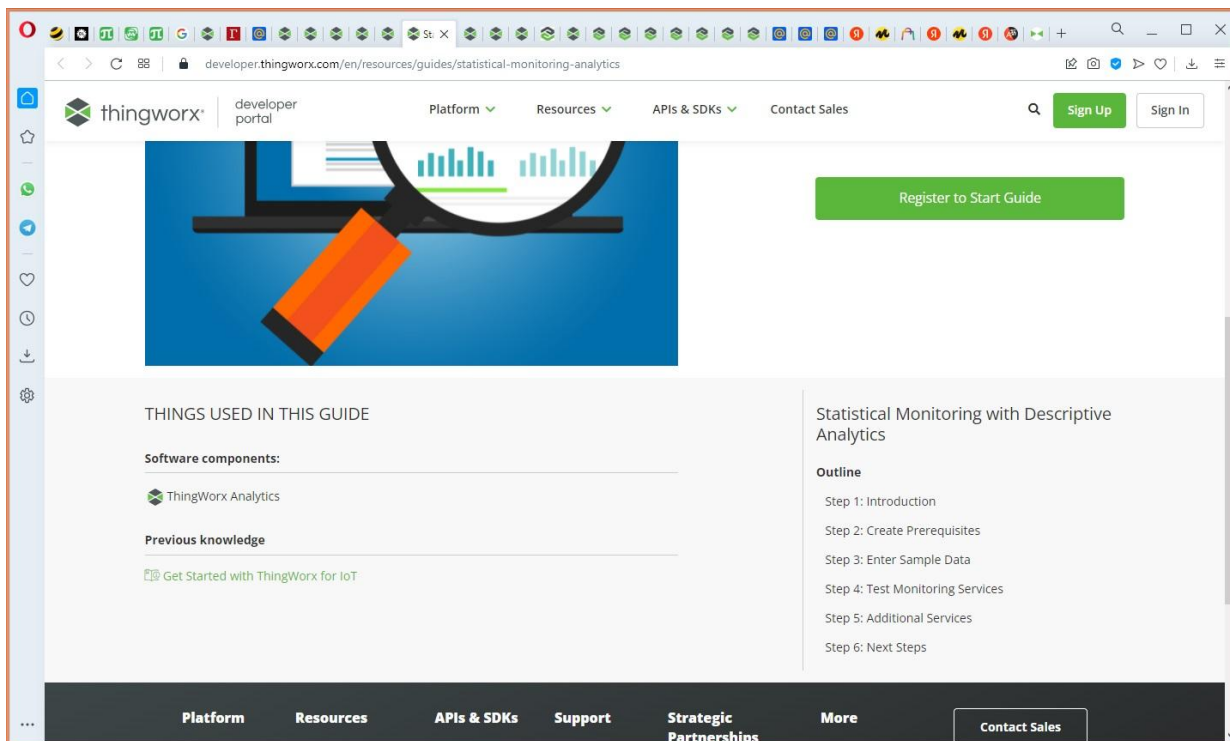
GUIDE CONCEPT
This project will introduce the Statistical Monitoring Thing Shape.
This guide demonstrates using Descriptive Analytics from ThingWorx Predictive Analytics to perform common statistical monitoring analysis on time-series data. You will learn to use the Statistical Monitoring ThingShape's built-in services to return the number of values in a data set that are: above or below a threshold, inside or outside a defined range, or following a trend that is: increasing, decreasing, or alternating.

GUIDE INFO
Level: **Intermediate**
Est. Time: 30 Minutes
Published: Apr 15, 2020
Author: Allen Smith

YOU'LL LEARN HOW TO

- Create a Thing with the Statistical Monitoring Thing Shape
- Create a Property and Value Stream to record changes in Property values
- Use Services that perform Standard Analytical Monitoring

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Statistical Monitoring with Descriptive Analytics

