
Table of Contents

CHAPTER 1 Introduction	1-1
1.1 About this guide	1-1
1.2 Intended audience	1-1
1.3 Prerequisite skills	1-1
1.4 Required Honeywell documentation	1-1
1.5 What is new in this controlled release	1-2
1.6 Overview of Wireless Field Interface devices	1-2
CHAPTER 2 Configuration	2-1
2.1 Configuring OneWireless infrastructure	2-2
2.1.1 Configuring WDM using the First Time Configuration Wizard	2-2
2.1.2 Provision the devices using over-the-air provisioning method	2-8
2.1.2.1 Removing the provisioning key from Wireless Field Interface gauge	2-12
2.2 Configuring Wireless Field Interface device	2-14
2.2.1 Loading the Device Description file	2-14
2.2.2 Configuring routing assignment	2-14
2.2.3 Configuring Wireless Field Interface device channels	2-15
2.2.3.1 Configure Mode and Scale	2-15
2.2.3.2 Add channels to publication groups	2-16
2.2.3.3 Remove channels from publication groups	2-16
2.2.4 Activating Wireless Field Interface device in OneWireless Network	2-17
2.2.4.1 Activate ENRAF Ethernet UDP interface on the OneWireless user interface	2-17
2.2.4.2 Configure CIU Prime and CIU Plus using the Ensite Pro configuration tool	2-18
2.2.4.3 Monitor performance of ENRAF interface	2-19
2.2.5 Configuring field devices	2-19
2.2.5.1 Configure field device properties	2-19
2.2.5.2 Configure publication rate	2-19
2.3 Configuring the protocol tunneling	2-22
2.3.1 Configure Wireless Field Interface device interface	2-23
2.3.2 Configure ENRAF serial interface	2-23
2.3.2.1 Serial interface connection	2-24
2.3.3 Configure ENRAF Ethernet/UDP interface	2-26
2.3.3.1 Install and configure the Lantronix device	2-26
2.3.3.2 Assign IP address to the Lantronix device	2-27
2.3.3.3 Configure Standard Serial Tunnel settings on the Lantronix device	2-28
CHAPTER 3 Firmware Upgrade	3-1
3.1 Upgrading the WDM firmware	3-1
3.2 Verifying the WDM firmware revision	3-2
3.3 Upgrading the Wireless Field Interface device firmware	3-3
3.4 Upgrading the FDAP/access point firmware	3-4
3.5 Upgrading the Wireless Field Interface device firmware using the Engauge service tool	3-5

Table of Contents

CHAPTER 4 Operations	4-1
4.1 Reading the Wireless Field Interface device information from SmartView	
4-2	

CHAPTER 1 INTRODUCTION

The following topics describe what is new in the controlled release and the overview of the Wireless Field Interface device.

1.1 About this guide

This document describes how to provision, configure, operate, and monitor an ISA100 wireless interface network using the Wireless Field Interface devices. This guide assists you in understanding, and planning the standalone OneWireless Network.

1.2 Intended audience

This guide is intended for Service Engineers, Operators, and Technicians who are responsible for planning, configuring, administering, and operating the Wireless Field Interface devices using the OneWireless Network.

1.3 Prerequisite skills

It is assumed that you are familiar with the operation of the OneWireless Network.

1.4 Required Honeywell documentation

The following documents and sources contain additional information required for deploying OneWirelessNetwork. It is recommended to have these documents readily available for reference.

Document	Description
<i>ISA100 SmartRadar FlexLine User's Guide</i>	This document provides the information about provisioning, configuring, operating, and monitoring an ISA100 wireless field device network using the SmartRadar FlexLine field devices.
<i>OneWireless Wireless Device Manager User's Guide</i>	This document describes the procedures to provision, configure, operate, and monitor an ISA100 Wireless wireless field device network using the Wireless Device Manager.
<i>Ensight Pro Configuration Tool</i>	This document describes how to work with the configuration tool Ensight Pro.

You can download Honeywell documentation from <http://www.honeywellprocess.com>.

You can download Honeywell ENRAF documentation from <http://www.honeywellenraf.com>.

1.5 What is new in this controlled release

This release supports the following enhancements in Wireless Field Interface field devices.

- Provides the ability to configure the publishing rate of the transducer blocks.
- Provides the ability to support deployment of the security keys to the Wireless Field Interface field devices, using over-the-air provisioning.
- Provides the ability to upgrade the Application Firmware on the CAN-1WL board using the over-the-air firmware upgrade feature.
- Provides the ability to support GPU and FlexConn protocol tunnel support with Engauge service tool.
- Supports Honeywell Enraf 854 ATG servo gauge for reading level of the process value.

1.6 Overview of Wireless Field Interface field devices

The Wireless Field Interface is a box that can be installed next to an installed Servo/Radar gauge. The Wireless Field Interface retrieves information from this gauge and sends it wirelessly to the supervisory level.

CHAPTER 2 CONFIGURATION

The following topics describe how to configure the OneWireless infrastructure, the Wireless Field Interface devices, and the protocol tunneling.

2.1 Configuring OneWireless infrastructure

2.1.1 Configuring WDM using the First Time Configuration Wizard

After installing the WDM, you need to configure the WDM to enable it to function in the OneWireless Network. The **First Time Configuration Wizard** guides you through the initial configuration of the WDM. The **First Time Configuration Wizard** appears ONLY when you log on to the OneWireless user interface for the first time or after the WDM is deleted (returning to factory defaults).

Considerations

The following are some of the network configuration rules that you must follow while configuring the network properties.

- FDN and PCN must be on separate subnets.
- FDN IP address must be outside the FDAP IP address range.
- FDN subnet mask must include FDN IP address and FDAP IP address range.
- Default PCN gateway must be on the same subnet as PCN.



WARNING! *If you are performing a migration, skip this section and proceed with the tasks available in the OneWireless Migration User's Guide.*

To configure WDM using the First Time Configuration Wizard

1. Log on to the OneWireless user interface using the default **User ID** and **Password**. The **First Time Configuration Wizard** appears.
2. On the **Welcome** page of the **First Time Configuration Wizard**, click **Next**.



3. On the **Wireless Device Manager Configuration** page, click **Configure New Wireless Device Manager** and click **Next**.

The screenshot shows the 'First Time Configuration Wizard' with a sidebar on the left containing the following menu items: Welcome, WDM Configuration, Wireless Device Manager Settings, Location Settings, Network Settings, Time Settings, Administrator Account, and Configuration Summary. The main panel is titled 'Wireless Device Manager Configuration' and has a sub-header 'Select Configuration'. It contains three options:

- Configure New Wireless Device Manager**: This option will guide you through the steps required to configure a new Wireless Device Manager.
- Migrate From One Wireless R120**: This option will allow you to migrate from an R120 security configuration and then configure this new Wireless Device Manager.
- Restore Wireless Device Manager From A Previous Backup**: This option will allow you to restore the Wireless Device Manager from a previous backup. You will need to have the backup file present on any one of the three USB ports on the Wireless Device Manager.

At the bottom right of the main panel are two buttons: '< Previous' and 'Next >'.

4. On the **Wireless Device Manager Settings** page, type the **WDM Tag Name** and the **Description**.

The **Tag Name** is the unique name that is used to identify the WDM. It can be up to 16 characters long and must begin with an alphabetic character. Do not use special characters in the Tag Name; underscore is the only acceptable character. After completing the initial configuration, you cannot change the WDM name. The **Description** can be up to 255 characters long.

The screenshot shows the 'First Time Configuration Wizard' with the sidebar on the left. The main panel is titled 'Wireless Device Manager Settings' and has a sub-header 'Wireless Device Manager Identification'. A note states: 'The Wireless Device Manager Name is the unique name used to identify your Wireless Device Manager within OneWireless. This name may also be used to identify your Wireless Device Manager on external interfaces such as OPC.' Below this are two input fields: 'Tag Name' (containing 'wdm1') and 'Description' (empty). A red asterisk is next to the Tag Name field. Below these fields is a section titled 'Redundancy Configuration' with a note: 'Select the "Enable Redundancy" check box to configure this Wireless Device Manager as part of a pair of redundant Wireless Device Managers.' It contains a checked checkbox 'Enable redundancy for this Wireless Device Manager', two radio buttons for 'Redundancy Role' (Primary is selected, Secondary is unselected), and a 'Partner PCN IP Address' field containing '192.168.254.78'. At the bottom right are two buttons: '< Previous' and 'Next >'.

5. If you need to configure redundant WDM, then under **Redundancy Configuration**, configure the following:
 - a) Select **Enable redundancy for this Wireless Device Manager** check box.
 - b) Click the **Redundancy Role**, as required. You can select either **Primary** or **Secondary** option depending on the redundancy role.
 - c) In the **Partner PCN IP Address** box, type the IP address of the partner WDM.



WARNING! When redundancy is enabled, the primary WDM is assigned physical ID A and the secondary WDM is assigned physical ID B. The physical IDs are displayed in the UI during normal operation. Tagging the physical hardware with matching labels makes it easy to distinguish the WDMs later.

6. Click **Next**. The **Location Settings** page appears.



WARNING! If you have selected the **Redundancy Role** as **Secondary** in the **Wireless Device Manager Settings** page, then the **Location Settings** page options are disabled.

