Honeywell

Experion PKS

Fault Tolerant Ethernet Status Server and Auxiliary Display User's Guide

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EPDOC-XX38-en-431A	431	0	February 2015

Disclaimer

Contents

1 About this document

This document describes how to install the FTE status display and the FTE status server, and how to use the FTE display.

Revision history

Revision	Date	Description
A	February 2015	Initial release of the document.

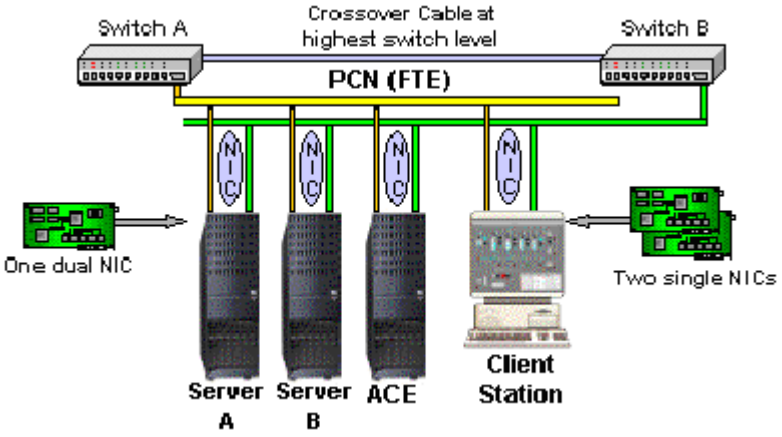
2 Introduction

Related topics

“Overview of Honeywell Fault Tolerant Ethernet (FTE)” on page 8
“Viewing FTE status” on page 9

2.1 Overview of Honeywell Fault Tolerant Ethernet (FTE)

Honeywell Fault Tolerant Ethernet (FTE) represents a way to achieve Ethernet redundancy through the use of Honeywell's FTE driver and redundant commercially available equipment. Fault Tolerant Ethernet enabled components allow network communication to occur over a functioning route. If that route fails and another route exists, then communication occurs over that route. In this approach, FTE can recover from single faults and may recover from several faults. For more information about Honeywell Fault Tolerant Ethernet, refer to the *FTE Planning, Installation and Service Guide*, and the *FTE Overview and Implementation Guide*.



2.1.1 FTE status component

The FTE status component is an Honeywell Communications Interface (HCI) managed component that allows users to view the status of the communication links between participating nodes within a network. Participating nodes are those that are within the same multicast scope that have the following characteristics.

- **FTE Nodes**: have a dual port Ethernet connection, Honeywell FTE intermediate driver software installed and configured, and the Heartbeat provider software installed.
- **Heartbeat nodes**: have a singly connected Ethernet connection and the Heartbeat provider software installed.

2.1.2 FTE intermediate driver and Heartbeat provider software

Both the FTE intermediate driver and the Heartbeat provider software transmit and receive diagnostic messages used by the FTE Status component to determine the state of the communication paths between the participating nodes. The Heartbeat provider, also known as the FTE Provider, interoperates with the Honeywell FTE driver when installed on an FTE node.

2.2 Viewing FTE status

You can view the operating status of your FTE nodes using Honeywell's System Management and the cable status of your FTE nodes using the FTE Status auxiliary display.

2.2.1 Access status displays

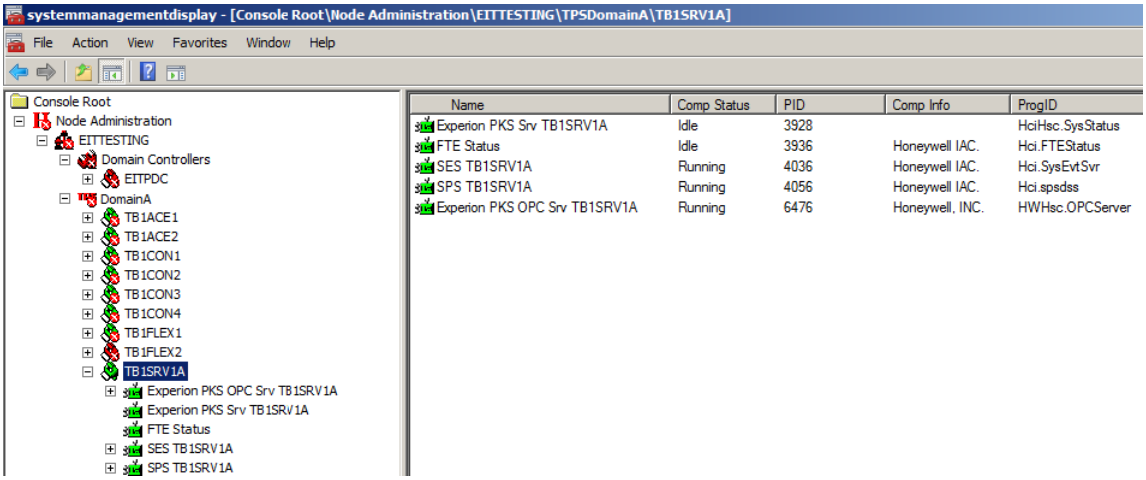
Status displays can be accessed in several ways as described in the following table.

Product	Display type	Option
Experion	System Management Display	Select **Start** > **All Programs** > **Honeywell Experion PKS** > **System Management** > **System Management Display**. Or Select **Start** > **All Programs** > **Honeywell** > **System Management** > **System Management Display**
Experion	FTE Status auxiliary display	Select **Start** > **All Programs** > **Honeywell Experion PKS** > **System Management** > **FTE and Heartbeat Node Status Display**. Click the **FTE Status** hyperlink from the **System Status Display** in Station. Or Click the **FTE Community Status** tab on **Honeywell FTE Mux-IM Protocol Driver Properties** window.
TPS	System Management Display	Open your configured System Management Display from the Microsoft Management Console (**Start > Run** and type "mmc").
TPS	FTE Status auxiliary display	From the **System Management Display**, expand the network tree and then click an FTE node. Right-click the **FTE Status** component and click **Auxiliary Display**.

