

Quick Start Guide Flexy Connector ThingWorx



Flexy Solution Functionality Overview



On-demand Remote Connectivity

Standard Ewon remote access features are available to be used in conjunction with the ThingWorx connector



On-premises Data Monitoring

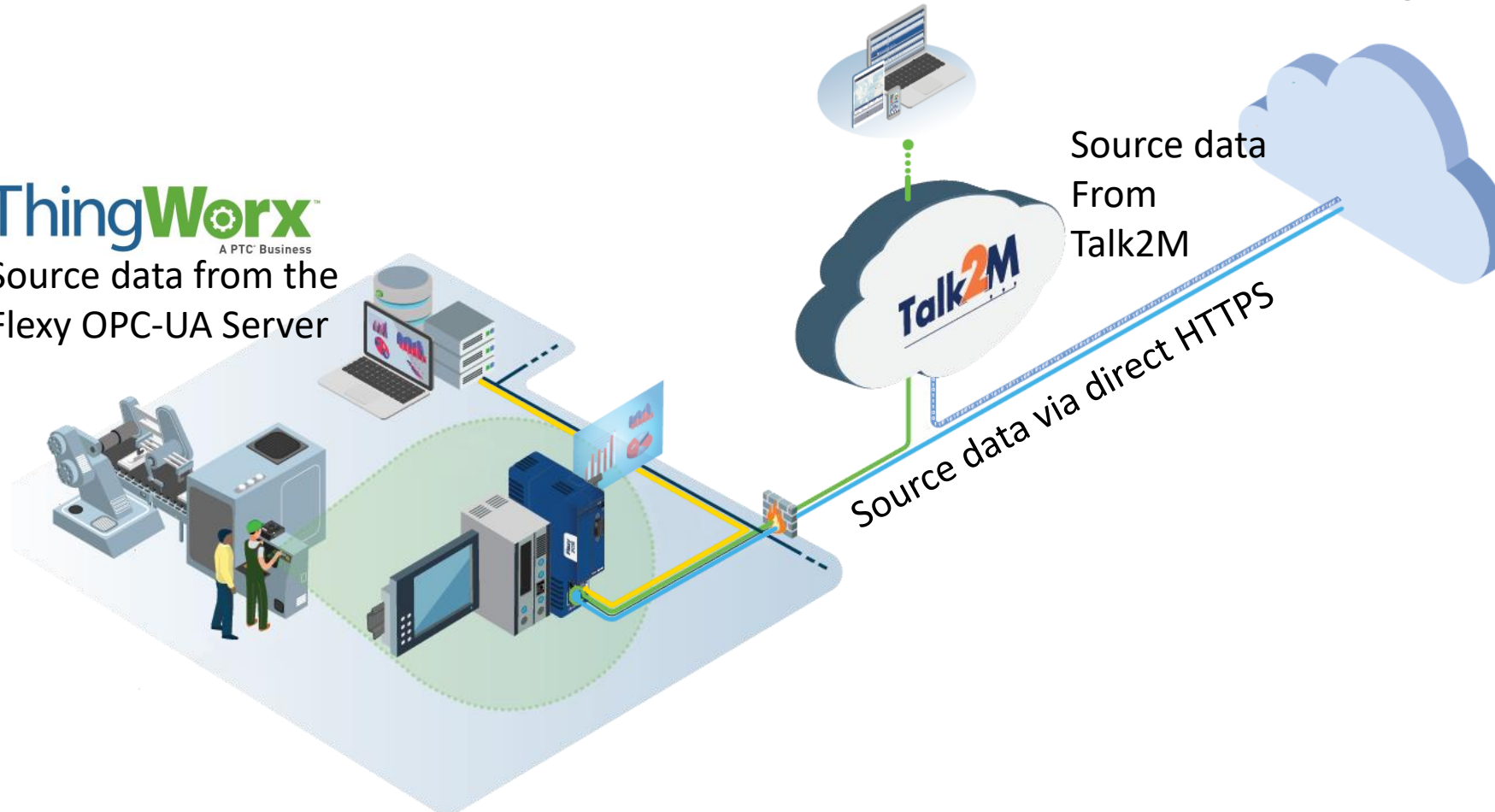
ThingWorx can access Flexy Data on the LAN via OPC-UA



Data Collection for IoT Applications

The Flexy ThingWorx connector support remote data access via the Talk2M Cloud or a direct HTTPS message.