7. Under **Location**, select the **Country Code**.

The country code is used to define any location-specific settings within the OneWireless Network. For example, radio frequency options are location dependent and vary depending on the country code setting. After completing the first time configuration, you cannot modify the **Country Code**.

8. Under **ISA 100 Network ID**, type the **Network ID**.

The ISA100 Network ID is the unique identifier for the network. It must contain a value between 2 (default) and 65535. After completing the first time configuration, you cannot change the **Network ID**.

9. Click **Next**.

The **Network Settings** page appears.

10. Under **Field Device Network (FDN)**, configure the network settings for the wireless field device network as follows.

a) **Field Device Network IP Address:** These settings are used to configure the wireless field device network Ethernet connection for the WDM. This is used for communication with FDAP.



WARNING! After completing the initial configuration, you cannot change the **Field Device Network IP Address** specified in the **First Time Configuration Wizard**.

b) **Subnet Mask:** A subnet mask identifies the bits of an IP address that are reserved for the network address. For example, if the IP

address of a particular node is 192.168.2.3 with a subnet mask of 255.255.255.0, the subnet mask indicates that the first 24 bits of the address represent the network address. The last 8 bits can be used for individual node addresses on that network.

- c) **Assign Addresses to Field Device Access Points (Enable DHCP Server):** Select this check box to enable the WDM to act as the DHCP Server. Ensure you do not select the check box if the network has another DHCP Server. It is recommended to enable the WDM to act as the DHCP Server.
- d) **Field Device Access Point IP Address:** This option is enabled only if you have selected the **Enable DHCP Server** check box. Accept the default range or configure the IP address range according to the network settings in the plant network. The WDM that acts as the DHCP Server assigns IP addresses based on the range specified. Ensure that the IP addresses of the Access Points are not within the DHCP address range.

If you do not enable DHCP Server during the first time configuration, it is possible to enable this at a later stage using the Property Panel.



WARNING! DHCP server configuration option is disabled on a secondary WDM.

First Time Configuration Wizard
Welcome

WDM Configuration

Wireless Device Manager Settings

Location Settings

Network Settings

Time Settings

Administrator Account

Configuration Summary

Network Settings * These fields cannot be changed later

Field Device Network (FDN)

The Field Device Network is the network connecting the Wireless Device Manager with one or more Field Device Access Points. The Wireless Device Manager will assign IP addresses to Field Device Access Points based on the address range specified below. The Wireless Device Manager must be connected to your Field Device Network using the FDN connection.

Field Device Network IP Address : 192.168.0.1 *

Subnet Mask : 255.255.255.0

☒ Assign Addresses to Field Device Access Points (Enable DHCP Server).

Field Device Access Point IP Address : 192.168.0.101 To 192.168.0.200

Process Control Network (PCN)

The Process Control Network is the network connecting the Wireless Device Manager to a process control system, including external controllers or monitoring applications. The Wireless Device Manager must be connected to your Process Control Network using the PCN connection.

Process Control Network IP Address : 192.168.254.79

Subnet Mask : 255.255.255.0

Default Gateway : 0.0.0.0

< PREVIOUS NEXT >

11. Under **Process Control Network (PCN)**, configure the process control network settings as follows.

- **Process Control Network IP Address:** The process control network settings are used to configure the process control network Ethernet connections for the WDM. This is used for communication with monitoring applications and external controllers.
- **Subnet Mask**
- **Default gateway:** Used to access the subnets outside the PCN subnet. This is an optional configuration option.

12. Click **Next**.

The **Network Time** page appears.



WARNING! The network time settings configuration is disabled on the secondary WDM. Upon synchronization, the secondary WDM syncs time from primary over the FDN interface.



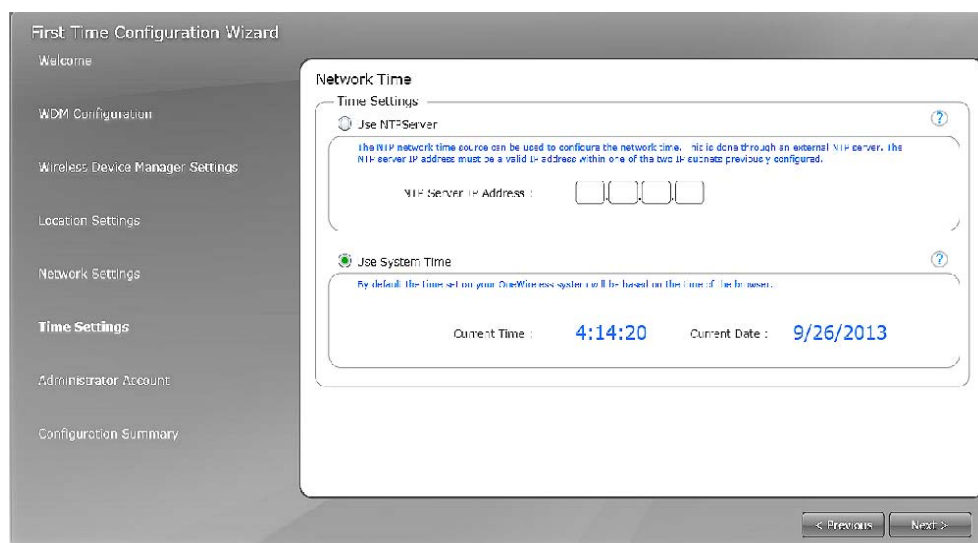
WARNING! Network time settings configuration is disabled on the secondary WDM. Upon synchronization, the secondary WDM syncs time from primary over the FDN interface.

13. Click **Use NTPServer** or **Use System Time**, as required.

You can use either the NTP server or system time to configure the network time of the OneWireless Network.

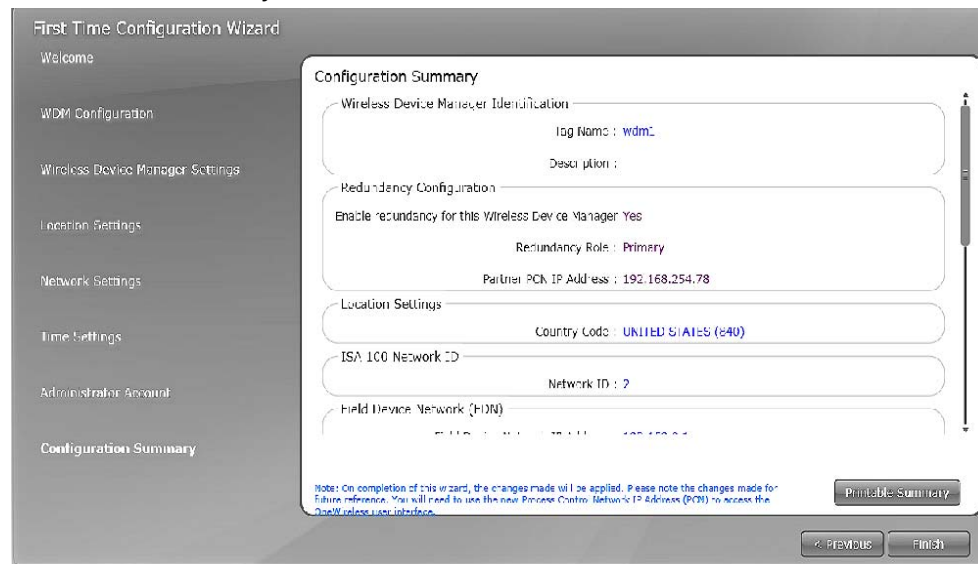
NOTE: By default, the network time is configured as the system time. Consider the following while configuring an external NTP server.

- NTP server should be on the PCN or FDN.
 - NTP server IP address must be within FDN or PCN subnet unless a default gateway has been configured on the PCN subnet and the NTP server is accessible through the default gateway.
 - NTP server IP address should not overlap with the FDN and PCN IP addresses.
 - NTP server IP address should not overlap with FDAP IP address range, if DHCP Server is enabled.
14. If you are selecting NTP server, enter the **NTP Server IP Address** and click **Next**. The **Administrator Information** page appears.
15. Type the user name and password in the **Administrator Name**, **New Password**, and **Confirm Password** fields.
- The default user name configured for the WDM is **administrator**. You can change the default user name in the **First Time Configuration Wizard**, if required. However, you cannot change the user name after completing the initial configuration.
 - The password must contain at least one character and can contain up to 32 characters. It should not start or end with a space and must not contain single quote (').



16. Click **Next**.

The **Configuration Summary** page appears which displays the summary of all the configuration information specified in the First Time Configuration Wizard. An incorrect entry is indicated by a warning icon. Hovering the mouse over the icon displays a tooltip with the information about the incorrect entry.



17. Verify the WDM settings, correct errors if any, and then click **Finish**.

If there are any errors in the configuration information that you have provided, then the system does not allow you to click **Finish**.

18. On the Browser Redirect dialog box, click **OK**.

The wizard redirects the Web browser to the revised process control network IP address.