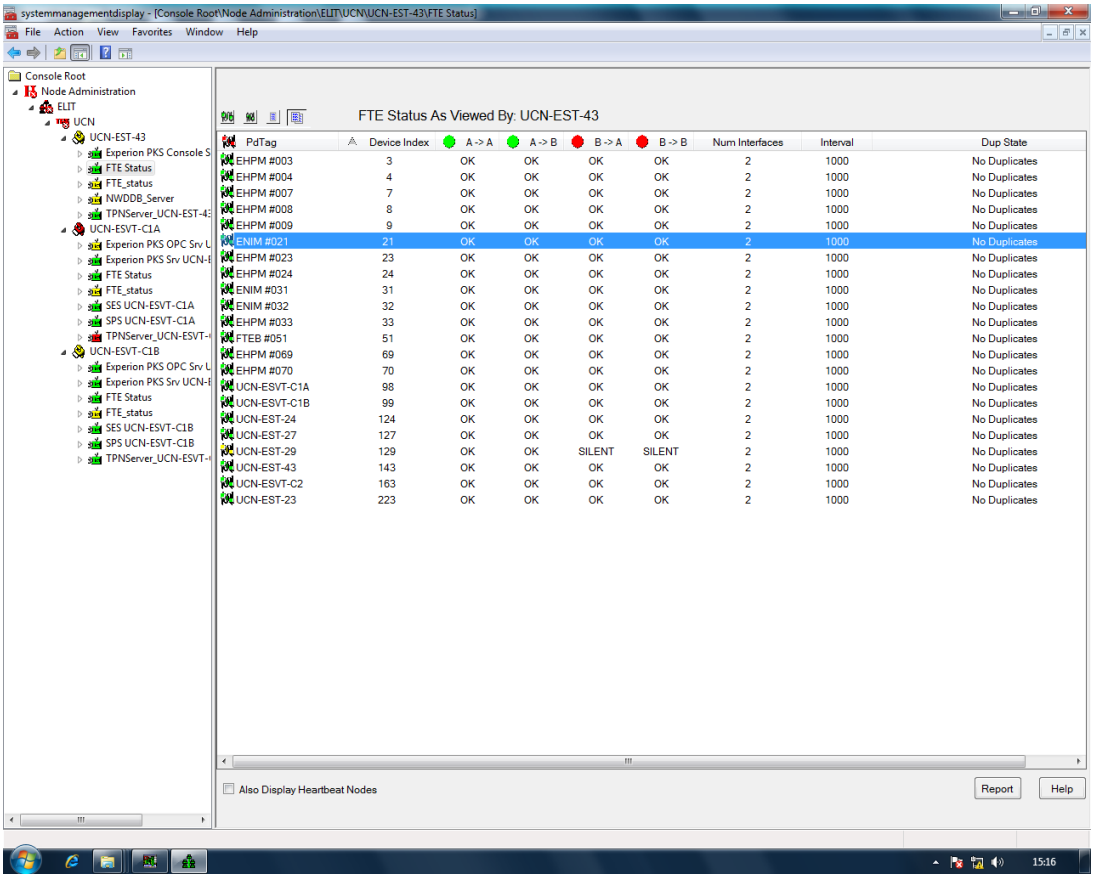
2.2.2 FTE Status displays

The FTE Status user interfaces do the following:

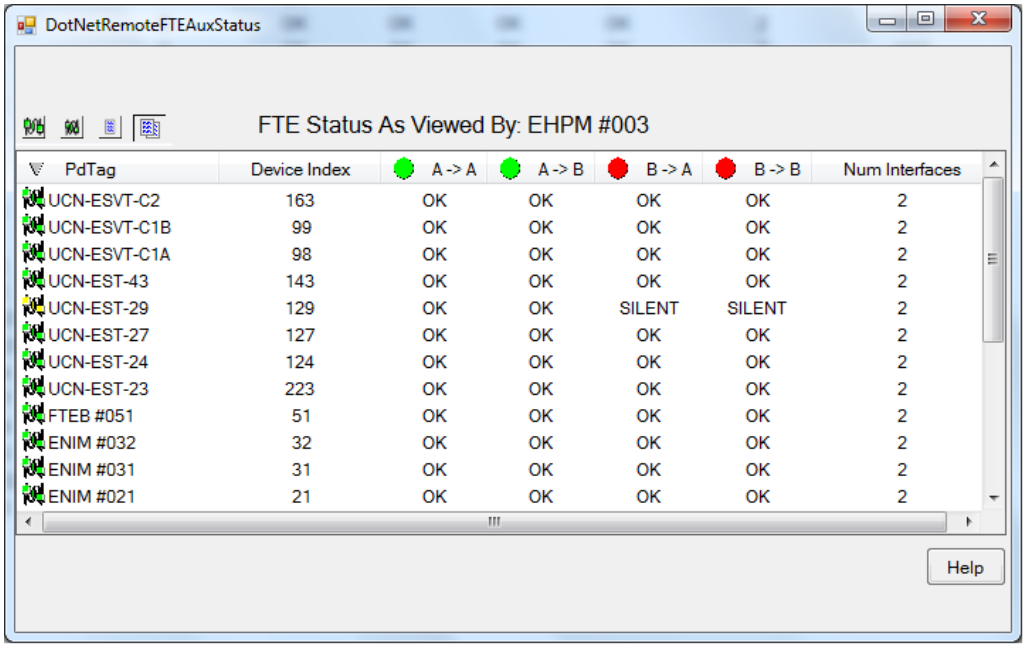
- **FTE Status Server** displays a composite communication link status of all FTE Nodes within the multicast scope. The following figure is an example of the display.



- **FTE Status Auxiliary** displays the individual communication link states for all FTE and Heartbeat nodes within the "Viewed By" node's multicast scope. With Experion R430, EHPM and ENIM can also be viewed in the FTE Status Auxiliary display. The following figure is an example of the display.



- **FTE Status Auxiliary Remote Node** displays the status of a remote FTE node's view of the FTE connections. With Experion R430, remote FTE node's view of the FTE connections can also be seen for EHPM and ENIM. The following figure is an example.



2.2.3 System management display

The System management display allows the node to display its status and the status of other nodes in the FTE community and multicast group. It is not needed if the node does not have a monitor or keyboard, such as some ACE nodes, or you do not wish to view the system management display from the node.

3 Installing FTE Status Display

Related topics

“Introduction” on page 14
“Installing FTE Status Server” on page 15

3.1 Introduction

The FTE Status Server is packaged and licensed with the Fault Tolerant Ethernet Driver and the System Management software.