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THINGS USED IN THIS GUIDE

Software components:
ThingWorx Analytics

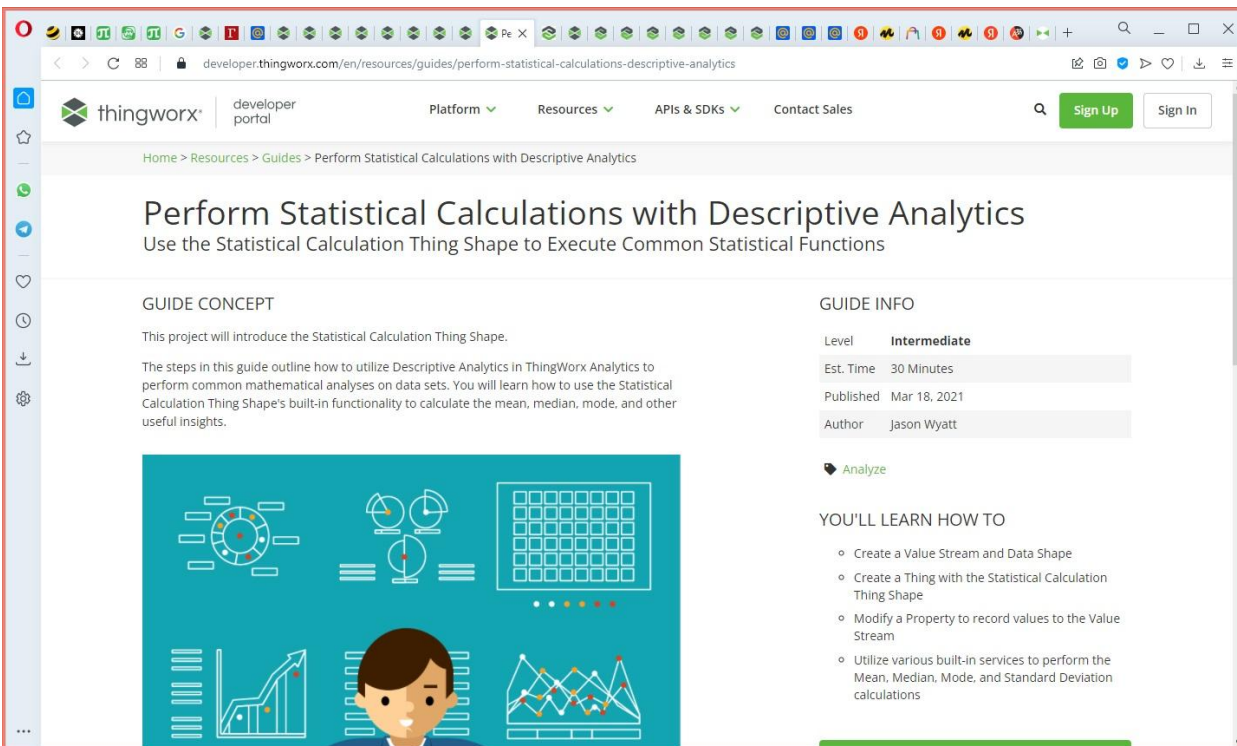
Previous knowledge
[Get Started with ThingWorx for IoT](#)

Statistical Monitoring with Descriptive Analytics

Outline

- Step 1: Introduction
- Step 2: Create Prerequisites
- Step 3: Enter Sample Data
- Step 4: Test Monitoring Services
- Step 5: Additional Services
- Step 6: Next Steps

Статистический мониторинг и предиктивная аналитика:
<https://developer.thingworx.com/en/resources/guides/statistical-monitoring-analytics>



developer.thingworx.com/en/resources/guides/perform-statistical-calculations-descriptive-analytics

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Home > Resources > Guides > Perform Statistical Calculations with Descriptive Analytics


Perform Statistical Calculations with Descriptive Analytics

Use the Statistical Calculation Thing Shape to Execute Common Statistical Functions

GUIDE CONCEPT

This project will introduce the Statistical Calculation Thing Shape.

The steps in this guide outline how to utilize Descriptive Analytics in ThingWorx Analytics to perform common mathematical analyses on data sets. You will learn how to use the Statistical Calculation Thing Shape's built-in functionality to calculate the mean, median, mode, and other useful insights.