WARNING! *If you are configuring the WDM to use the same process control network IP address, then the wizard redirects the Web browser. If you have configured the WDM using a different PCN IP subnet than the computer, then you need to reconfigure the network settings of the computer to access the user interface using the IP address on the new subnet.*

2.1.2 Provision the devices using over-the-air provisioning method

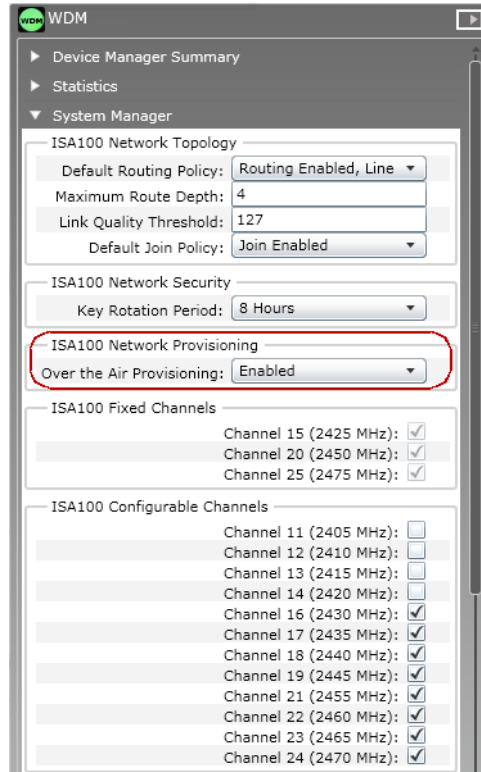
Devices in the OneWireless Network can be provisioned using over-the-air provisioning method. WDM provisions the access points and the access points that are enabled to function as provisioning devices can provision the field devices. To enable over-the-air provisioning capability, you must enable this feature in the user interface.

Any access point that is in the factory default state, when connected to the OneWireless Network can join the network as an unprovisioned device. In this state, the WDM contains only the basic details about the device such as the Tag Name, EUI64, and Radio Revision. Also, there is no active data communication between the WDM and the device in the unprovisioned state. You can accept or reject an unprovisioned device using the user interface. If accepted, the WDM sends the provisioning data to the device and the device transitions to provisioning state. A device with the new security data sends join request to the WDM.

To provision the access points using over-the-air provisioning method

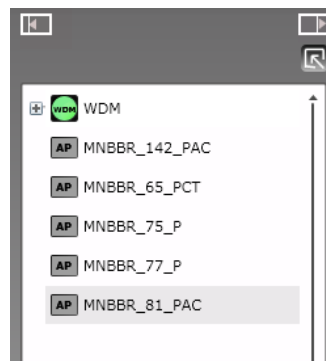
1. On the Selection Panel, select the WDM.
2. On the Property Panel, expand **System Manager**.

- Under **ISA100 Network Provisioning**, in the **Over the Air Provisioning** group, select **Enabled**. The WDM is enabled for over-the-air provisioning support.



- Click **Apply**.

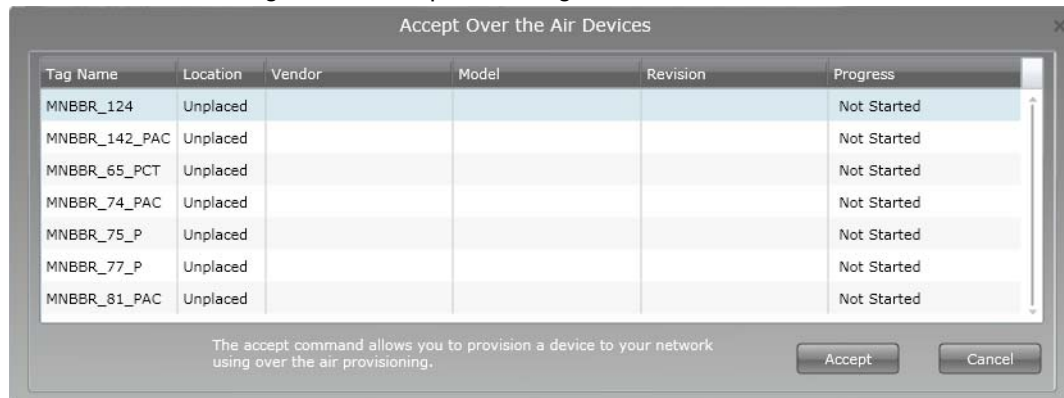
The unprovisioned access points start appearing in the Selection Panel. You can filter the device list to view only the unprovisioned access points in the network.



- On the ribbon bar, in the **Filter** group, click **Device Status > Un-Provisioned**.
- Expand the extended Selection Panel to view the available device parameters.
- Select the required access point in the Selection Panel or the map view and then click **Accept** on the ribbon bar.

NOTE: You can select multiple access points using the Selection Panel or the map view. Use **SHIFT+click** to select multiple items in a successive list. Use **CTRL+click** to select multiple items not in succession. It is recommended that you select and accept only 10 devices at a time.

The **Accept Over the Air Devices** dialog box appears. The dialog box displays all the unprovisioned access points that you have selected for enabling over-the-air provisioning.



8. Click **Accept**.

The Progress column displays the status as **In Progress**, **Provisioning**, and then **Completed** when complete. Do not close the dialog box when over-the-air provisioning is initiated for devices.

9. Click **Close**.

The **Accept Over the Air Devices** dialog box closes.



WARNING! R220 Wireless Field Interface devices can only be provisioned using the over-the-air provisioning method.

To provision Wireless Field Interface devices using over-the-air provisioning method

1. On the Selection Panel, select the access point.
2. On the Property Panel, expand **Device Management**.

3. Under **Over The Air Provisioning**, click **Enable for 60 Minutes**.

The screenshot shows the configuration page for access point MNBRR_81. The 'Over The Air Provisioning' section is expanded, showing 'Time Remaining: 0 minutes'. Below this, there are two buttons: 'Enable for 60 Minutes' and 'Disable'. Other sections visible include 'Command' (Join Command: None), 'Uptime and Connectivity' (Uptime: 66072 seconds, Restart Count: 25, Device Drop Off Count: 0), 'Communication Redundancy' (Comm Redun State: Not Applicable, Comm Redun Ratio: 0 percent, Comm Redun Alarm: checked), 'Diagnostics' (Radio2 Comm Fail, Radio1 Comm Fail, Time Sync Redundancy Fail), 'Network Time Protocol' (Time Master Preferred: TRUE, Round Trip Time: 5 ticks, Time Sync Drift: -3 ticks), and a sidebar with links to 'Data Layer Management', 'Neighbor Diagnostics', 'Channel Diagnostics', and 'Alarms (0)'.

The access point functions as a provisioning device for 60 minutes. The unprovisioned Wireless Field Interface devices that are in the factory default state start appearing in the Selection Panel. Note that if you do not accept or reject the devices within 60 minutes, the devices automatically disappear from the user interface.

4. To filter the Wireless Field Interface device list:

On the ribbon bar, in the **Filter** group, click **Device Status > Un-Provisioned**.

The unprovisioned devices appear in the Selection Panel. The extended Selection Panel enables you to view the available device parameters.

The device establishes a communication link with the access point after it attains the unprovisioned state. This link persists even if the device is not provisioned using the connected access point. If the device needs to be provisioned using a different access point, reject the device and then delete it from the user

interface, so that the device can rejoin through a different access point for provisioning.

5. Select the required Wireless Field Interface device in the Selection Panel or the map view and then click **Accept** on the ribbon bar.

NOTE: *You can select multiple access points using the Selection Panel or the map view. Use SHIFT+click to select multiple items in a successive list. Use CTRL+click to select multiple items not in succession. It is recommended that you select and accept only 10 devices at a time.*

The **Accept Over the Air Devices** dialog box appears. The dialog box displays all the unprovisioned devices that you have selected for enabling over-the-air provisioning.

NOTE: *To reject a device from joining the network using over-the-air provisioning method.*

- Select the required device and click **Reject** in the ribbon bar. The **Reject Over the Air Devices** dialog box displays.
- Click **Reject**.
- The **Progress** column displays the status as **In Progress**, and then **Completed**, when complete.
- Click **Close**.
- The **Reject Over the Air Devices** dialog box closes.

6. Click **Accept**.

The Progress column displays the status as **In Progress**, **Provisioning**, and then **Completed**, when complete. Do not close the dialog box when over-the-air provisioning is initiated for devices.

7. Click **Close**.

The **Accept Over the Air Devices** dialog box closes.

All the field devices that you have selected for over-the-air provisioning are provisioned.

NOTE: *By default, the selected Wireless Field Interface devices are provisioned and joined as line powered routers. Select **Device Management > Routing Assignment > Routing Disabled** to disable the routing field devices to function as line powered routers.*

2.1.2.1 Removing the provisioning key from Wireless Field Interface gauge

To enable the Wireless Field Interface gauge to join another network, you must remove the security configuration on the device and then reprovision the device using over-the-air provisioning.

To remove the provisioning key from Wireless Field Interface gauge

1. On SmartView, press the UP ARROW and DOWN ARROW simultaneously (**MENU** push buttons) to view the menu items on the display.

2. On the display, scroll to the **commands** item using the **MENU** buttons.
3. Press the LEFT ARROW and RIGHT ARROW (**SELECT** push buttons) simultaneously. You are prompted to enter the password. The default password for SmartView is AAAAAA.
4. Use the **MENU** push buttons to enter the password and then press the **SELECT** push buttons. The list of **commands** appears.
5. Scroll to select the CAN-1WL FlexConn board name and then press the **SELECT** push buttons.
6. Scroll to select **board** and then press the **SELECT** push buttons.
7. Scroll to select **Restore Default** then press the **SELECT** push buttons. The provisioning key on the Wireless Field Interface gauge is now removed.