System Management Display

If you are viewing the FTE status display from a System Management console, you must build and configure a system management display on at least one node within the multicast scope in order to view the FTE Status Server and Auxiliary Display. Procedures for the following tasks are in the *System Management Configuration Guide*.

- Installing System Management Display
- Creating a TPS Domain or Console
- Configuring a System Management Display

3.2 Installing FTE Status Server

3.2.1 Install FTE status components on TPS nodes

Use this procedure to install the FTE status component independently of the FTE driver.

Tip
Detailed instructions for installing and configuring the FTE driver software are in the *FTE Planning, Installation and Service Guide*.

1. Launch the Honeywell installer by inserting the TPS System Software media or double-clicking **Install** from the Package folder.
2. Select the appropriate package from the **Install** screen and click **Next**.
3. Review the **Honeywell Software Installation - Welcome** screen and click **Next**.
4. Review the **Honeywell Software Installation - End User License Agreement** screen and click **Next**.
5. Review the **Honeywell Software Installation - Third Party Software Compatibility Policy** screen and click **Next**.
6. Complete the **Honeywell Software Installation - User Information** screen and click **Next**.
7. Select **Fault Tolerant Ethernet Driver (FTE)** and click **Install Package**.
8. From the **Honeywell Software Installation - Installable Packages** uncheck the **Fault Tolerant Ethernet Driver** and leave the other selections checked.
9. Click **OK**.
10. Click **Exit** from the Installation window.

3.2.2 Install FTE status components on Experion nodes

The FTE status components are installed automatically on Experion nodes.

4 FTE Status Server

Related topics

“Introduction” on page 18
“Using the FTE status display” on page 21

4.1 Introduction

Related topics

“About FTE status server” on page 18
“FTE status server display” on page 18
“FTE status component fields” on page 18
“Device status and information details” on page 19

4.1.1 About FTE status server

The FTE status server only subscribes to events from FTE nodes. Even though the individual communication link states of Heartbeat nodes can be viewed in the FTE Auxiliary display, their status has no bearing on the composite link status (Device Status) as viewed from the FTE status server.

4.1.2 FTE status server display

The following figure shows the FTE status server from the System Management Status Display with the device status as "Running" and device info as "All FTE Nodes are communicating". This is the normal state of the FTE status server. See Table 1 for additional status states.

Tip
The communication status of single interface heartbeat nodes has no bearing on the composite link status as viewed from this display.

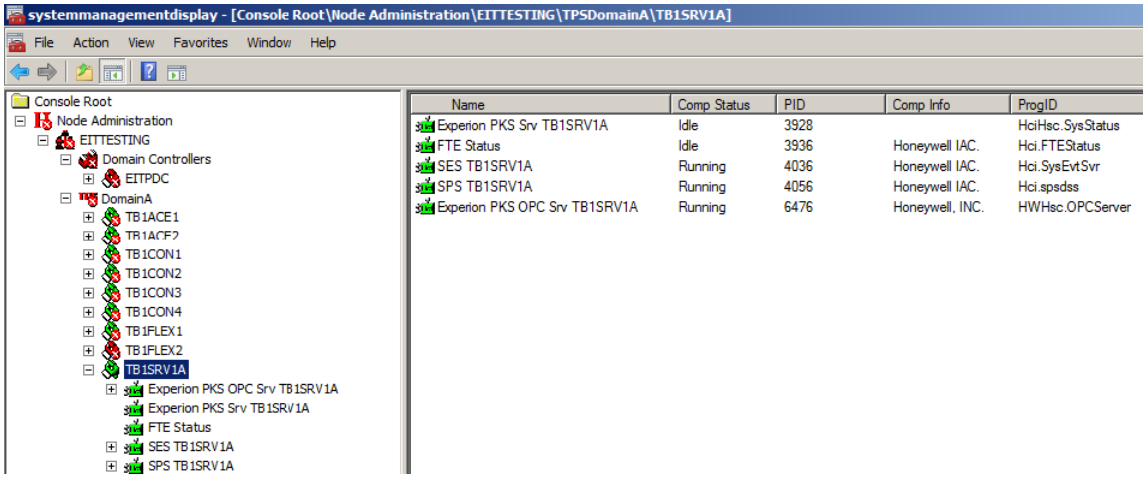


Figure 1: FTE Status Server Normal State

4.1.3 FTE status component fields

Column	Description
Name	Component name.
Comp Status	Current status of the component. Status states are in one of the following states. • stopped • idle • test

Column	Description
PID	Process identification number
Comp Info	Component information
ProgID	Program identification
Device Status	Composite link status of all FTE nodes being monitored. Refer the “Device status and information details” on page 19 for description of when these states occur. Status states are Running or Failed.
Device Info	Specific device status information. The message in Device Information varies depending on the reason for the device status state. Refer the “Device status and information details” on page 19 for description.

4.1.4 Device status and information details

The following table lists the Device Information messages for the Device Status states. In addition, refer to “Interface link status details” on page 30 for a list of status states for the interface links.

Device status	Device information	Description
Running	All FTE nodes are communicating	All FTE nodes have all four of their interface status links as either OK, or N/A.
Running	One or more FTE interfaces are not being heard	At least one of the interface status states of at least one FTE node is SILENT.
Failed	FTE node has failed on Interface A.	All FTE nodes have at least their A -> A and B -> A status states SILENT. **Attention** This status is only seen from an FTE node.
Failed	FTE node has failed on Interface B	All FTE nodes have at least their A -> B and B -> B status states SILENT. **Attention** This status is only seen from an FTE node.
Failed	FTE node has a Crosslink Failure	All FTE nodes have at least their A -> B and B -> A status states SILENT. **Attention** This status is only seen from an FTE node.
Failed	Heartbeat Provider has stopped. FTE Status cannot be determined.	The Heartbeat Provider is no longer running, and the status of the FTE nodes cannot be determined. There is a problem with the Heartbeat Provider on this node.
Failed	Error occurred. See Event Log for details. Need to restart FTE status server	An error that cannot be classified in one of the other categories has occurred. There is a problem with the FTE status server on this node. See the event log.
Failed	Heartbeat Provider failed to start	The FTE status server is unable to connect to the Heartbeat Provider. There is a problem with the Heartbeat Provider on this node.
Failed	FTEIMDrv service installed but not in *running* state	FTE driver is installed, but not running. There is a problem with the FTE driver on this node. **Attention** If the driver is not installed, it is assumed the node is a single interface node and no error is given.

