



Kepware Technologies

U-CON Driver: Creating a Project

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1. Overview

This document intends to describe the process of creating a U-CON (User Configurable) Driver project.

Note: The examples in this document utilize KEPServerEX V5.9.

2. Creating the U-CON Project

The U-CON Driver is unique in that it allows users to configure the following four modes of communications:

- Solicited Serial
- Unsolicited Serial
- Solicited Ethernet
- Unsolicited Ethernet

2.1 Creating a New Channel

The process of creating a channel in the U-CON Driver is not very different than in any other driver.

1. In a new server project, either select the **New Channel** icon or click the prompt in the Project View.
2. In **Channel Name**, assign a name to the channel and then click **Next**.
3. In **Device Driver**, select **U-CON (user-configurable)** from the drop-down menu. Then, click **Next**.
4. In **Communications**, specify the **Connection Type**. Options include **COM Port, Modem, Ethernet Encapsulation, or None**.

Note: At this point, channel creation will vary depending on both the selected connection type and whether the channel will be configured for solicited or unsolicited communications.

2.1.1 Serial Communications (Serial Port/Modem)

Most of the settings for serial-based channels are fairly straightforward. When utilizing modems, users must select the modem that will be used for communications. For more information on using modems with serial drivers, refer to [Channel Properties – Modem](#).

1. Select the **Connection Type** and then specify the associated serial communications properties. Once finished, click **Next**.
2. In **Write Optimizations**, specify the optimization method for the project. Then, click **Next**.
3. In **Non-Normalized Float Handling**, specify how the driver will handle non-normalized floating point values. Then, click **Next**.

Note: This option is available in KEPServerEX v5.9 and higher.

4. In **Mode**, select whether the driver will run in Unsolicited mode. Then, click **Next**.

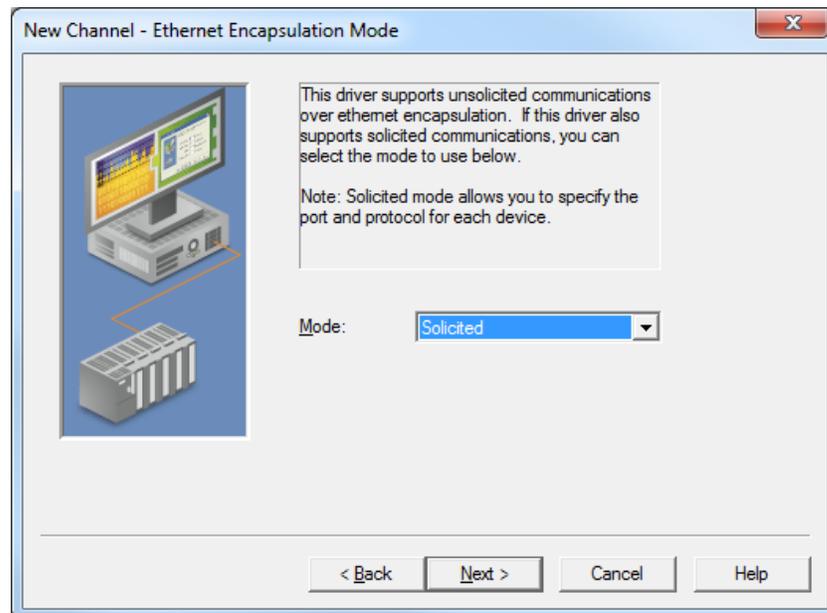
Note: For more information, refer to [Communications Mode](#).

5. In **Summary**, click **Finish**.

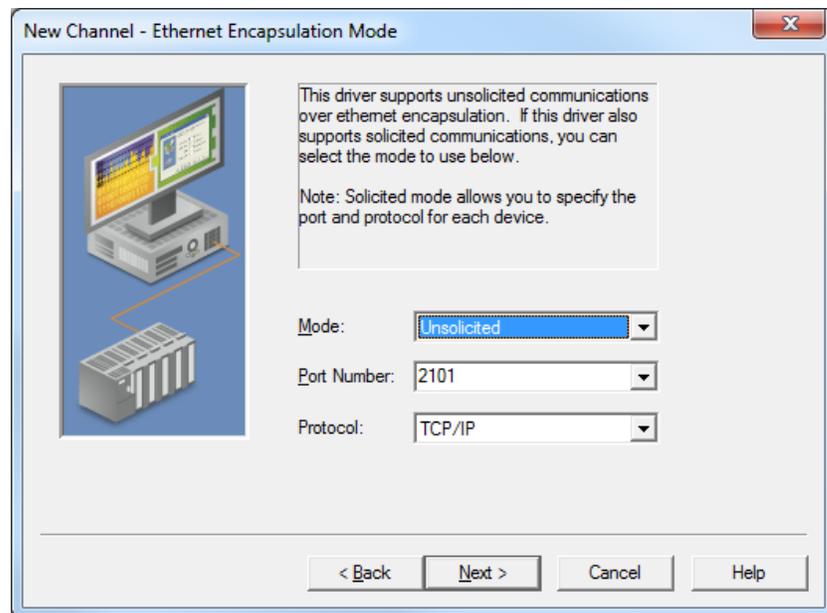
2.1.2 Ethernet Communications

For Ethernet-based channels, the next step after selecting Ethernet Encapsulation is to specify the Ethernet Encapsulation Mode.