ThingWorx
A PTC Business
Source data from the
Flexy OPC-UA Server



ThingWorx
A PTC Business
Remote Data Access

Connector Data Paths Options

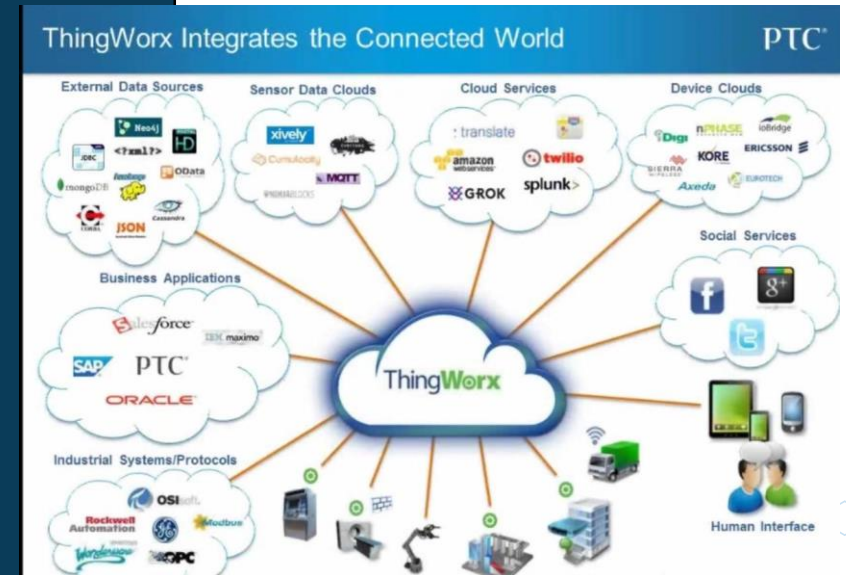
The ThingWorx platform supports a broad set of data communications interfaces.

The Ewon Flexy connector offers multiple data path options from the edge to ThingWorx:

- OPC-UA (Flexy OPC-UA Server)
- Talk2M REST API
- ThingWorx REST API

The Ewon Flexy connector offers a ThingWorx to edge data path option for configuration and control:

- Talk2M REST API



Data Integration via OPC-UA



OPC-UA Is a Standard Feature

Flexy OPC-UA Server

- All Flexy tags can be read or written via this interface
- Multiple systems can access this data simultaneously

Flexy OPC-UA Client

- Flexy can gather data from OPC-UA servers
- Flexy tags can be updated via the OPC-UA Client
- Supports multiple OPC-UA servers

Both OPC-UA services can be encrypted

Recommended data path for on premises installs



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OPC UA

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OPC-UA ready!**

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HMS Connecting Devices™

ThingWorx OPC Applications

OPC Aggregator

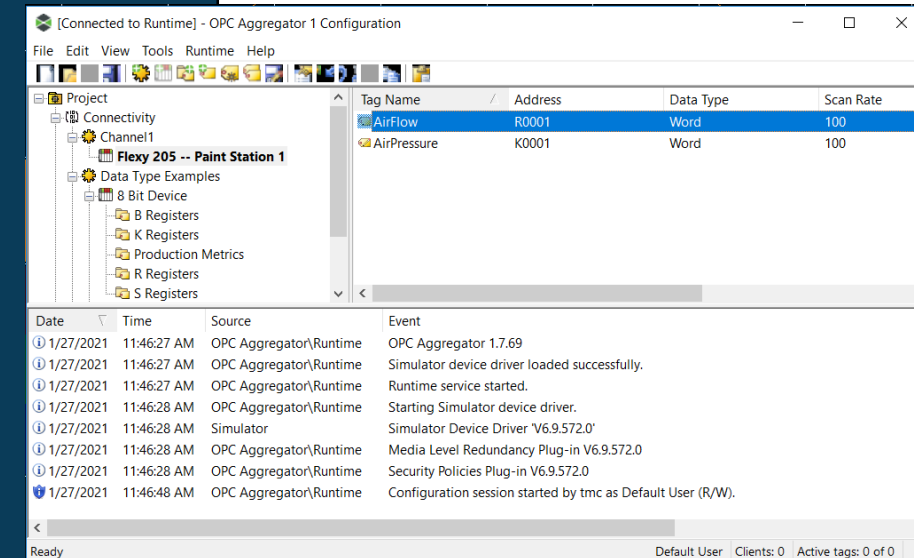
OPC Aggregator

- The OPC Aggregator is a pared-down version of KEPServerEX
- Supports connections to Flexy via LAN
- Supports encrypted communications with Flexy