Device status	Device information	Description
Failed	No FTE nodes were found	No FTE nodes were initially registered or all FTE nodes have failed or been removed.

4.2 Using the FTE status display

4.2.1 Open the FTE status display

To open the FTE status display

1 From the System Management Display.

a Click **Start** > **Run**, and then type `mmc` to open the Microsoft Management Console.

b Open your configured System Management Display.

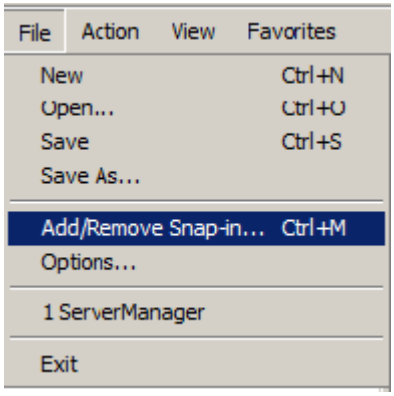
2 From the Start Menu, click **Start** > **All Programs** > **Honeywell Experion PKS** > **System Management** > **System Management Display**.

> **Tip**
> If you do not have a System Management Display configured, see the System Management Configuration Guide.

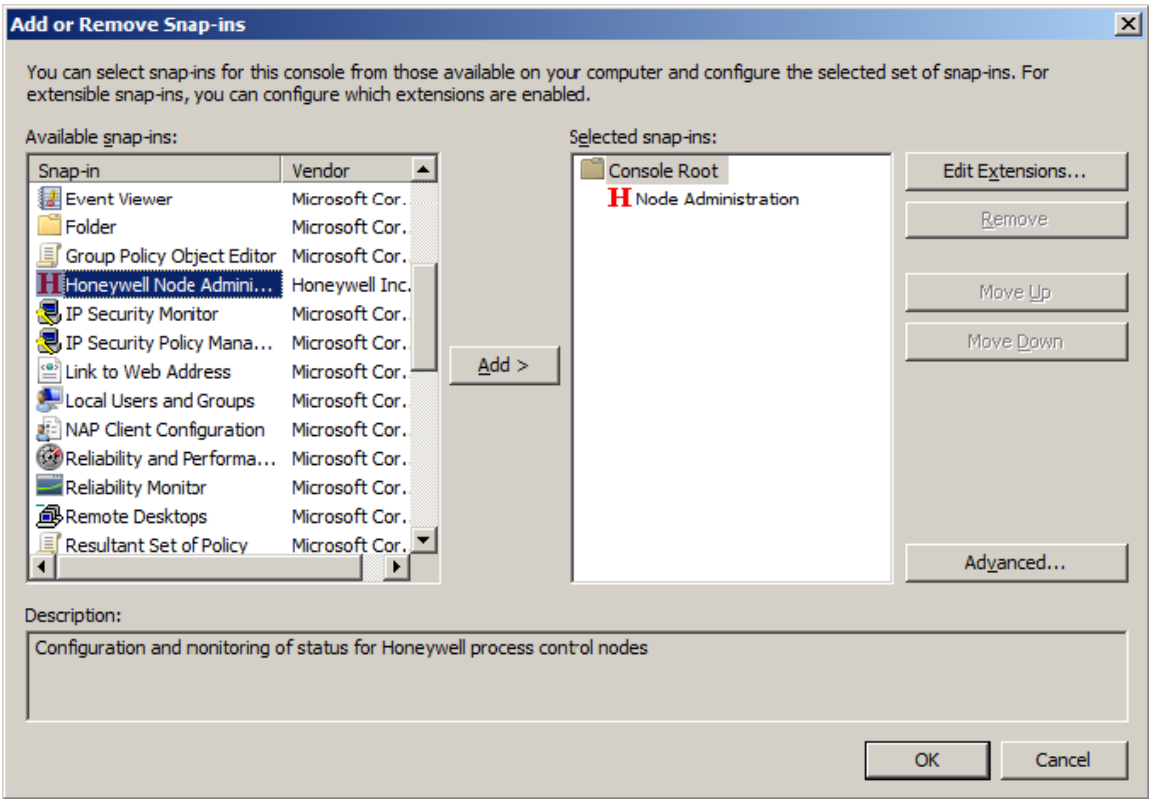
The **User Account Control** window is displayed

3 Click **Continue**.
The **System Management Display** window is displayed.

4 Choose **File** > **Add/Remove Snap-in**

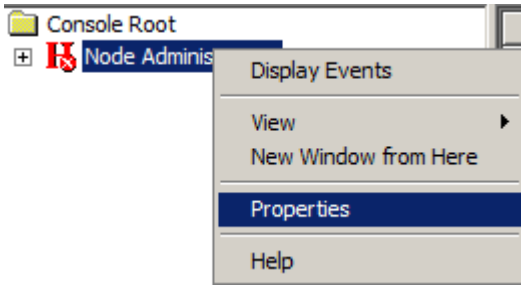


5 Click **Honeywell Node Administrator** and then click **Add >.**
The **Honeywell Node Administrator** is listed under **Selected snap-ins**.



6 Click **OK**.
The **Node Administrator** is displayed under the tree view.

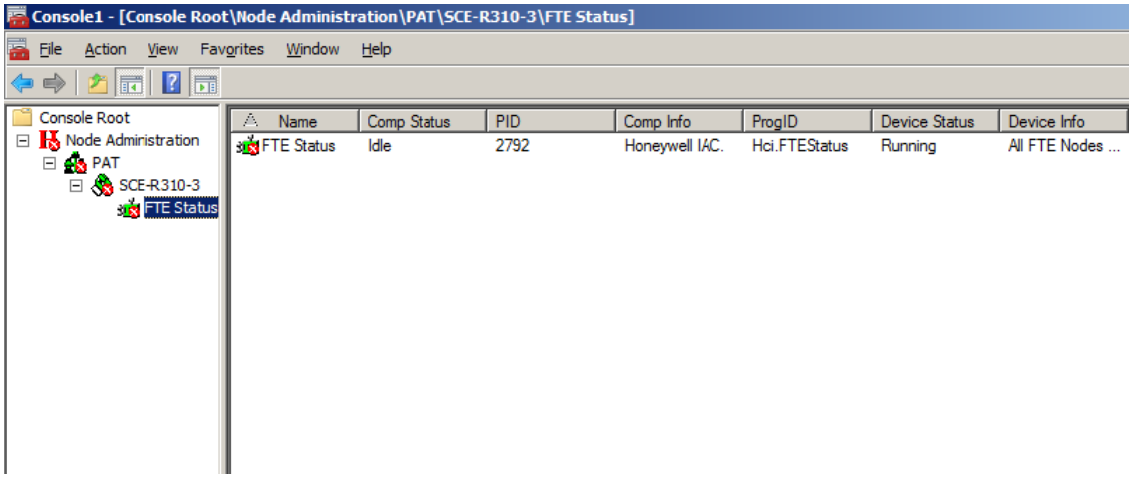
7 Right-click the **Node Administrator** and choose **Properties**.
The **Node Administrator Properties** window is displayed.