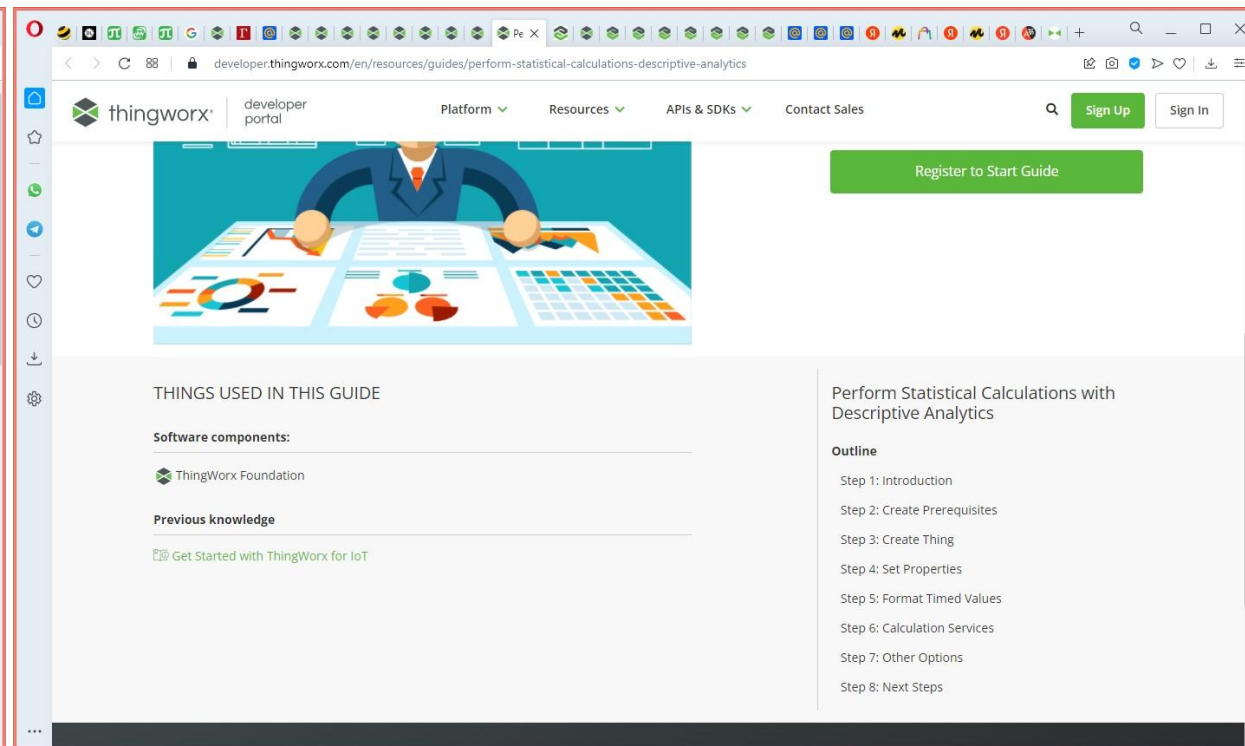
GUIDE INFO

Level	Intermediate
Est. Time	30 Minutes
Published	Mar 18, 2021
Author	Jason Wyatt

Analyze

YOU'LL LEARN HOW TO


- Create a Value Stream and Data Shape
- Create a Thing with the Statistical Calculation Thing Shape
- Modify a Property to record values to the Value Stream
- Utilize various built-in services to perform the Mean, Median, Mode, and Standard Deviation calculations



developer.thingworx.com/en/resources/guides/perform-statistical-calculations-descriptive-analytics

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THINGS USED IN THIS GUIDE

Software components:

- ThingWorx Foundation

Previous knowledge

- Get Started with ThingWorx for IoT

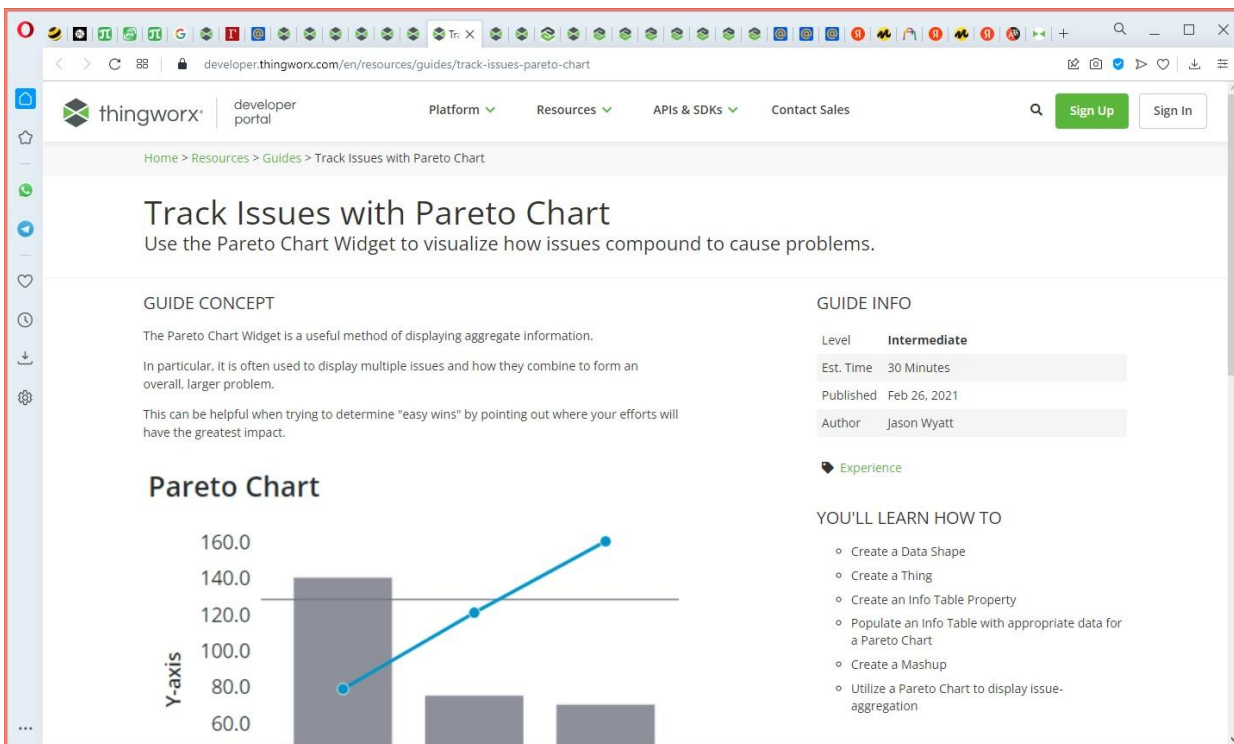
Perform Statistical Calculations with Descriptive Analytics

Outline

- Step 1: Introduction
- Step 2: Create Prerequisites
- Step 3: Create Thing
- Step 4: Set Properties
- Step 5: Format Timed Values
- Step 6: Calculation Services
- Step 7: Other Options
- Step 8: Next Steps

Статистические расчёты и предиктивная аналитика:

<https://developer.thingworx.com/en/resources/guides/perform-statistical-calculations-descriptive-analytics>



Track Issues with Pareto Chart
Use the Pareto Chart Widget to visualize how issues compound to cause problems.

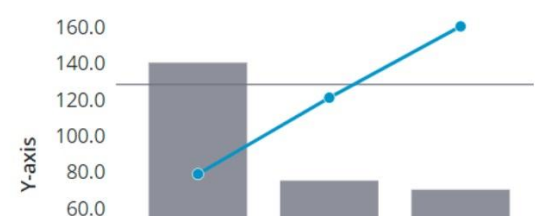
GUIDE CONCEPT
The Pareto Chart Widget is a useful method of displaying aggregate information. In particular, it is often used to display multiple issues and how they combine to form an overall, larger problem. This can be helpful when trying to determine "easy wins" by pointing out where your efforts will have the greatest impact.