KepServerEX

- Seamless integration into ThingWorx
- Offers a broad set of protocol conversion options in addition to OPC-UA
- Supports connections to Flexy via LAN
- Supports encrypted communications with Flexy

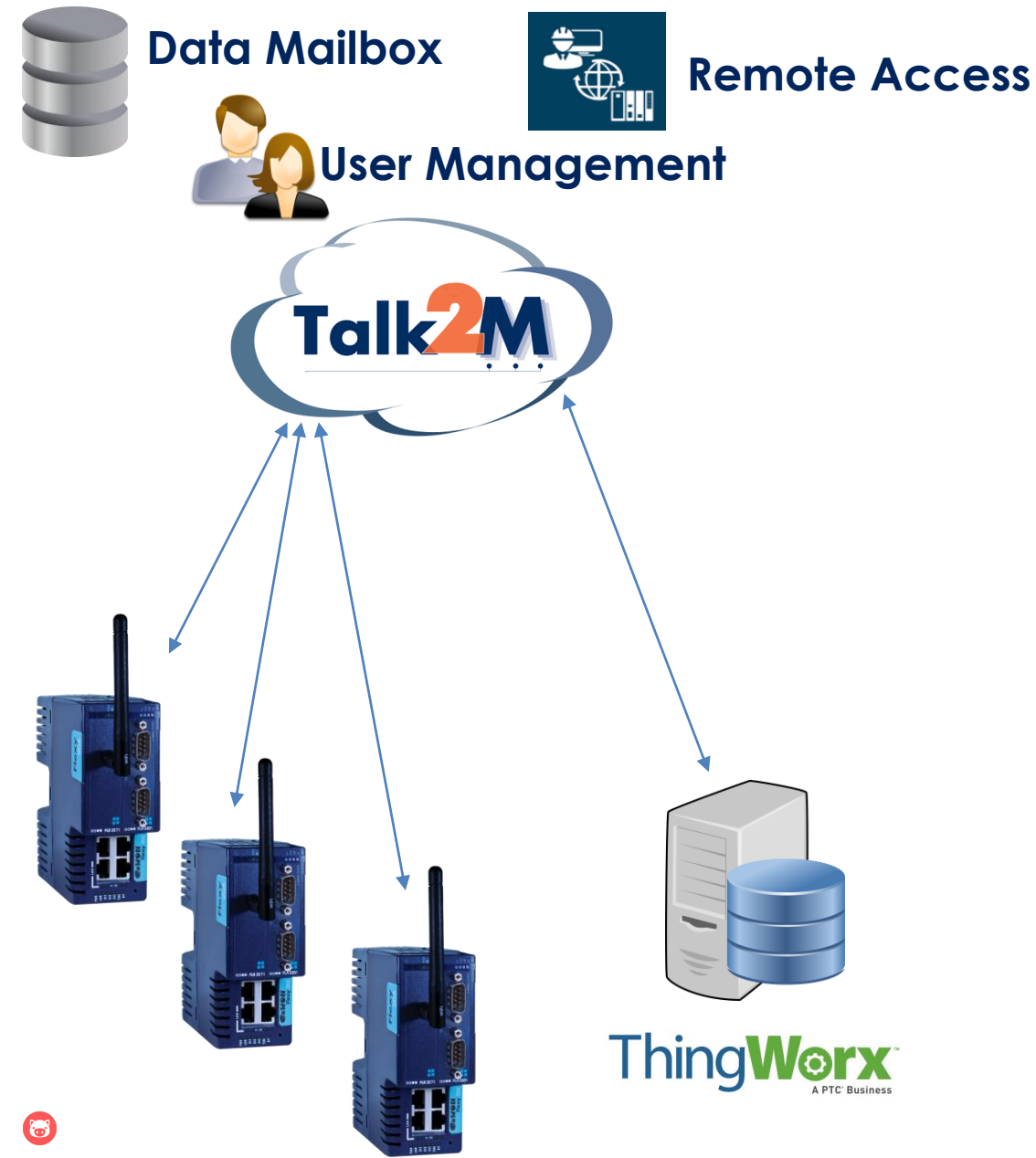
Note: both OPC Aggregator and KepServerEX are standalone Windows applications that bridge OPC enabled devices into ThingWorx



Data Integration via Talk2M



Introduction to Talk2M



What is Talk2M?