8 Click **Add/Remove Computers** and select the required FTE Node.

9 Click **OK**.
The selected FTE node is displayed under the **Node Administrator**.

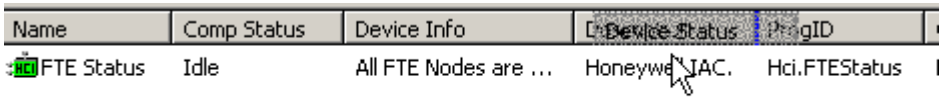
10 Click the node in the console Tree to view the FTE Status Server details in the right pane.



4.2.2 Change the view in the FTE Status Server details pane

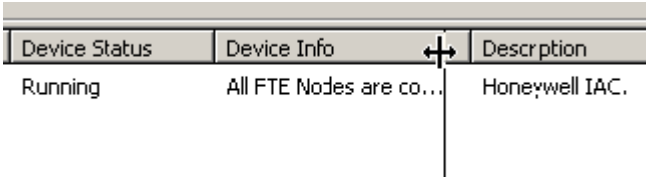
Use the following procedure to change the way columns are displayed in the FTE Status details pane.

1 To reorder columns, select a column heading and drag it to the left or right of its original position.



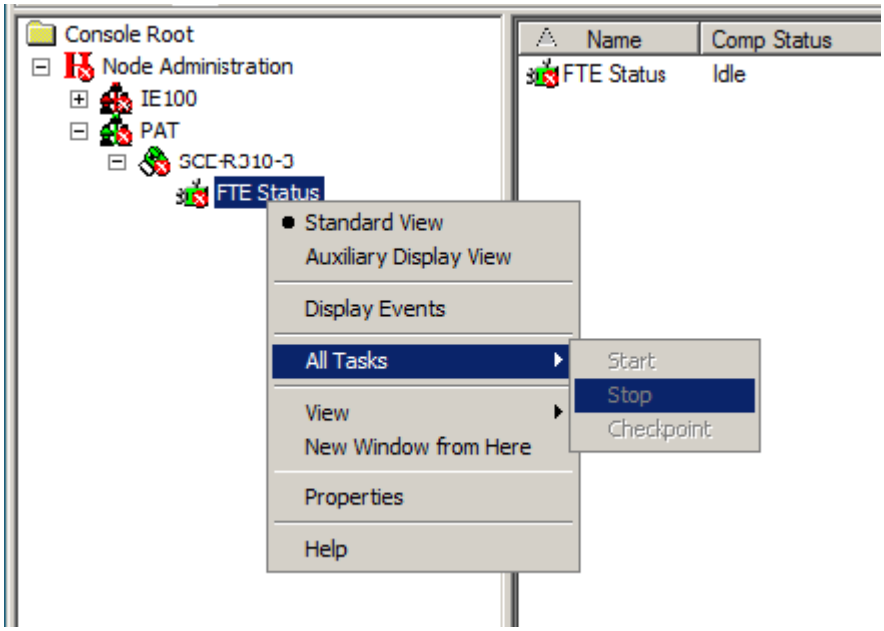
Attention
You cannot change the position of the leftmost column in the details pane.

2 To resize columns, select the right or left border of the column heading and drag it to resize the column.



4.2.3 Change FTE Component Status

1 Right-click the FTE Status server name.



2 Select **All Tasks**.

3 Select one of the options.

5 FTE Status Auxiliary Display

Related topics

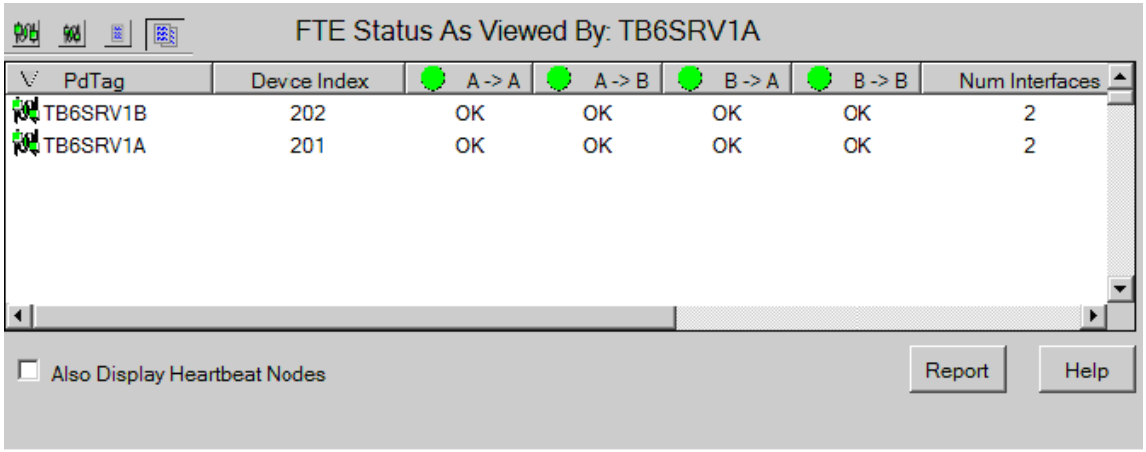
“Overview of FTE Status Auxiliary Display” on page 26
“Using the FTE Status Auxiliary Display” on page 29
“Monitoring Link Status from the Auxiliary Display” on page 30
“Viewing FTE Status Auxiliary Display of remote FTE node” on page 33

5.1 Overview of FTE Status Auxiliary Display

The FTE Status Auxiliary Display provides detailed information on all the links monitored by the Heartbeat Provider. You can view the link status of both FTE nodes and heartbeat nodes using this display.