GUIDE INFO
Level: **Intermediate**
Est. Time: 30 Minutes
Published: Feb 26, 2021
Author: Jason Wyatt

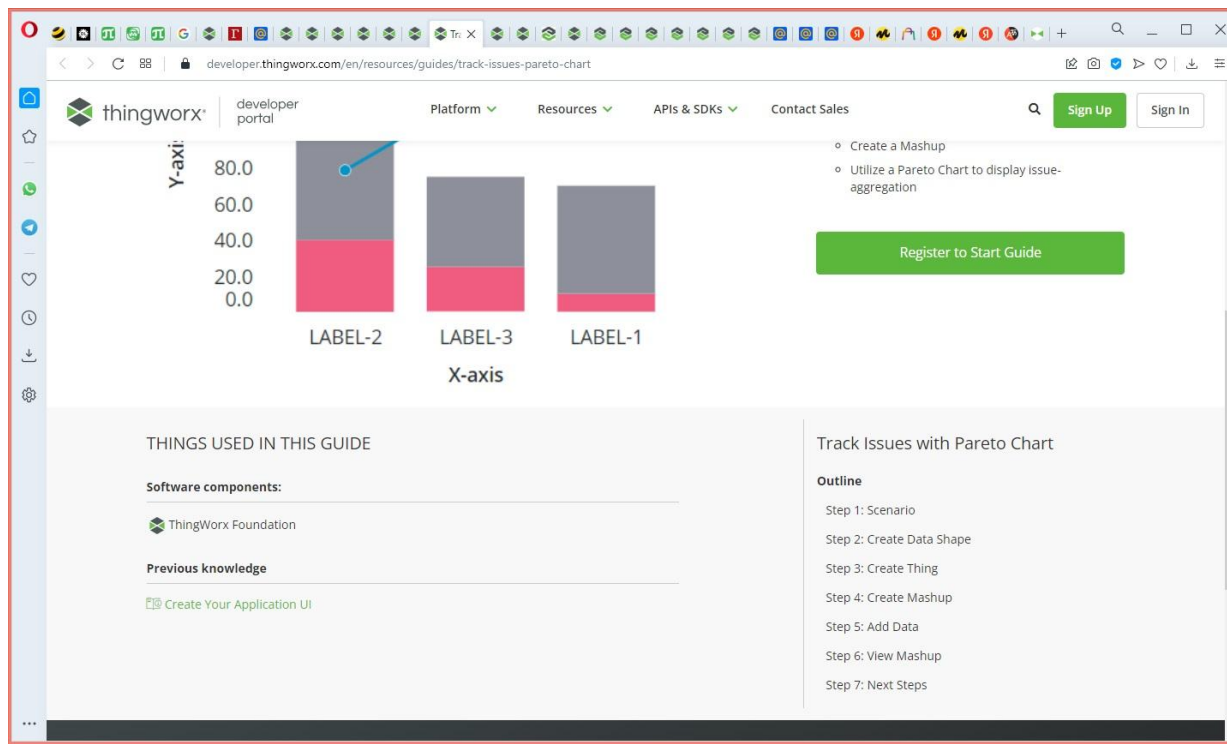
YOU'LL LEARN HOW TO

- Create a Data Shape
- Create a Thing
- Create an Info Table Property
- Populate an Info Table with appropriate data for a Pareto Chart
- Create a Mashup
- Utilize a Pareto Chart to display issue-aggregation

Pareto Chart



Issue	Value
Issue 1	140.0
Issue 2	75.0
Issue 3	70.0



Track Issues with Pareto Chart
Use the Pareto Chart Widget to visualize how issues compound to cause problems.

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THINGS USED IN THIS GUIDE

Software components:

- ThingWorx Foundation


Previous knowledge

- Create Your Application UI

Track Issues with Pareto Chart

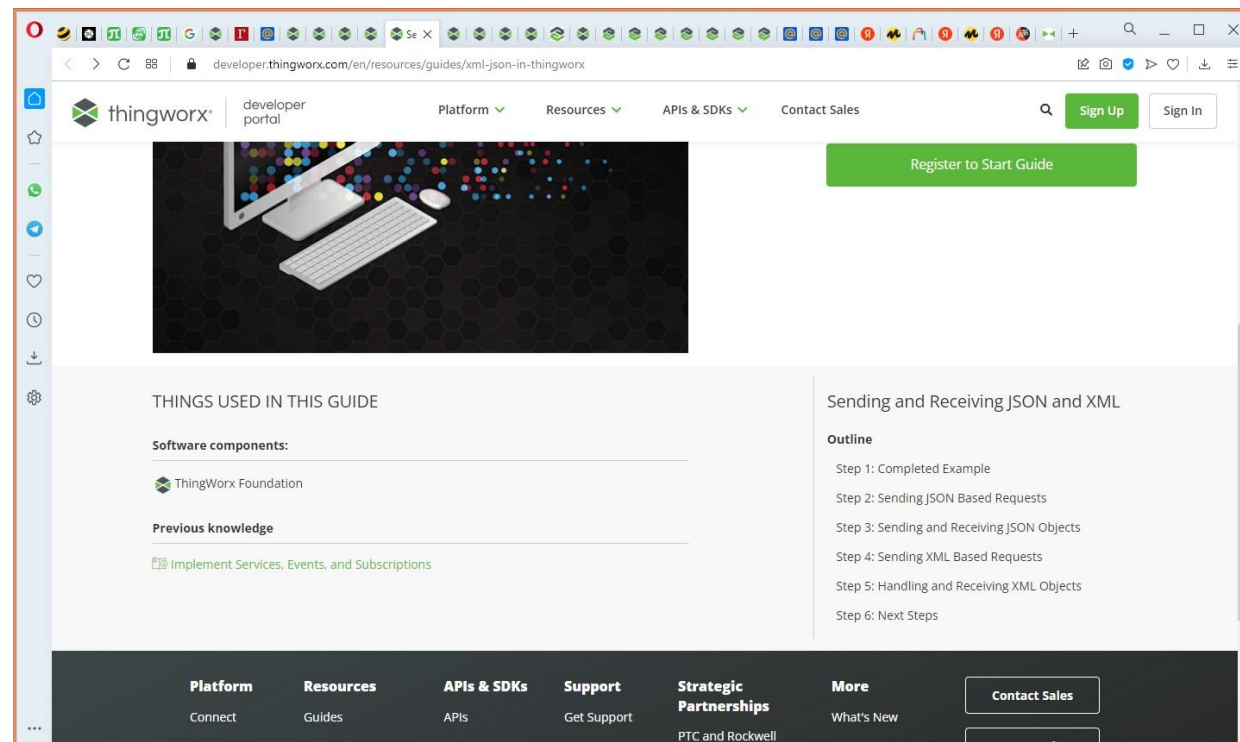
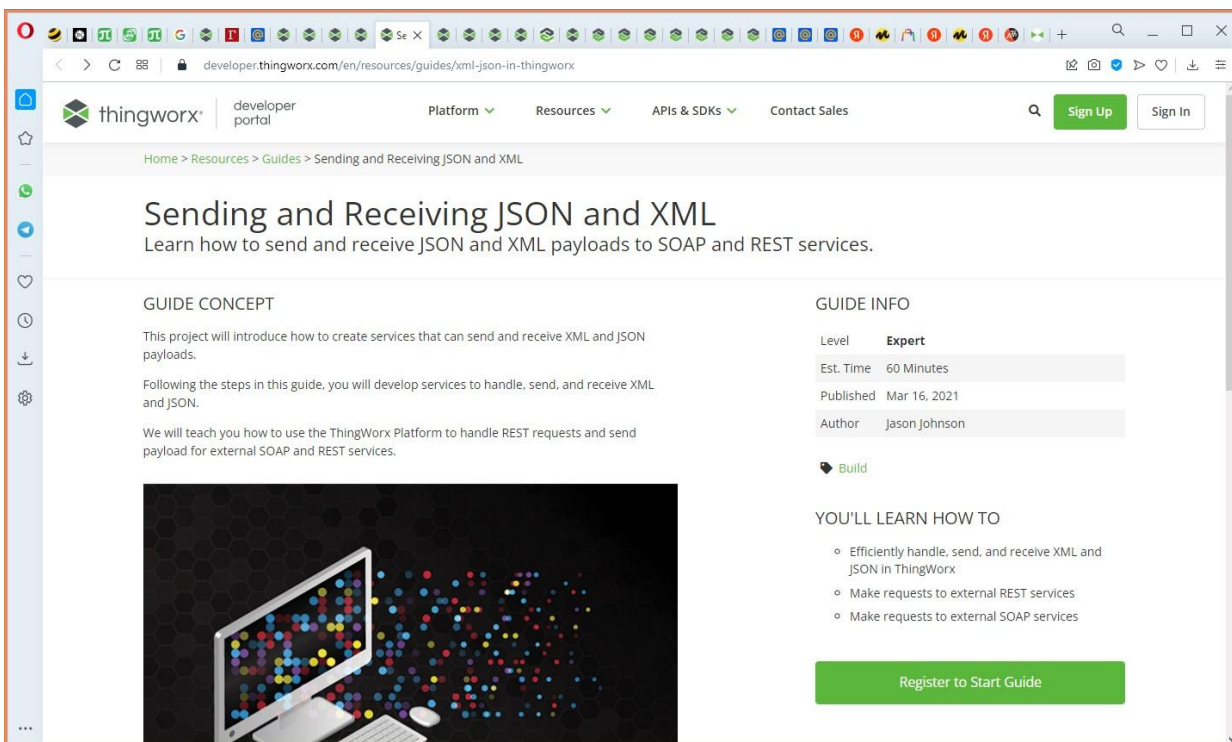
Outline