2.2 Configuring Wireless Field Interface device

2.2.1 Loading the Device Description file

A Device Description (DD) file is usually a zip file that is available on the disk supplied in the Honeywell Process Solutions website. It contains information about the device type, commands that are supported by the device, and other device-specific data. A DD file for a particular field device is used to describe the device and to interpret messages and the device status.



WARNING! *To ensure consistency in the channel names, load the DD files before the device joins the network.*

To load the Device Description file

1. On the ribbon bar, in the **Maintenance** group, click **Templates**. The **Load DD File** dialog box appears.
2. Click **Load DD File**.
3. Browse to the directory location of the DD file.
4. Select the DD file and click **Open**.
5. The DD file is uploaded to the WDM and an upload success message appears.
6. Click **Close** to close the **Load DD File** dialog box.
7. Repeat steps to load the DD files for all the device types.

2.2.2 Configuring routing assignment

After joining the network for the first time, a field device capable of operating as a router and an I/O device initializes its routing assignment based on the current default routing policy. It is possible to override the default routing policy by configuring routing assignment for field devices. Configuring device routing assignment results in restarting the device with a new role.

Considerations

- Device routing assignment can be configured only for devices that are capable of operating as routers and I/O devices.

To configure routing assignment

1. On the Selection Panel, select the field device.
2. On the Property Panel, expand Device Management.
3. Select Routing Assignment, as appropriate.

The following are the **Routing Assignment** options available.

- **Routing Disabled** — Disables the ability of a routing field device to function as a router. The field device can function only as an I/O device.

- **Routing Enabled** — Enables the routing field device to function as a router and an I/O device. The default join policy configured is **Follow System Manager Policy**.
- Not Applicable
 - Does not apply to devices that are capable of operating as access points.
 - Does not apply to devices that are only capable of operating as routers.

4. Select one of the following **Join Assignment** options, as required.

The **Join Assignment** overrides the system manager join policy. This is applicable only for routing field devices.

- **Join Disabled** — Disables device-join through this device.
- **Join Enabled** — Enables device-join through this device.
- **Follow System Manager Policy** — Enables the device to follow the system manager join policy. Device-join through this device depends on the configured system manager join policy.

The **Join Status** is a read-only parameter that indicates the resultant join state for all the devices.

- Access Points, FDAP access points, and FDAP routers have the **Join Assignment** permanently set to **Join Enabled**.
- Non-routing field devices have the **Join Assignment** permanently set to **Join Disabled**.
- Routing field devices have the default **Join Assignment** set to **Follow System Manager Policy**.

By default, the selected Wireless Field Interface devices are provisioned and joined as line powered routers. Select **Device Management > Routing Assignment > Routing Disabled** to disable the routing field devices to function as line powered routers.

5. Click **Apply**.

2.2.3 Configuring Wireless Field Interface device channels

2.2.3.1 Configure Mode and Scale

To configure Scale

1. On the Selection Panel, select the Wireless Field Interface device channel.
2. On the Property Panel, expand **Process Variable** to view the following read-only parameters in the OneWireless user interface.



WARNING! *The configuration of the engineering units should be performed using the Engauge tool only. The parameter values of the sensor cards get reflected in the OneWireless user interface as read-only parameters.*

- **EU at 100%**: Specifies the high range PV value in Engineering Units.
- **EU at 0%**: Specifies the low range PV value in Engineering Units.

- **Units Index:** Specifies the unit of the measurement value. The value varies according to the sensor type selected for a channel. For example, the process value of the TII-XR sensor card is displayed as **CH01_AI_1** and the Units Index is set to m.

3. Click **Apply**.

*NOTE: After applying the changes, the newly configured values appear under the **Scale** panel.*

To configure Mode

1. On the Property Panel, expand **Mode**.
2. In the **Target** list, select the mode as required.
3. The mode types available are **Normal**, **OOS**, and **Auto**.
4. Click **Apply**.

2.2.3.2 Add channels to publication groups

Perform the following steps to enable/disable the PV publication capability of field devices.

To add channels to publication groups

1. On the Selection Panel, select the Wireless Field Interface device channel.
2. On the Property Panel, expand **Input Publication** panel.
3. In the **Channel** drop-down list, select the channels for which data publication needs to be enabled.

The screenshot shows the 'Input Publication' panel with a dropdown arrow on the left. Below it, 'Publication Group 1' is expanded, showing several configuration fields: 'Contract Status' set to 'Active', 'Rate' set to '1 second', 'Stale Limit' set to '15', 'Destination' set to 'wdm1', and 'Channel' set to 'CH01_AI'. Below the 'Channel' field, there are two more dropdown menus, both currently set to 'None'.

*NOTE: To disable data publication, select **None** in the **Channel** list.*

4. Click **Apply**.

2.2.3.3 Remove channels from publication groups

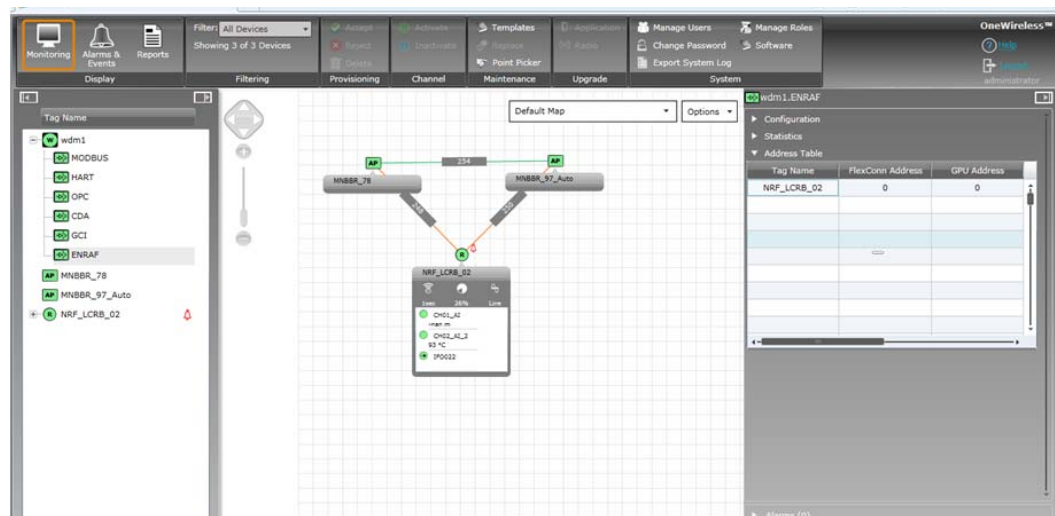
To remove channels from publication groups

1. On the Selection Panel, select the Wireless Field Interface device channel.
2. On the Property Panel, expand **Input Publication**.
3. For the channel to be deleted from the publication group, click **None** in the **Channel** drop-down list.
4. Click **Apply**.

2.2.4 Activating Wireless Field Interface device in OneWireless Network

The ISA100 Wireless field devices maintain a database of process configuration, identification, and diagnostic information in memory. WDM allows accessing this information from the Wireless Field Interface client applications (CIU Prime hardware or Engauge software). This enables monitoring the ISA100 Wireless field devices like any other field device.

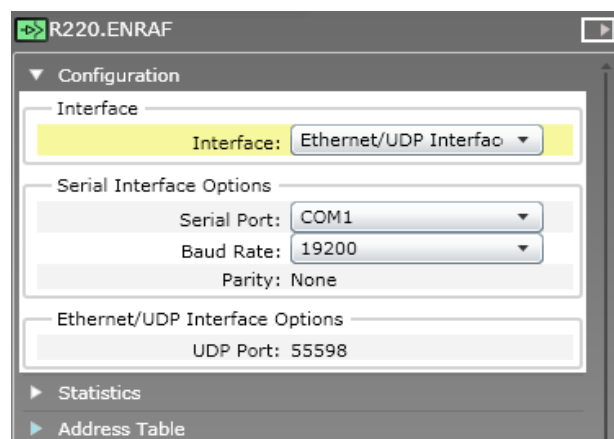
OneWireless Network uses serial communication interface to support data transmission between the applications and the WDM. It also uses Ethernet/UDP interface for data transmission.



2.2.4.1 Activate ENRAF Ethernet UDP interface on the OneWireless user interface

To activate ENRAF Ethernet/UDP interface on the OneWireless user interface

1. On the Selection Panel, expand the WDM icon and select **ENRAF**.
2. On the Property Panel, expand **Configuration** panel.
3. In the **Interface** list, click **Ethernet/UDP Interface**.

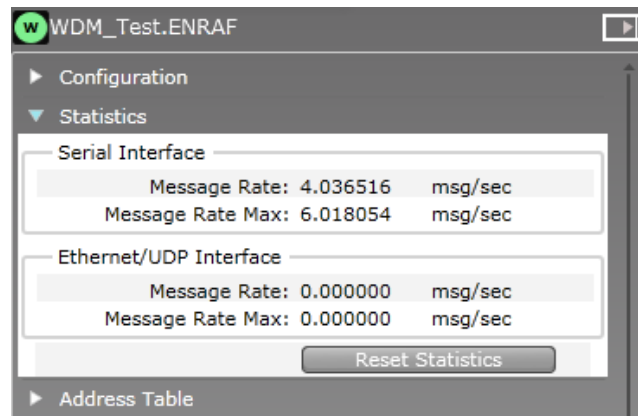


4. Under the **Ethernet/UDP Interface Options**, the UDP port number of the port on which the WDM is connected is displayed.
5. Click **Apply**.