The following image shows the link status states for the dual ports (A and B) on TB6SRV1A and TB6SRV1B. All FTE and heartbeat nodes within the **Viewed By** node's multicast scope is displayed. Heartbeat nodes are displayed only if the **Also Display Heartbeat Nodes** checkbox is selected.

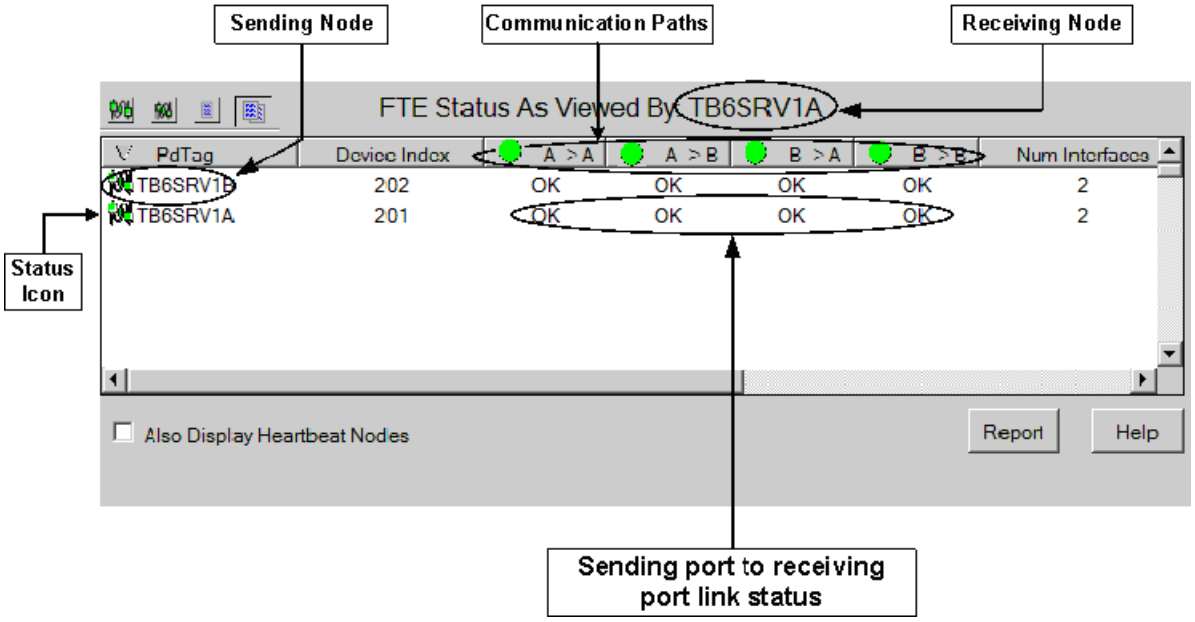
In this figure, the status for all interface links is **OK**, which is the normal operating state for the FTE node links. The link status is always in relation to the **Viewed By** or receiving node. For example, the **A —> B** link status indicates what the viewed by node's **B** port hears from the monitored node's (identified in the PdTag column) **A** port.



5.1.1 FTE status auxiliary fields

Field	Description
FTE Status As Viewed By	Displays the name of the local FTE or heartbeat node that the status is being viewed from. All of the link status information displayed for the other nodes is in relation to this node.
PdTag	Host name or computer name and status icon.
Device Index	This is the FTE Node number that is set by the user in the FTE Configuration page during FTE driver installation and configuration. Nodes with a device index of zero are not FTE Nodes.
A > A	Indicates whether port A of the sending node can transmit to port A of the receiving (viewed by) node.
A > B	Indicates whether port A of the sending node can transmit to port B of the receiving (viewed by) node.
B > A	Indicates whether port B of the sending node can transmit to port A of the receiving (viewed by) node.
B > B	Indicates whether port B of the sending node can transmit to port B of the receiving (viewed by) node.
Num Interfaces	The number of network interface ports available on the node. Value can be 1 or 2.
Interval	The diagnostic message interval. This value determines the amount of time between diagnostic messages.

Field	Description
Dup State	Duplicate detection state. Status states are: • No Duplicates: normal state • Duplicate Device Index • Duplicate PdTag • Both Duplicate PdTag and Device Index
Also Display Heartbeat Nodes	Check this box to display single interface nodes that have the Heartbeat Provider installed and are in the current multicast scope.



Attention

The composite status is provided to easily identify any single fault when the number of nodes exceeds the number of currently displayed nodes. You must scroll down in the window and search each individual node to check if there is a problem. If there is a red circle in the composite node status, it means that at least one node in the display is silent on that particular communication path.

5.1.2 FTE Status Auxiliary Display status icon

The **PdTag** column displays a status icon for each displayed node. These status icons represent what the Receiving node is currently hearing from the Sending node. The icons are only relevant when viewing true FTE Nodes.

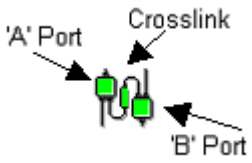


Figure 2: FTE Auxiliary Status Icon

5.1.3 Icon color states for Links

The following table displays the icon colors based on the values of the link status states.

Attention

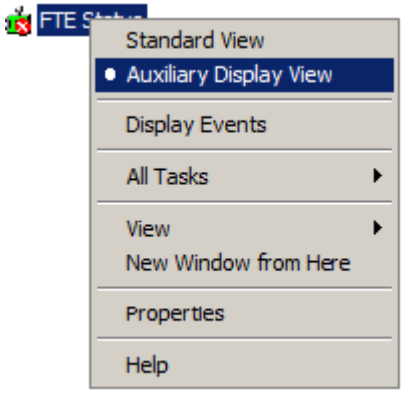
The icon's purpose is to indicate simple network problems. Do not overanalyze the color of the icon to diagnose a problem. Refer to the interface link status to determine the cause of the failure.