- HMS Networks maintained cloud for Ewon products
- Included with any Ewon device purchase
- Firewall friendly system, simplifies deployment process
- A large number of devices can be associated with a single account
- Features
 - Remote access
 - VPN connectivity from any approved user to any approved Flexy
 - User management
 - User activity logs
 - Remote data
 - Easy to use mobile app for KPI status
 - Store and forward buffer for telemetry data (Data Mailbox)
 - Data Mailbox REST API (DM2Web)
 - Real-time REST API (M2Web)
 - Device management

Talk2M RESTful APIs

DMWeb API

- Read only data path
- 10 day historical sample buffer
 - No limit on the number of samples in the buffer
 - Samples are deleted automatically after 10 days
- 5M samples per month, per account, at no cost
- Talk2M Pro Subscription Features
 - Annual account subscription
 - 10M samples per month, per account
 - Additional samples sold in blocks of 1M per month

M2Web API

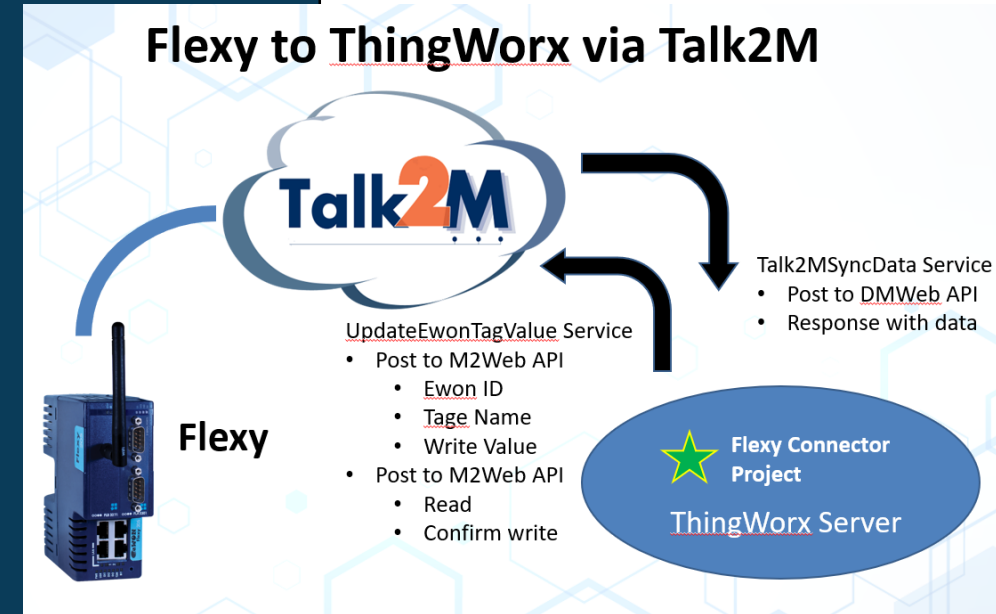
- Bi-directional data path
- Real-time tag reads per Flexy
- Real-time tag writes per Flexy
- Up to 30K calls per day, per account

About RESTful APIs, these are stateless originating from the ThingWorx Flexy Connector Project to Talk2M Server. The call is made securely and encrypted. The Flexy Connector Project service “UpdateEwonTagValue” interacts with M2Web API and “Talk2MSyncData” interacts with DMWeb API.