2.2.4.2 Monitor performance of ENRAF interface

To monitor performance of ENRAF interface

1. On the Selection Panel, select the ENRAF interface.
2. On the Property Panel, expand **Statistics**.



3. Verify the following attributes to monitor the performance of the ENRAF interface.
 - **Message Rate**: Number of messages processed by the interface, per second.
 - **Message Rate Max**: Maximum number of messages processed by the interface, per second.
4. Click **Reset Statistics** to reset all the ENRAF interface statistics.

2.2.5 Configuring field devices

2.2.5.1 Configure field device properties

To configure tag name and description

1. On the Selection Panel, select the field device.
2. On the Property Panel, expand **Field Device Summary**.
3. Type the required **Tag Name**.

NOTE: You can change the Tag Name by double-clicking the field device name in the Selection Panel.

4. Type the required **Description**.
5. Click **Apply**.

2.2.5.2 Configure publication rate

The publication data for input and output field devices can be configured using the Input Publication panel in the Property Panel. Depending on

the device type, a field device can have an Input Publication panel. This is determined by the DD file for the field device.

The Input Publication panel contains the following configuration options.

- **Contract Status** — A contract is a communication resource (bandwidth) allocation between two devices on the ISA100 network. The following are the status values that are displayed depending on the status of the contract.
 - **Not Configured** - No contract established due to incorrect configuration of the device.
 - **Activating** - Contract establishment is in progress.
 - **Active** - Contract is active.
 - **Active, Negotiated Down** - If a device requests a contract for periodic publications at a fast rate (such as 1 second) and if the communication resources are not available, the contract is negotiated down to a slower publication period (such as 5 seconds).
 - **Terminating** - Contract termination is in progress.
 - **Failed** - Contract establishment is failed.
 - **Inactive** - Contract is inactive.
- **Rate** – The rate at which a field device publishes data.

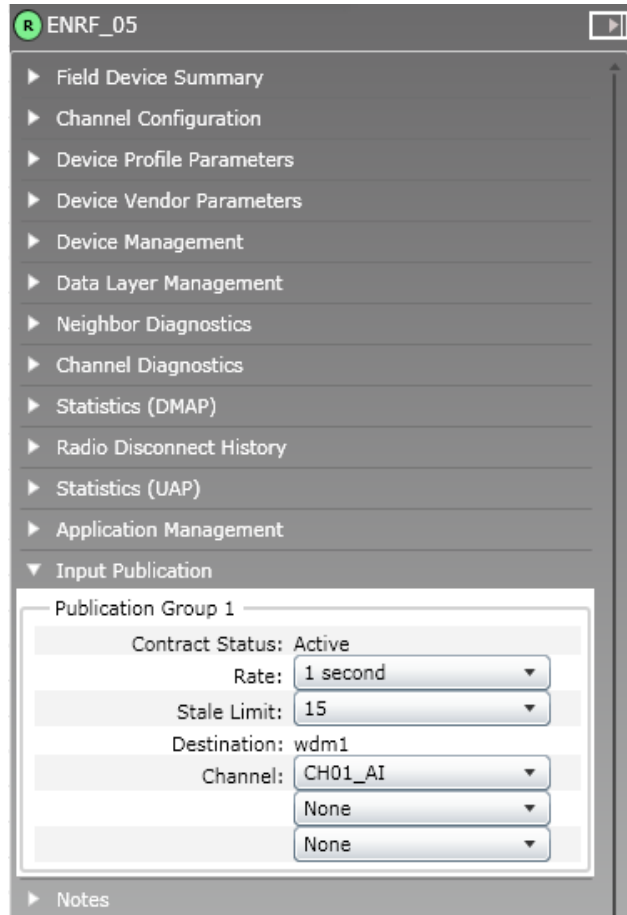
*NOTE: Honeywell recommends that you set the **Rate** as 10 seconds.*

- **Stale Limit** – Defines the maximum number of stale input values that can be received before the input status is set to Bad. It is recommended that for 1 second publication period, the stale limit should be set to 15 seconds. For all other publication periods (5 seconds, 10 seconds, 30 seconds, and 1 minute), the stale limit should be set to 5
- **Destination** – Destination of publication for output devices .
- **Channel** – The list of channels for which the publication configuration applies.

NOTE: When a device joins the network, the WDM automatically configures its publication period as 30 seconds.

To configure publication rate and stale limit

1. On the Selection Panel, select the field device.
2. On the Property Panel, expand **Input Publication**.



3. In the **Rate** field, select the publication rate, as appropriate.
4. In the **Stale Limit** field, select the stale limit, as appropriate.
5. Click **Apply**.

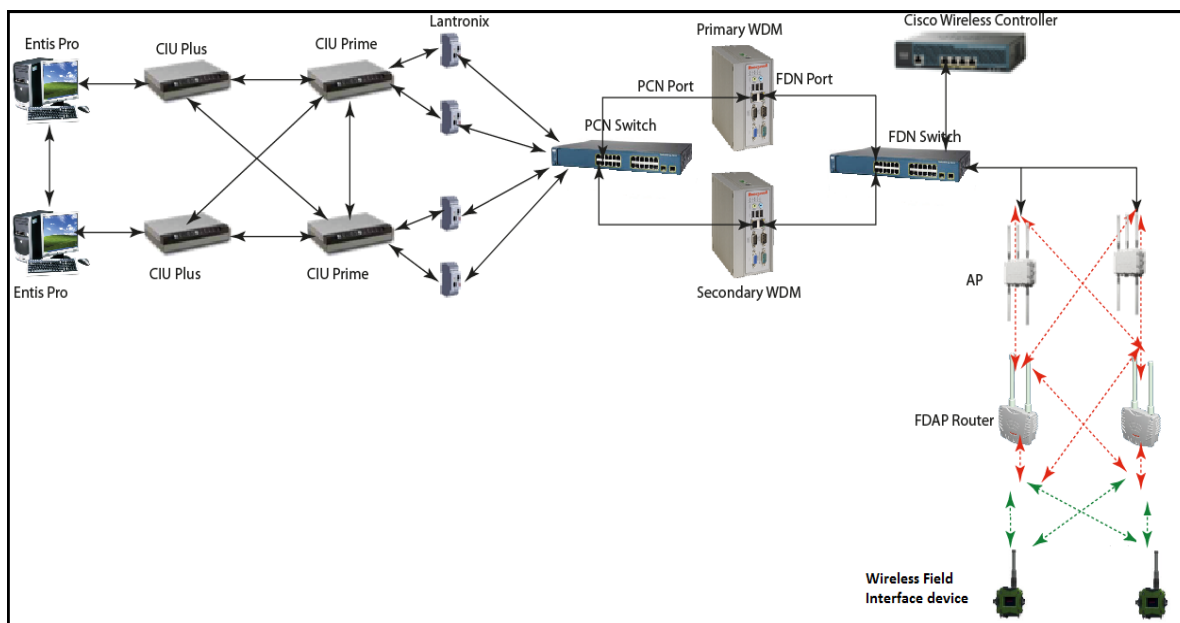
2.3 Configuring the protocol tunneling

This release of ISA100 Flexline R220 supports integration with OneWireless R220. OneWireless R220 WDM supports GPU and Flexconn protocol tunnel. The Applications (Engauge tool/CIU Prime) that support GPU and Flexconn protocol tunnel, communicate with the WDM for configuring and monitoring the ISA100 Flexline R220 devices.

Protocol tunneling can be established for the Wireless Field Interface device in the following two ways.

1. Serial tunneling through RS-232 or RS-485
2. Ethernet/UDP tunnelling

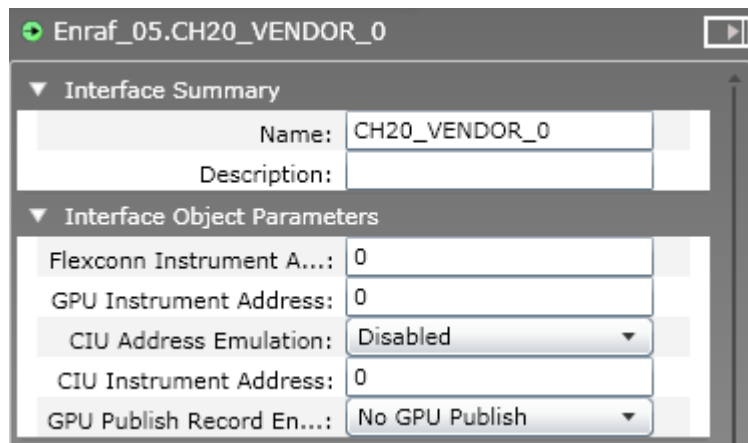
The serial RS-232 is configured on COM1 of the WDM and serial RS-485 is configured on COM2 of the WDM. Redundancy is not supported with the serial RS-232 protocol tunneling. Multiple clients are supported with the Ethernet/UDP.



2.3.1 Configure Wireless Field Interface device interface

To configure Interface Summary and Interface Object Parameters

1. On the Selection Panel, select the field device.
2. On the Property Panel, expand **Interface Summary** and **Interface Object Parameters**.