Values	"A" Port Color	Crosslink Color	"B" Port Color
Look at values in…	**(A ->A) & (B -> A)**	**(A ->B) & (B -> A)**	**(A ->B) & (B -> B)**
If both values are silent…	Red	Red	Red
If both values are OK or N/A…	Green	Green	Green
When one link status is Silent and the other link status is OK or N/A…	Yellow	Yellow	Yellow

5.2 Using the FTE Status Auxiliary Display

To open FTE status auxiliary display

1 Start the FTE Status Server if it is not already running.



2 Right-click the FTE Status server name.

3 Select **Auxiliary Display**. The Auxiliary Display opens.

To display heartbeat nodes

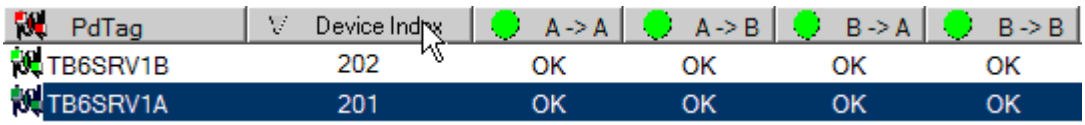
- From the FTE Auxiliary Status display, select **Also Display Heartbeat Nodes**.

Both FTE and Heartbeat nodes are displayed.

PdTag	Device Index	A -> A	A -> B	B -> A	B -> B	Num Interfaces	Interval	Dup State
C300 #181	181	OK	OK	OK	OK	2	1000	No Duplicates
C300 #180	180	OK	OK	OK	OK	2	1000	No Duplicates
C300 #179	179	OK	OK	OK	OK	2	1000	No Duplicates
C300 #178	178	OK	OK	OK	OK	2	1000	No Duplicates
C300 #177	177	OK	OK	OK	OK	2	1000	No Duplicates
C300 #176	176	OK	OK	OK	OK	2	1000	No Duplicates
C300 #175	175	OK	OK	OK	OK	2	1000	No Duplicates

To change the view in the FTE status auxiliary display

1 To sort columns, click a column heading to sort in ascending order. Click again to sort in descending order.



2 To reorder columns, select a column heading and drag it to the left or right of its original position.

> **Attention**
> You cannot change the leftmost column's position in the details pane.

3 To resize columns, select the right or left border of the column heading and drag it to resize the column.

5.3 Monitoring Link Status from the Auxiliary Display

The FTE Status Auxiliary Display provides the individual link status for all of the FTE and Heartbeat nodes that the Receiving node is able to see. By reviewing all the link status states for each one of these sending nodes, you can identify which node port has failed. Use the information and examples in this section to clarify what the values indicate.

5.3.1 Link status states

The possible states for the Link Statuses are as follows:

- **OK**: The receiving node can communicate with the sending node's specific port interface.
- **SILENT**: The receiving node cannot communicate with the sending node's specific port interface due to a failure.
- **N/A**: Not available is used for single interface nodes, and indicates that the port interface does not exist, and is not used in determining the FTE Device Status.

5.3.2 Interface link status details

The following table lists the potential status states and their indications for each interface link.

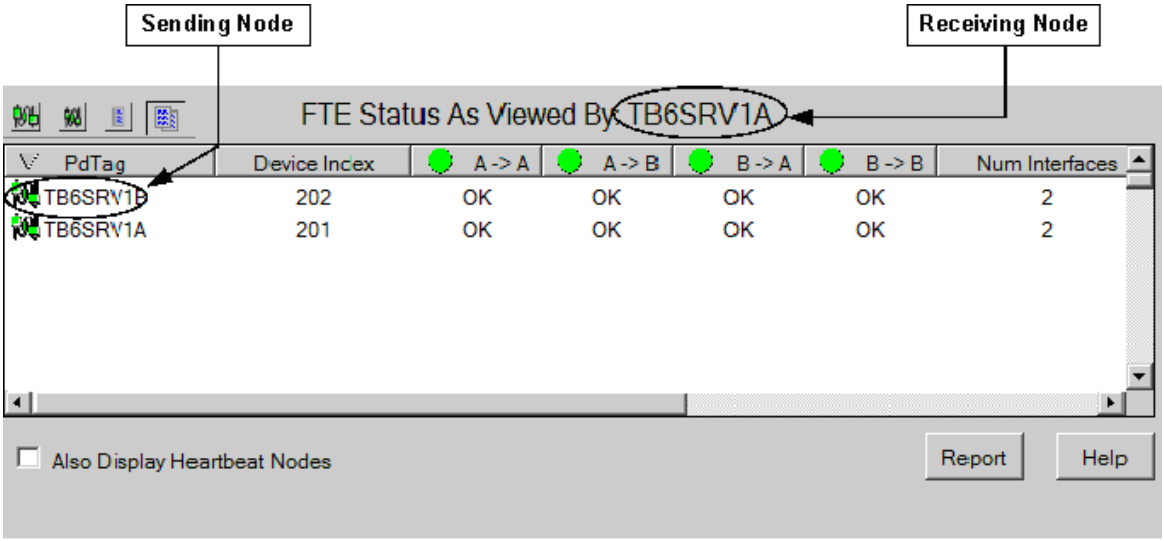


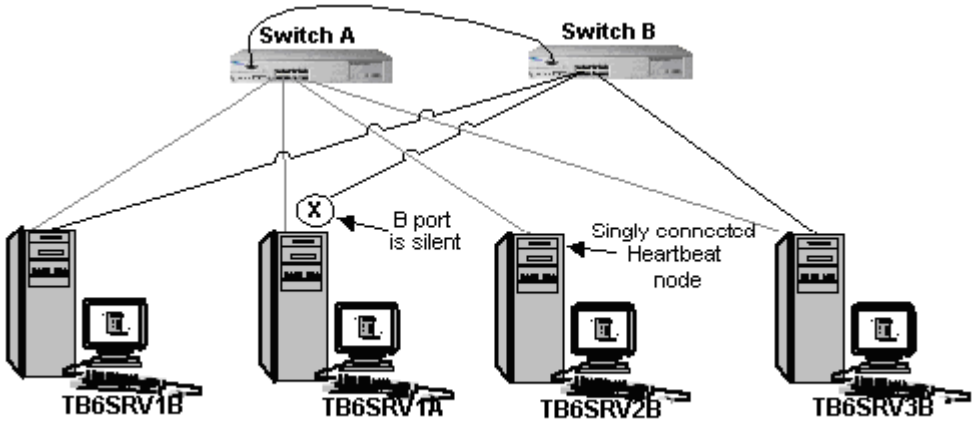
Figure 3: Sending Nodes' Link Status

Interface link	Status states	Status description
A -> A	OK	Receiving node's A port is receiving communication from sending node's A port.
	SILENT	Receiving node's A port is NOT receiving communication from sending node's A port.
	N/A	This status must not occur in the A -> A column.
A -> B	OK	Receiving node's B port is receiving communication from sending node's A port.
	SILENT	Receiving node's B port is NOT receiving communication from sending node's A port.
	N/A	Receiving node does not have a B port.