Ewon Connector for ThingWorx Talk2M

Ewon ThingWorx Connector Project

- ConnectorHost (Thing)
 - A Timer Thing model is used as the underlying thing model
 - A single Talk2M account is supported by the project
 - Additional Talk2M accounts could be supported, this exercise is left up to the end user
 - The properties include the credential information required to access Talk2M
 - A Ewon Developer ID is required to connect to Talk2M and can be request via a link provided in the connector documentation
- GenericEwonDevice (Thing Template)
 - This template is used to represent a single Flexy gateway connected to the Talk2M account
 - The properties include the credentials required to access a specific Flexy device
 - These properties are used in conjunction with the ConnectorHost properties to securely connect to Talk2M and a specific Flexy device when reading or writing via M2Web API
- GenericEwonDeviceTalk2M (Thing Template)
 - These services are used to perform writes to a specific flexy tag value



Data Integration via Direct Data Path



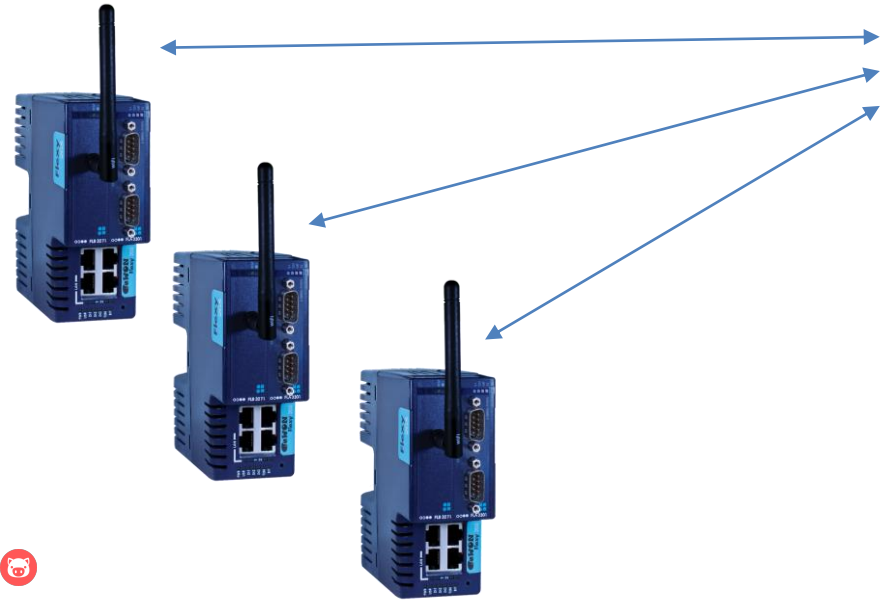
Leveraging the ThingWorx RESTful API



Remote Access



Connection to Talk2M
(Optional)



Direct Messaging from Flexy to ThingWorx

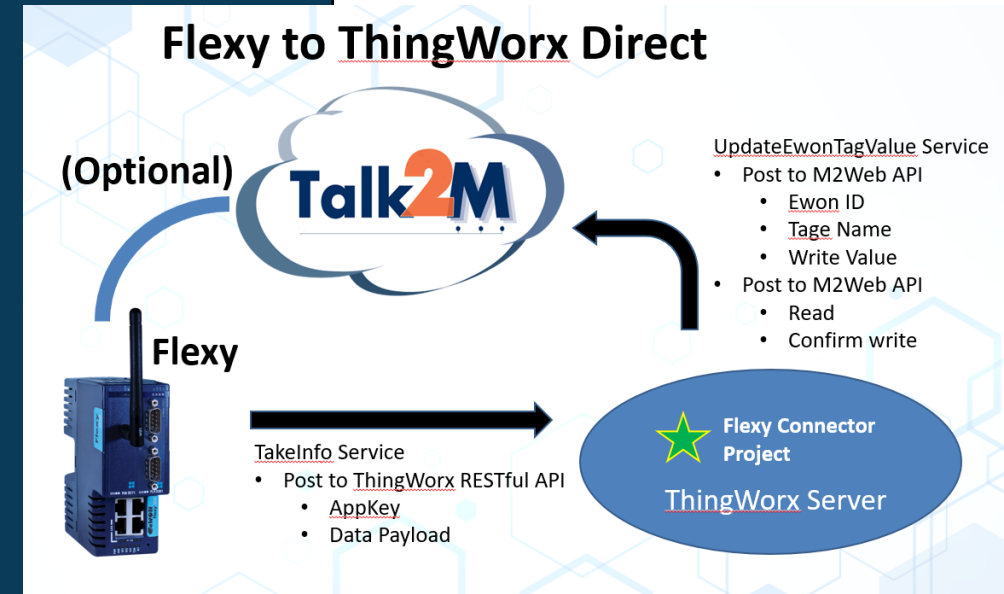
- Edge to ThingWorx messages only
- HTTP or HTTPS messaging is supported
- Shared REST API for all deployed devices
- A thing appkey is used to associate an incoming payload with a thing created with the GenericEwonDeviceDirect template
 - Incoming payloads are parsed and stored in the thing property matching the tag name
 - All tag data is stored as a value stream
- Benefits
 - Can be use on a private WAN (no public network)
 - Connectivity to Talk2M is not required
 - There is no cost to use this data path
- Considerations
 - For WAN deployments a firewall port will need to be open at the ThingWorx server location
 - Traffic load profiling and redundancy is the responsibility of the end user
 - Devices can still be connected to Talk2M for additional features