1. In **Ethernet Encapsulation Mode**, select the **Mode** from the drop-down menu. Options include **Solicited** and **Unsolicited**. Descriptions of the options are as follows:
 - **Solicited Encapsulation Mode:** In this mode, any device created on the channel will actively solicit or poll data from the physical devices using a request/response format.



- **Unsolicited Encapsulation Mode:** In this mode, any device that is created on the channel must respond to the Read and Write requests sent from the master device.



Note: In Unsolicited Encapsulation Mode, the driver will listen for connection requests from the master device.

2. Once finished, click **Next**.
3. In **Network Interface**, select the **Network Adapter** to which the solicited or unsolicited Ethernet communications will be bound. Then, click **Next**.
4. In **Write Optimizations**, specify the optimization method for the project. Then, click **Next**.
5. In **Non-Normalized Float Handling**, specify how the driver will handle non-normalized floating point values. Then, click **Next**.

Note: This option is available in KEPServerEX v5.9 and higher.

6. In **Mode**, select whether the device will run in Unsolicited Mode. Then, click **Next**.

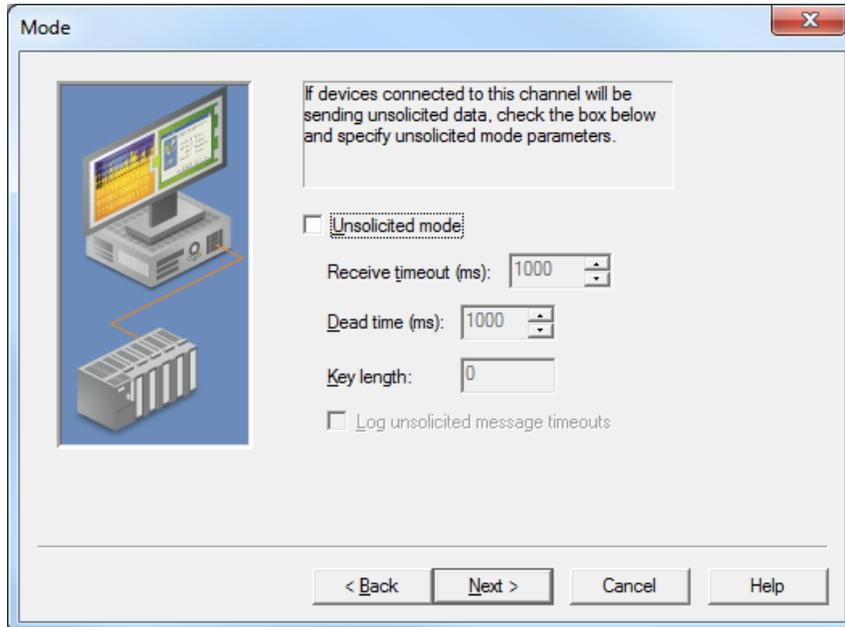
Note: For more information, refer to [Communications Mode](#).

7. In **Summary**, click **Finish**.

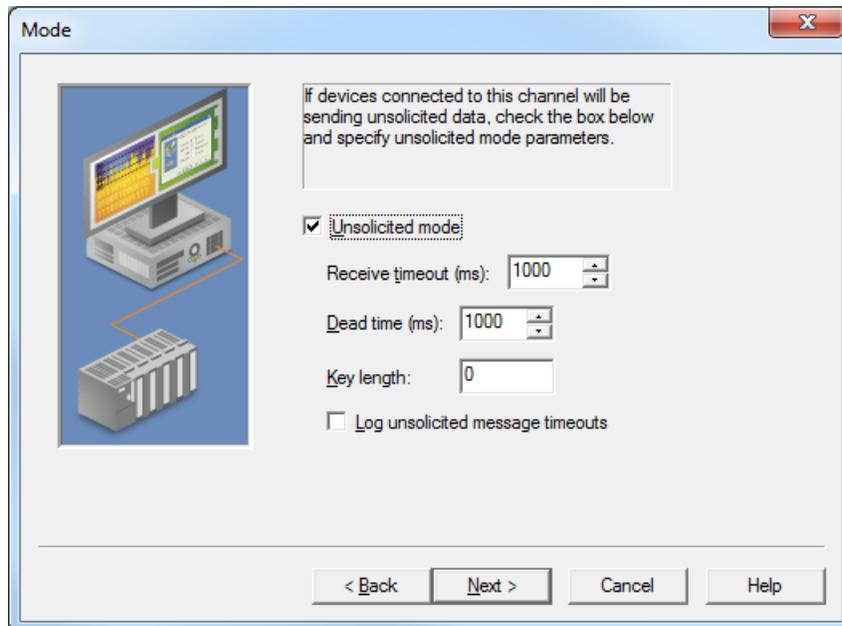
2.1.3 Communications Mode

The U-CON Driver supports two types of communications: Solicited and Unsolicited. These modes are different than the Ethernet Encapsulation settings, which only specify whether the channel will generate a port for connections from master devices. The Communications Mode setting specifies whether the communications configured in the U-CON Driver project can be configured to initiate requests (solicited) or respond to them (unsolicited).