Interface link	Status states	Status description
B -> A	OK	Receiving node's A port is receiving communication from sending node's B port.
	SILENT	Receiving node's A port is NOT receiving communication from sending node's B port.
	N/A	Sending node does not have a B port.
B -> B	OK	Receiving node's B port is receiving communication from sending node's B port.
	SILENT	Receiving node's B port is NOT receiving communication from sending node's B port.
	N/A	Sending/Receiving nodes do not have a B port.

5.3.3 Example of silent port

The following figure is an example of a small FTE cluster that has one Heartbeat node and three FTE nodes. Note that port B of TB6SRV1A is silent. In this situation, the table below illustrates what is seen in the FTE Auxiliary Display of each "Viewed By" node.



As Viewed By: From TB6SRV1B				
PdTag	**A -> A**	**A -> B**	**B -> A**	**B -> B**
TB6SRV1B	OK	OK	OK	OK
TB6SRV1A	OK	OK	SILENT	SILENT
TB6SRV2B	OK	OK	N/A	N/A
TB6SRV3B	OK	OK	OK	OK
As Viewed By: From TB6SRV1A				
PdTag	**A -> A**	**A -> B**	**B -> A**	**B -> B**
TB6SRV1A	OK	SILENT	SILENT	SILENT
TB6SRV2B	OK	SILENT	N/A	N/A
TB6SRV3B	OK	SILENT	OK	SILENT
TB6SRV1B	OK	SILENT	OK	SILENT
As Viewed By: From TB6SRV2B				
PdTag	**A -> A**	**A -> B**	**B -> A**	**B -> B**
TB6SRV2B	OK	N/A	OK	N/A

TB6SRV3B	OK	N/A	OK	N/A
TB6SRV1B	OK	N/A	OK	N/A
TB6SRV2B	OK	N/A	SILENT	N/A
As Viewed By: From TB6SRV3B				
PdTag	**A -> A**	**A -> B**	**B -> A**	**B -> B**
TB6SRV3B	OK	OK	OK	OK
TB6SRV1B	OK	OK	OK	OK
TB6SRV1A	OK	OK	SILENT	SILENT
TB6SRV2B	OK	OK	N/A	N/A

5.4 Viewing FTE Status Auxiliary Display of remote FTE node

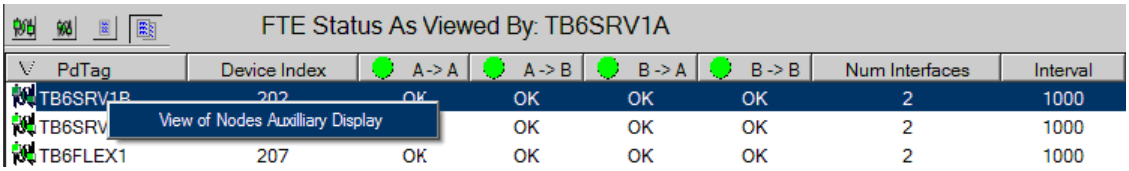
Use this feature to view the FTE status as seen from the remote node's view. This provides a view of the status array that is transmitted by the FTE driver for each FTE node. Since this is the view as seen from the FTE driver, it is only available on FTE nodes. For example, if you are currently at FTE node TB6SRV1A, but you must view the status as if you were at FTE node TB6SRV1B, right-click node TB6SRV1B to view the status from that node.

With Experion R430, EHPM and ENIM can also be viewed as remote FTE nodes.

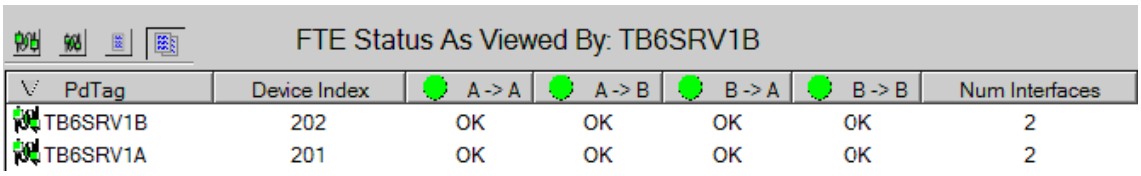
5.4.1 Display remote node status

Use this procedure to display a remote FTE node's view of the status array.

1 From the FTE Status Auxiliary display, right-click the node from which you would like to view the status.



2 Review the status from the remote node’s view.



6 Notices

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6.1 Documentation feedback

You can find the most up-to-date documents on the Honeywell Process Solutions support website at:

http://www.honeywellprocess.com/support

If you have comments about Honeywell Process Solutions documentation, send your feedback to:

hpsdocs@honeywell.com

Use this email address to provide feedback, or to report errors and omissions in the documentation. For immediate help with a technical problem, contact your local Honeywell Process Solutions Customer Contact Center (CCC) or Honeywell Technical Assistance Center (TAC) listed in the “Support and other contacts” section of this document.

6.2 How to report a security vulnerability

For the purpose of submission, a security vulnerability is defined as a software defect or weakness that can be exploited to reduce the operational or security capabilities of the software.

Honeywell investigates all reports of security vulnerabilities affecting Honeywell products and services.

To report a potential security vulnerability against any Honeywell product, please follow the instructions at:

https://honeywell.com/pages/vulnerabilityreporting.aspx

Submit the requested information to Honeywell using one of the following methods:

- Send an email to security@honeywell.com.

  or

- Contact your local Honeywell Process Solutions Customer Contact Center (CCC) or Honeywell Technical Assistance Center (TAC) listed in the “Support and other contacts” section of this document.

6.3 Support

For support, contact your local Honeywell Process Solutions Customer Contact Center (CCC). To find your local CCC visit the website, https://www.honeywellprocess.com/en-US/contact-us/customer-support-contacts/Pages/default.aspx.

6.4 Training classes

Honeywell holds technical training classes on Experion PKS. These classes are taught by experts in the field of process control systems. For more information about these classes, contact your Honeywell representative, or see http://www.automationcollege.com.