Ewon Connector for ThingWorx Direct

Ewon ThingWorx Connector Project

- ConnectorHost (Thing)
 - Talk2M properties are only required if ThingWorx to edge messaging is required
 - The disableTalk2M property should be set to true if Talk2M is not being used
 - The main execution service is still required to process incoming data
- GenericEwonDevice (Thing Template) -- Optional
 - This template is used to represent a single Flexy gateway connected to the Talk2M account
 - The properties include the credentials required to access a specific Flexy device
 - These properties are used in conjunction with the ConnectorHost properties to securely connect to Talk2M and a specific Flexy device when reading or writing via M2Web API
- GenericEwonDeviceDirect (Thing Template) -- Optional
 - This thing template services are used to write a tag value on a specific Flexy



Getting Started



Quick Start Guide

Get ThingWorx from PTC or Rockwell

- ThingWorx is available as a trial license from both PTC and Rockwell
- Solution can be downloaded and installed on any Windows Server or Linux based PC

Get a Flexy and setup a Talk2M account

- Order a Flexy from one of our distributors <https://www.ewon.biz/contact/find-distributor>
- Create a Talk2M Account <https://ewon.biz/e-learning/library/flexy/manage-a-talk2m-free-account>
- Request a Developer ID <https://developer.ewon.biz/registration>
- Review the online training for Flexy <https://ewon.biz/e-learning/library/flexy>

Download and setup the Ewon Connector for ThingWorx project

- Watch the HMS/ThingWorx webinar: [Webinar](#)
- Request the Flexy ThingWorx Project from HMS
 - <https://www.hms-networks.com/solution-partners/iiot-solutions-based-on-thingworx>
- Review the documentation provided with the connector in detail
- Import the Flexy Connector project to ThingWorx
- Connect the Flexy to a network
 - Configure a few tags in Flexy, enable historical logging on each tag to be sent to ThingWorx



Select the Data Path (Data Mailbox via Talk2M)

Talk2M data path (Edge to ThingWorx via Talk2M)

- Flexy Configuration
 - Under System-> Main -> Data Management check “Historical Data”
 - Set the Datamailbox upload interval the fastest update rate is 1 minute
- Configure the ThingWorx project with your Talk2M and Flexy credentials and Dev ID
- Check that a Thing has been created for each Flexy you have connected to your Talk2M account
 - This thing is created automatically by the EwonThingworxConnector
 - Check that a property has been created for each tag enabled for historical logging
 - Modify tags on the Flexy and verify they update in ThingWorx (Data Mailbox latency is ~1.5 minutes)
 - Use the UpdateEwonTagValue service to modify a tag on the Flexy (Latency is <10 seconds)
- Check the ThingWorx Monitoring -> ScriptLog to confirm there are no connectivity errors/warnings

Select the Data Path (Direct Data Path)

Direct data path

- Review the Thingworx setup guide in detail
- FTP the direct to Thingworx REST API connector application onto Flexy
- Configure the Flexy to run the local Java app, power cycle the Flexy
- Generate an AppKey in ThingWorx
- Modify the JSON configuration file on Flexy to include the ThingWorx IP and AppKey (reboot the Flexy)
- Use the example ThingWorx Flexy mashup to access the Ewon tags
- Modify tags on the Flexy and verify they update in ThingWorx
- Check the ThingWorx and Flexy logs to confirm there are no connectivity errors/warnings



STAY CONNECTED!

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