- **Solicited Mode:** In this mode, the driver allows two transaction types for tags or tag blocks for interfacing with the device: Read and Write transactions.



- **Unsolicited Mode:** In this mode, the driver allows two transaction types for tags or tag blocks for interfacing with the device: Unsolicited and Write transactions. Write transactions allow local client applications the ability to update the local cache memory to respond back to the master device when needed.



When Unsolicited Mode is selected, users can set the following parameters:

- **Receive timeout:** This parameter specifies the amount of time that the device should wait to receive a message from the master device to complete. For example, communications will time out if the U-CON Driver expects to see 0x0D 0x0A (CR LF) at the end of packet and it is not received within the specified amount of time following the arrival of the first part of the packet.
- **Dead time:** This parameter specifies the amount of time that the driver will ignore a packet before restarting the receive process. It intends to ensure that there are no partial packets.
- **Key length:** This parameter specifies the number of unique characters at the start of a packet that can be used to identify individual messages. For example, the first three characters of a message could be an address.

Note: For more information on using the Key Length field, refer to the document "U-CON Driver: Creating an Unsolicited Project."

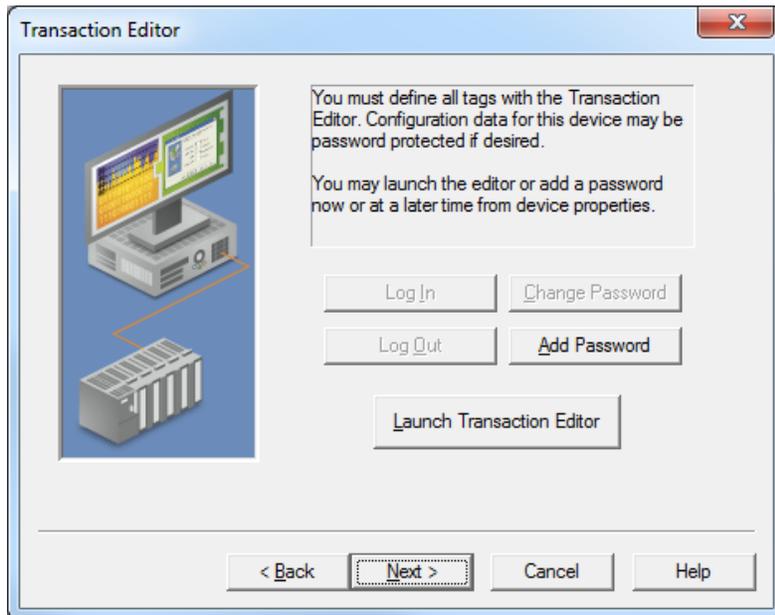
2.2 Creating a Device

The process of creating a device in the U-CON Driver is not very different than creating devices in other drivers.

1. To create a new device under the channel, select the **New Device** icon or click the prompt in the Project View.
2. In **Device Name**, assign a name to the device. Then, click **Next**.
3. In **Device Model**, select the desired model that is supported by the device. Options include NumericID or StringID. These two models require different

functionality in the Write Device ID and Test Device ID commands. Once finished, click **Next**.

4. In **Device ID**, specify the Device ID (for Solicited or Unsolicited Serial) or the IP Address (for Solicited Ethernet Encapsulation). Then, click **Next**.
5. Next, specify the **Scan Mode**. For more information, refer to the [Device Properties – Scan Mode](#). Then, click **Next**.
6. In **Timing**, specify the settings for both the **Connect Timeout** and **Request Timeout** parameters for Solicited Mode communications. Then, click **Next**.
7. In **Auto-Demotion**, specify the settings as needed. Then, click **Next**.
8. In **Unsolicited Message Wait Time**, specify the amount of time that the Unsolicited Mode device will wait for a message to be sent from the master device before setting “_UnsolicitedPcktRcvdOnTime” to 1. Then, click **Next**.
9. In **Transaction Editor**, click **Next** to skip to the next dialog. The Transaction Editor is a tool used to create tags in the project and to configure the communications transactions used to talk to the device. It is good practice to create the channel and device, save the project, and then open the Device Properties to launch the Transaction Editor.



10. Click **Finish**.

2.3 Creating Tags

In the U-CON Driver, tags are created in the Transaction Editor instead of directly in the server. For examples of tags and information on how to use the Transaction Editor, refer to the U-CON documents on Creating a Simple Read, Creating a Simple Write, and Creating an Unsolicited Transaction.

3. Summary

At this point, users should have a basic understanding of how to create a project in the U-CON Driver.