3. Under **Interface Summary**, enter the following read/write parameter details.
 - a) **Name** — Type the required name for the channel.
 - b) **Description** — Type the required description for the channel.
4. Under **Interface Object Parameters**, enter the following details.
 - a) **Flexconn Instrument Address** — Enter the address of the instrument for FlexConn messages.



WARNING! Each instrument must have a unique FlexConn address

- b) **GPU Instrument Address** — Enter the address of the instrument for GPU messages .



WARNING! Each instrument must have a unique GPU address.

- c) **CIU Address Emulation** — Select **Enabled** or **Disabled** from the drop-down list.
- d) **CIU Instrument Address** — Enter the CIU instrument address.

2.3.2 Configure ENRAF serial interface

To access the field device data, you need to configure the Enraf interface from the OneWireless user interface.

Prerequisites

Ensure the following:

- The Wireless Field Interface devices are connected to the WDM using a serial cable.
- The Wireless Field Interface devices are joined in the ISA100 Wireless network.

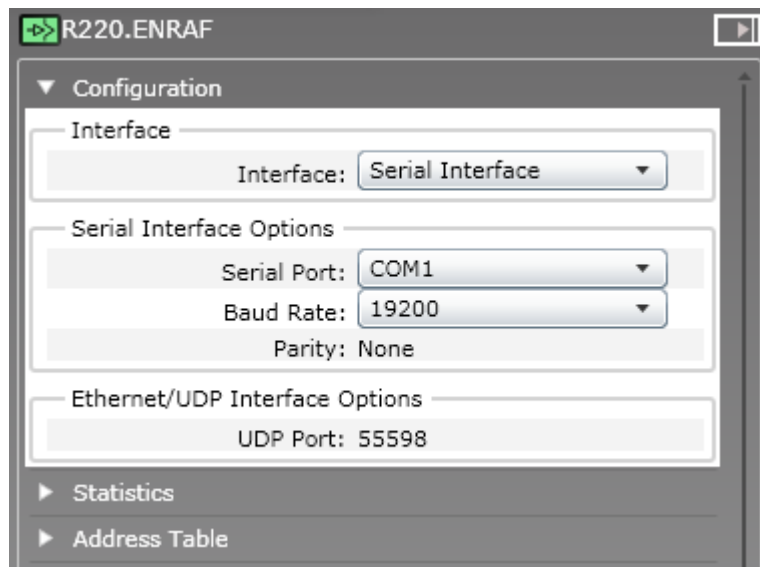
- The GPU address and the FlexConn address configured for a Wireless Field Interface device should be unique for each device in the network.

For more information regarding the GPU address and the FlexConn address, refer to the section “Configure Wireless Field Interface device interface” on page 29.

- If RS-232 serial communication is required, then connect the RS-232 serial cable between the COM1 port of the WDM and the client .
- If RS-485 serial communication is required, then connect the RS-485 serial cable between the COM2 port of the WDM and the client .

To configure ENRAF serial interface

1. On the Selection Panel, expand the WDM icon and select **ENRAF**.
2. On the Property Panel, expand **Configuration** panel.
3. In the **Interface** list, click **Serial Interface**.



4. Configure the following under **Serial Interface Options**.
 - **Serial Port**: Select the serial port on which the serial cable is connected. The available options are COM1 and COM2.
 - **Baud Rate**: Select **19200** as the baud rate for ENRAF serial interface.
 - **Parity**: This is a read-only parameter and displays the value as **None**.
5. Click **Apply**.

2.3.2.1 Serial interface connection

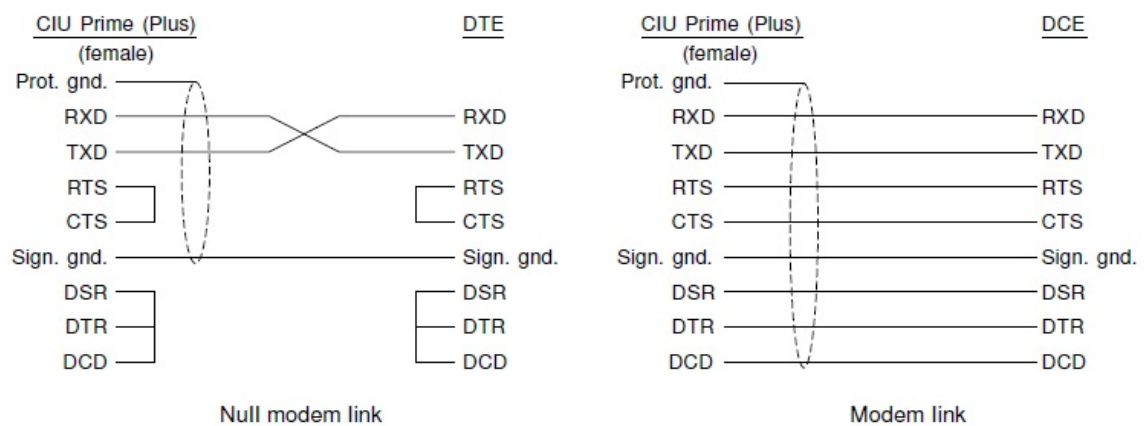
For serial interface connection, connect a serial cable from the interface client to the serial port on the WDM.

RS-232

Configuration - Configuring the protocol tunneling

For RS-232, select the serial port on which the serial cable is connected as COM1.

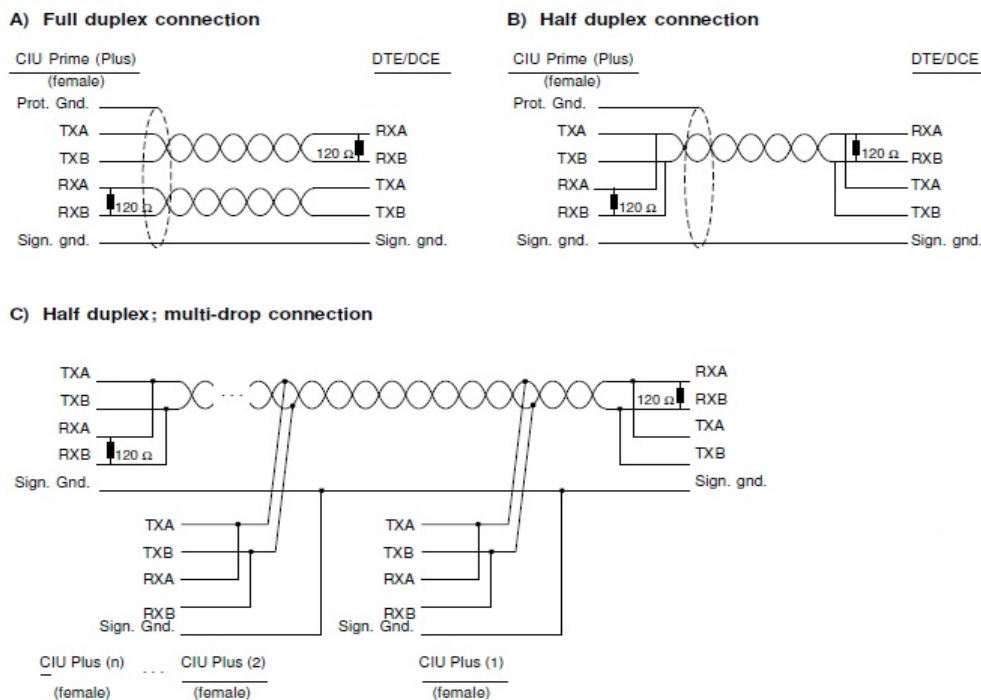
Signal Name	Pin number	
	9 pins	25 pins
Protective ground	Chassis	1
DCD	1	8
RXD	2	3
TXD	3	2
DTR	4	20
Signal ground	5	7
DSR	6	6
RTS	7	4
CTS	8	5



RS-485

The Modbus, HART, and Wireless Field Interface (ENRAF) interfaces supports RS-485. For RS-485, select the serial port on which the serial cable is connected as COM2.

Signal Name	Pin number
	9 pins
Protective ground	Chassis
RXA	2
RXB	8
TXA	3
TXB	7
Signal ground	5



2.3.3 Configure ENRAF Ethernet/UDP interface

You can convert Ethernet/UDP interface by using a Lantronix device or a serial-to-Ethernet/UDP driver. Following are the high-level tasks to be performed.

- Install and configure the Lantronix device.
- Assign an IP address to the Lantronix device.
- Configure the Standard Serial Tunnel firmware settings on the Lantronix device.
- Activate ENRAF Ethernet/UDP interface on the OneWireless user interface.

For more information, refer to section “Overview of Wireless Field Interface devices” on page 9.

2.3.3.1 Install and configure the Lantronix device

Install the Lantronix DeviceInstaller software on the Wireless Field Interface client machine using the documentation and media packaged with the device. After installing the DeviceInstaller software, assign an IP address to the Lantronix device.

2.3.3.2 Assign IP address to the Lantronix device

Perform the following steps to assign or reassign an IP address to the Lantronix device.

To assign or reassign an IP address to the Lantronix device

1. From the **Start** menu, open **Lantronix DeviceInstaller**.
2. Click **Device > Assign IP Address**.
3. When prompted for device identification, enter the **MAC address** of the Lantronix device and click **Next**. The MAC address is located on a sticker on the side of the device.
4. When prompted for the assignment method, choose **Assign a specific IP address** to assign a static IP address to the Lantronix device and click **Next**.
5. Enter the **IP address**, **subnet mask**, and **default gateway** for the Lantronix device and click **Next**.
6. Click **Assign**.