- Step 1: Scenario
- Step 2: Create Data Shape
- Step 3: Create Thing
- Step 4: Create Mashup
- Step 5: Add Data
- Step 6: View Mashup
- Step 7: Next Steps

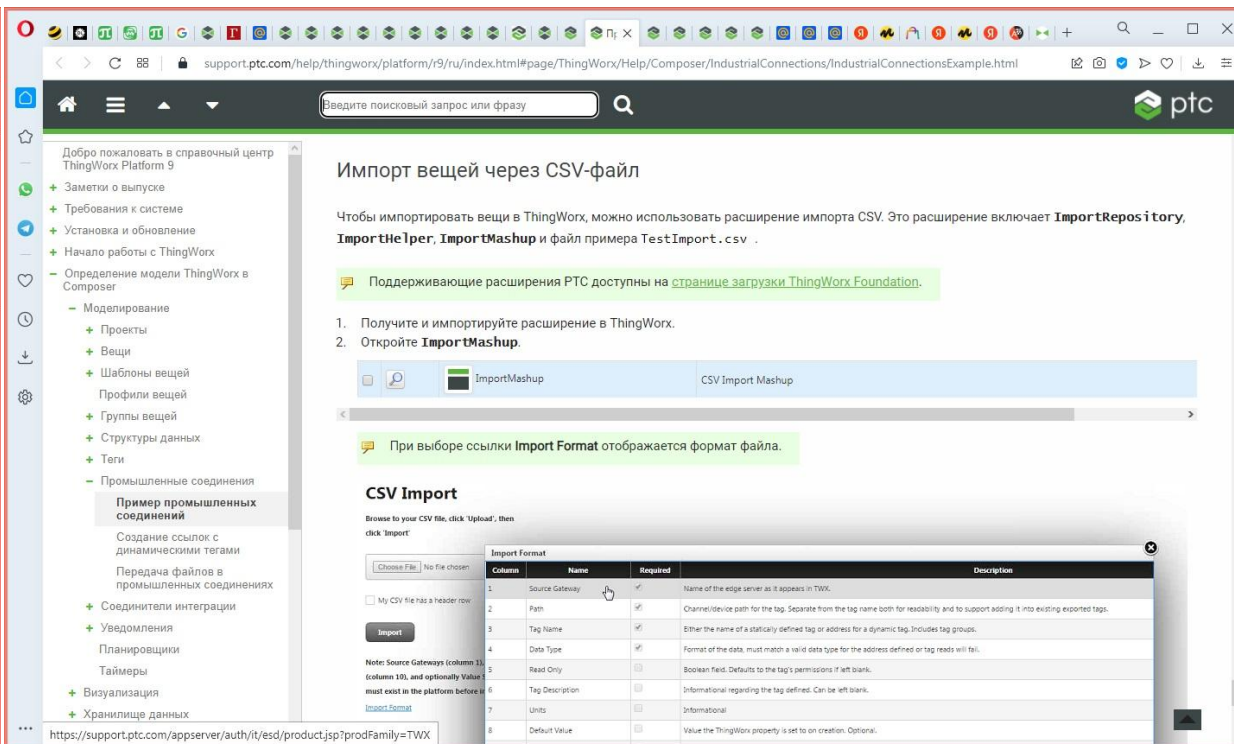
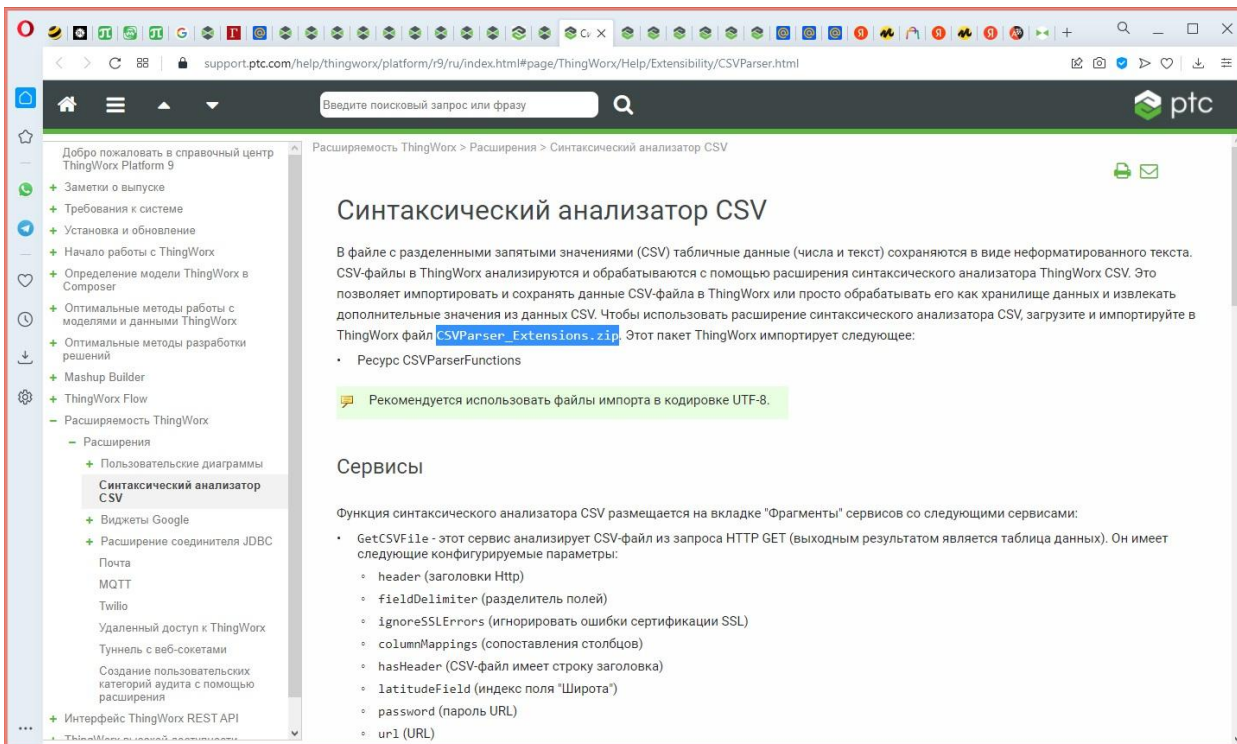


Category	Value
LABEL-2	80.0
LABEL-3	40.0
LABEL-1	20.0

Использование диаграмм Парето:
<https://developer.thingworx.com/en/resources/guides/track-issues-pareto-chart>



Экспорт и импорт данных в форматах **xml** (частично совместим с Excel) и **json**:
<https://developer.thingworx.com/en/resources/guides/xml-json-in-thingworx>



Работа с данными в формате csv (совместим с Excel):

<https://support.ptc.com/help/thingworx/platform/r9/ru/index.html#page/ThingWorx/Help/Extensibility/CSVParser.html>;

<https://support.ptc.com/help/thingworx/platform/r9/ru/index.html#page/ThingWorx/Help/Composer/IndustrialConnections/IndustrialConnectionsExample.html>