The device now uses the new IP address and has network access.

2.3.3.3 Configure Standard Serial Tunnel settings on the Lantronix device

Configure Standard Serial Tunnel firmware to enable it to properly tunnel Wireless Field Interface device messages from the RS-232 serial port to the Ethernet port of the WDM.

To configure Standard Serial Tunnel settings on the Lantronix device

1. From the **Start** menu, open **Lantronix DeviceInstaller**.
2. In the **Lantronix Devices** tree on the left pane, select the Lantronix Xpress-DR or Lantronix Xpress-DR-IAP device name.
3. On the **Telnet Configuration** tab, click **Connect**.
4. When prompted, press **Enter** to go to the setup mode.
5. On the **Main** menu, press **1** on the keyboard to configure channel 1 and set the configuration parameters as follows:
 - Baud Rate = 19200
 - I/F Mode = 4C
 - Flow = 00
 - Port Number = 34568
 - Connect Mode = CC
 - Datagram Mode = 01
 - The Remote IP Address can be entered only when the Datagram Mode is set to 01.
 - Remote IP Address = IP Address of the WDM
 - Remote Port = 55598
 - Packet Control = 00
 - Send Character 1 = 00
 - Send Character 2 = 00
6. Press **9** on the keyboard, to save and exit the **Lantronix** main menu.

CHAPTER 3 FIRMWARE UPGRADE

The following topics describe how to upgrade the firmware of the WDM and the Wireless Field Interface field devices.

3.1 Upgrading the WDM firmware

Download the latest OneWireless installation package (WDM firmware) from the Honeywell Process Solutions website.

CAUTION

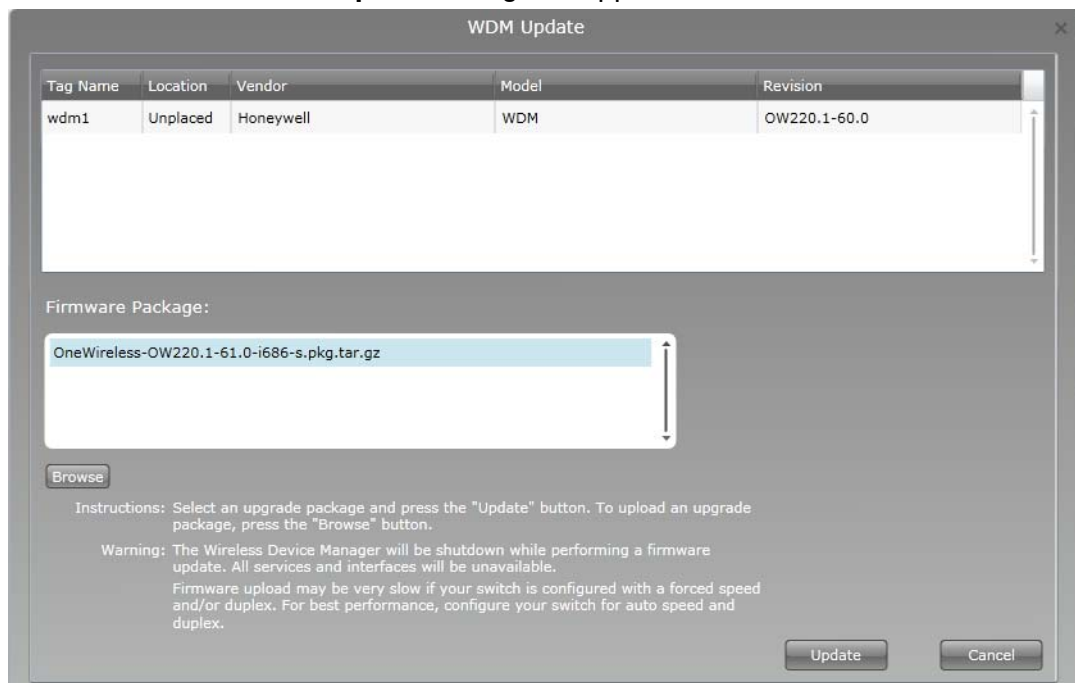
CAUTION! *Upgrading the WDM firmware makes the WDM offline for some time. During this operation, all the devices drop and join the network again. Once initiated, you cannot terminate the firmware upgrade operation. The WDM must not be turned on while the upgrade is in progress.*

Prerequisites

Ensure that the speed/duplex setting for the switch port to which the WDM is connected is set to Auto.

To upgrade the WDM firmware

1. On the Selection Panel, select the WDM.
2. On the ribbon bar, in the **Upgrade** group, click **Application**. The **WDM Update** dialog box appears.



3. Click **Browse** to navigate to the directory location of the **Platform** firmware file and click **Open**. The WDM firmware file has a **.tar.gz** extension.

The **WDM Update** dialog box displays the upload status. Once complete, the **Firmware File** box displays the uploaded firmware file

4. Click **Update**.

The firmware upgrade starts and once complete, the user interface displays a message indicating the result of firmware upgrade operation.



WARNING! *At times, the update may take longer than expected and the result of the upgrade may not be displayed. Instead, a "Page not available" error may appear. In such cases, wait for a minute and then redirect the browser to "https:// <ipaddress>/restartzfs.html" for viewing the result. Do not remove or reboot the WDM during the upgrade process. After the WDM upgrade from R210 to R220 is complete, the WDM reboots automatically.*

5. Close and restart the web browser.
6. Log on to the user interface again.
7. Verify the upgraded version of the WDM firmware as follows:
 - a) On the Selection Panel, select the WDM.
 - b) On the Property Panel, expand **Device Manager Summary**.
 - c) Under **Identification**, verify the **Revision**.

3.2 Verifying the WDM firmware revision

To verify the WDM firmware revision

1. On the Selection Panel of the OneWireless user interface, select the WDM.
2. On the Property Panel, expand **Device Manager Summary**.
3. Under **Identification** group, review the firmware version displayed in the **Revision** field.

3.3 Upgrading the Wireless Field Interface device firmware

The devices at the farthest hop level must be upgraded first.

CAN-1WL FlexConn board firmware

1. On the Selection Panel of the OneWireless user interface, select the field device.

You can select multiple devices of the same type using the Selection Panel or the map view. Use SHIFT +click to select multiple items in a successive list. Use CTRL+click to select multiple items not in succession.

2. On the ribbon bar, in the **Upgrade** group, click **Application**. The **Application Firmware Upgrade** dialog box appears.
3. In the **Available Firmware Files** list, select the required firmware upgrade files.

By default, the firmware upgrade file appears in the list. If the file is not available in the list, perform the following steps to open the firmware file.

- a) Click **Add** to browse to the directory location of the firmware upgrade file.
 - b) Click **Open**.
4. Click **Upgrade**.



The **Application Firmware Upgrade** dialog box appears.

The **Firmware Upgrade Status** dialog box displaying the status of the upgrade appears. Closing the dialog box allows the upgrade operation to run in the background. The upgrade status is displayed in the status bar. Click the firmware upgrade status box to open the dialog box again. If multiple users are simultaneously upgrading different device firmware, all the users can view the progress of all the device upgrades.

5. Close the **Firmware Upgrade Status** dialog box.
6. Verify the upgraded version of the firmware is as follows:
 - a) On the Selection Panel of the OneWireless user interface, select the field device.
 - b) On the Property Panel, expand **Device Manager Summary**.
 - c) Under **Identification** group, review the firmware version displayed in the **Sensor Revision** field.

Radio firmware

1. On the Selection Panel of the OneWireless user interface, select the field device.

You can select multiple devices of the same type using the Selection Panel or the map view. Use SHIFT +click to select multiple items in a successive list. Use CTRL+click to select multiple items not in succession.

2. On the ribbon bar, in the **Upgrade** group, click **Radio**. The **Radio Firmware Upgrade** dialog box appears.
3. In the **Available Firmware Files** list, select the required firmware upgrade files.

By default, the firmware upgrade file appears in the list. If the file is not available in the list, perform the following steps to open the firmware file.

- a) Click **Add** to browse to the directory location of the firmware upgrade file.
- b) Click **Open**.

4. Click **Upgrade**.



The **Radio Firmware Upgrade** dialog box appears.

The **Firmware Upgrade Status** dialog box displaying the status of the upgrade appears. Closing the dialog box allows the upgrade operation to run in the background. The upgrade status is displayed in the status bar. Click the firmware upgrade status box to open the dialog box again. If multiple users are simultaneously upgrading different device firmware, all the users can view the progress of all the device upgrades.

5. Close the **Firmware Upgrade Status** dialog box.
6. Verify the upgraded version of the firmware is as follows:
 - a) On the Selection Panel of the OneWireless user interface, select the field device.
 - b) On the Property Panel, expand **Device Manager Summary**.
 - c) Under **Identification** group, review the firmware version displayed in the **Sensor Revision** field.

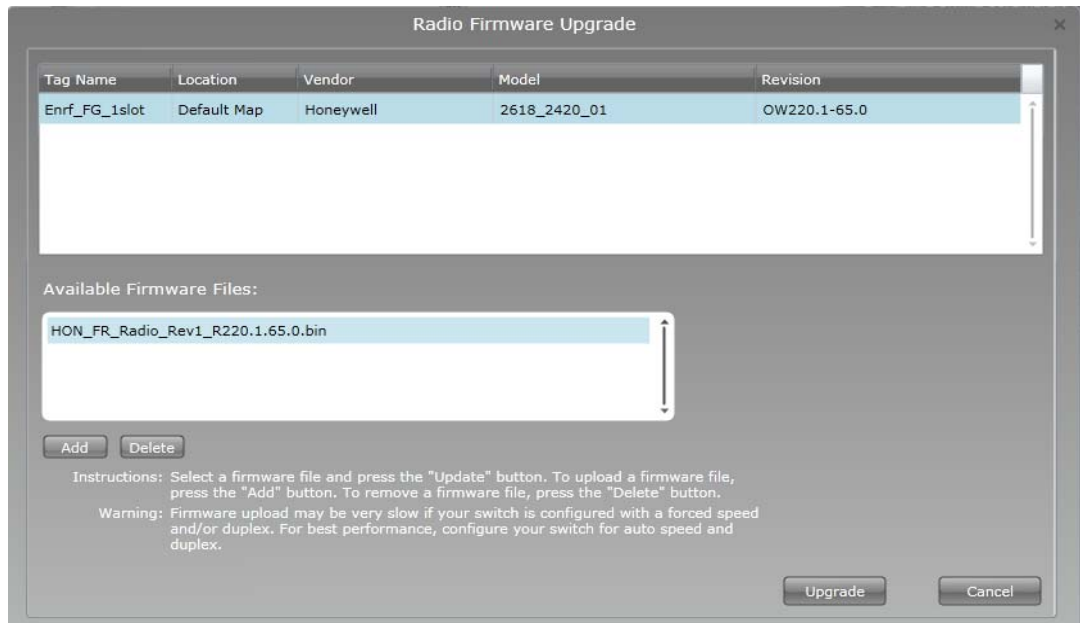
3.4 Upgrading the FDAP/access point firmware

Download the latest OneWireless installation package from the Honeywell Process Solutions website.

To upgrade the FDAP/access point firmware

1. On the Selection Panel, select the FDAP/access point.

You can select multiple devices using the Selection Panel or the map view. Use SHIFT+click to select multiple items in a successive list. Use CTRL+click to select multiple items not in succession.
2. On the ribbon bar, in the **Upgrade** group, click **Radio**. The **Radio Firmware Upgrade** dialog box appears.



3. In the **Available Firmware Files** list, select the required firmware upgrade file.

By default, the firmware upgrade file appears in the list. If the file is not available in the list, perform the following steps to open the firmware file.

 - a) Click **Add** to browse to the directory location of the firmware upgrade file.
 - b) Click **Open**.
4. Click **Upgrade**.

The **Firmware Upgrade Status** dialog box appears. The **Progress** column displays the progress of the upgrade.

- NOTE:**
- To abort any firmware upgrade operation, click the **Abort Upgrade** icon adjacent to the upgrade status.
 - To remove the devices for which the firmware upgrade has been completed, click the **Clear Upgrade** icon adjacent to the upgrade status.

5. Close the **Firmware Upgrade Status** dialog box.

3.5 Upgrading the Wireless Field Interface device firmware using the Engauge service tool

The Engauge service tool is used for upgrading the Wireless Field Interface device firmware. For more information regarding the Engauge service tool, refer to the *Service Manual SmartRadar FelxLine*.

Perform one of the following methods to upgrade the firmware based on the boards which need to be upgraded:

1. The sensor boards (HCM-BPM, FII-SMV) can be upgraded through the Engauge tool using the protocol tunnel.
2. HCI-1WL (CAN-1WL) board can also be upgraded through the OneWireless user interface through the Application Firmware Upgrade.



WARNING! *The HCI-1WL (CAN-1WL) board should not be upgraded using the Engauge tool. This results in the Wireless Field Interface device dropping from the network permanently and it also damages the card.*

Considerations

Following are some of the considerations for upgrading the device firmware.

- You can upgrade only the application firmware or radio firmware of a device at a time.
- You can upgrade only the firmware of three devices simultaneously from the OneWireless user interface.
- Starting the radio firmware upgrade operation of lower hop and upper hop devices simultaneously, results in the failure of upgrade operation of the lower hop device. When the devices are in different hops, it is recommended to perform the upgrade of only one device at a time.
- Upgrading the radio firmware of a device, which routes communication between other devices, results in communication failure .

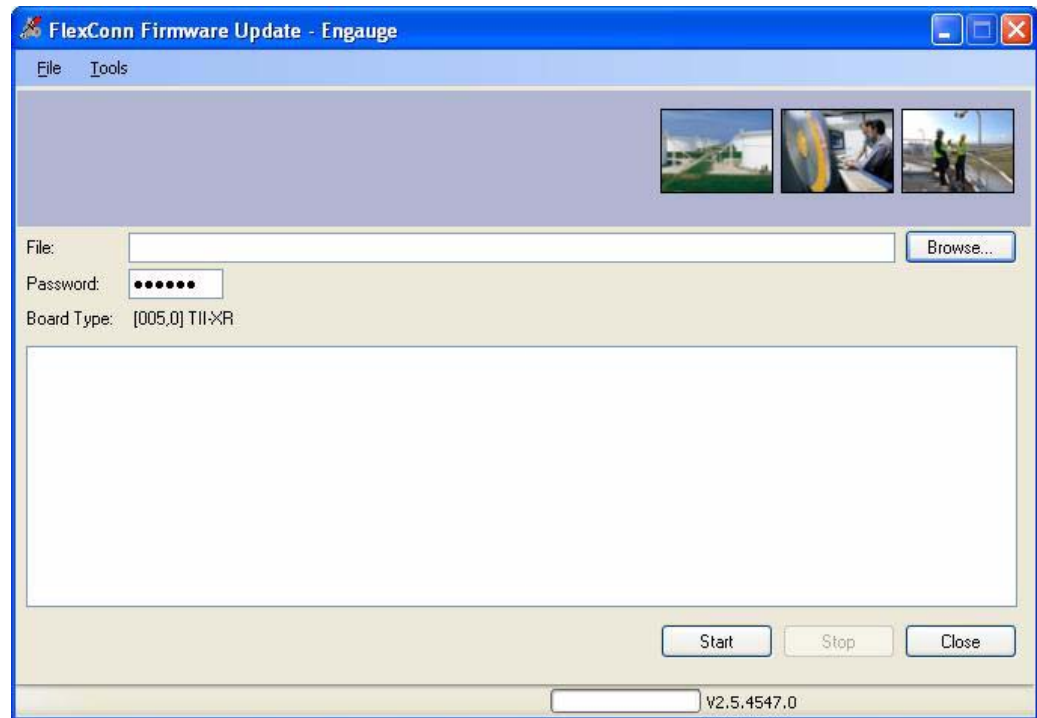
To upgrade the Wireless Field Interface device firmware for the cards using Engauge service tool

1. Double-click the module icon's in the Engauge's explorer, to select each FlexConn module.

The board descriptor is then loaded with the tab pages. Select the tab pages, to enter the settings of the specific module.

2. On the Engauge service tool explorer, select the required FlexConn module on the left panel.
3. Right-click the FlexConn module and choose **Firmware Update**.

The **FlexConn Firmware Update — Engauge** dialog box appears.



4. Depending on the firmware type, the available upgrade files appear by default. Select the required file from the list of upgrade files.
If the file is not available in the list, perform the following steps.
 - a) Click **Browse** to browse to the directory location of the firmware upgrade file.
 - b) Click **Open**.
5. Click **Start**.
The upgrade status is displayed in the status bar.
6. Close the **FlexConn Firmware Update — Engauge** dialog box.
7. Enter the **Time Out** value in the Engauge tool as 9999 ms.

CHAPTER 4 OPERATIONS

The following topic describes how to read the Wireless Field Interface field device information from SmartView.

4.1 Reading the Wireless Field Interface field device information from SmartView

To read the Wireless Field Interface field device information from SmartView.

1. On SmartView, press the UP ARROW and DOWN ARROW simultaneously (MENU push buttons) to view the menu items on the display.
2. On the display, scroll to the **commands** item using the **MENU** buttons.
3. Press the LEFT ARROW and RIGHT ARROW (**SELECT** push buttons) simultaneously. You are prompted to enter the password. The default password for SmartView is AAAAAA.
4. Use the **MENU** push buttons to enter the password and then press the **SELECT** push buttons. The list of **commands** appears.
5. Scroll to select the CAN-1WL FlexConn board name and then press the **SELECT** push buttons.
6. Scroll to select **board** and then press the **SELECT** push buttons.
7. Scroll to select **Read Dev Param** then press the **SELECT** push buttons.
8. On the display, scroll to the **commissioning** item using the **MENU** buttons.
9. Scroll to select the CAN-1WL FlexConn board name and then press the **SELECT** push buttons.

The details available on the SmartView are as follows:

- Board Serial No
- Network Address
- Device revision
- CAN-1WL Build
- Tx Power Level
- Radio Mode
- SD Card Status
- Key Tx Status
- Radio Diag1
- Radio Diag2
- Device Diag1
- Device Diag2
- Connected Gauge status
- Connected Gauge type