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About This Document

This guide describes supplementary installation tasks that must be done before you use T-Nodes on an Experion system. It also describes configuration tasks necessary for T-Nodes.

Release Information

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## Symbol Definitions

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<td>![ ATTENTION ](icon ATTENTION.png)</td>
<td><strong>ATTENTION</strong>: Identifies information that requires special consideration.</td>
</tr>
<tr>
<td>![ TIP ](icon TIP.png)</td>
<td><strong>TIP</strong>: Identifies advice or hints for the user, often in terms of performing a task.</td>
</tr>
<tr>
<td>![ REFERENCE - EXTERNAL ](icon REFERENCE_EXTERNAL.png)</td>
<td><strong>REFERENCE - EXTERNAL</strong>: Identifies an additional source of information outside of the book set.</td>
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</tr>
<tr>
<td>![ STOP ](icon STOP.png)</td>
<td><strong>STOP</strong>: Indicates that you have completed this task.</td>
</tr>
<tr>
<td>![ IMPORTANT INFORMATION ](icon IMPORTANT_INFORMATION.png)</td>
<td><strong>IMPORTANT INFORMATION</strong>: Identifies information that if not followed exactly, could result in your system not responding the way you may think it should.</td>
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1. Overview of Experion and TPS Nodes

1.1 Introduction to Experion and TPS Integration

Experion as a growth path for TPS

The Experion™ PKS (Process Knowledge System) platform offers a replacement for Global User Station (GUS) and Universal Station (US) functionality through the use of the Experion Station-TPS and Experion Server-TPS. Because the nodes connect directly to the LCN (Local Control Network), also known as the TPN (TotalPlant Network), virtually all data, events, and operator messages previously presented on the GUS or US are incorporated into the Experion Station-TPS.

About this document

This guide is intended for the following users:

- System engineers needing to configure the integrated Experion and TPS nodes.
- Operations personnel needing an introduction to the integrated Experion and TPS nodes.

This guide assumes that your support team is familiar with

- Configuring and operating a TPN/LCN system,
- Navigating and operating Windows applications, and
- Interpreting basic network concepts, terms, and components.

Throughout this document there are procedures that require special attention or else the system may not perform as intended. Procedures indicated with the following icon are most likely to be missed and need to be verified.

ATTENTION

For detailed descriptions of Experion nodes, refer to

- Experion Knowledge Builder documentation, and
- Online Help available on each Experion node.
1. Overview of Experion and TPS Nodes
1.1. Introduction to Experion and TPS Integration

System Topology

The following figure illustrates a simple architecture using integrated Experion-TPS (ES-T and ESVT) nodes. The Plant Information Network can be implemented as a Fault Tolerant Ethernet network.

Experion Station-TPS

The Experion Station-TPS (ES-T) node provides the same operations environment as other types of Experion Stations. Experion Stations have the ability to use Honeywell’s HMIWeb® technology for custom graphics and presentation of alarms, events, and messages. HMIWeb technology uses HTML as the native display format, allowing process, application, and business data to be integrated.

In addition, the ES-T provides the Native Window application that emulates a Universal Station and optionally supports GUS displays. The Native Window and GUS runtime connect to a locally installed LCNP (LCN processor) board, providing a user interface with access to all TPN/LCN operations, engineering, and maintenance functions. Additionally, the GUS display environment is also available for an ES-T.
1. Overview of Experion and TPS Nodes
1.1. Introduction to Experion and TPS Integration

Experion Server-TPS

An Experion-TPS Server (ESVT) node supports the same real-time database and subsystems as the Experion Server. The ESVT has a locally-installed LCNP board for accessing the TPN/LCN. The ESVT provides support for initial Experion configuration and also supports functions such as history collection, archiving, and reporting.

Experion Stations

Several types of Experion Stations are available to satisfy a range of needs; they include Experion Station-Flex, Experion Station-Console and Experion Station-Console Extension, and Experion Station-TPS (ES-T).

Experion Station-Console (ES-C) communicates directly to a control execution environment supporting devices such as the Experion controller. An Experion Station-TPS requires an FTE connection to Experion controllers. Experion Station-TPS supports both Experion control execution environments and TPN/LCN control environments.

Experion Station-Flex (ES-F) can use a client-server relationship with an ESVT to present process data to the user. An ES-F can be applied anywhere (including internet, wireless, and dial-up connections), as long as it has a connection to the Experion Server. The ES-F could be used on the plant floor, in satellite control rooms, and in the engineering and maintenance offices.

All Experion Station types provide the Station application as an operator interface and share the available feature set for consistent operation. Custom displays, trends, and other operations displays are configured once and available across the various types of Experion Stations. The ES-T also provides the Native Window as a familiar interface for previous users of the GUS or US.

Experion Servers

Multiple Experion Servers can reside in an Experion system and provide the following:

- Servers can be either Experion Servers (that is, connected to an Experion system) or ESVTs (that is, connected to an Experion system and LCN system).
- Cluster Server is the term used for both Experion Server and ESVT, since both of these servers manage an Experion cluster of nodes and contain configuration information as well as the Real-time Database for their local Experion cluster of nodes.
- Experion Servers have an optional redundancy subsystem designed to fail over to a backup server in the event of a failure of the primary or controlling server.
1. Overview of Experion and TPS Nodes
1.1. Introduction to Experion and TPS Integration

Console Extensions

For each ES-T, you can connect up to three Experion-TPS Console Stations Extensions. Console Station Extensions connect to an ES-T in the same way that a Flex Station connects to an Experion server. Extension stations then provide support for Remote GUS Displays and Remote Native Window options.

Console functionality

Experion supports console functionality through deployment of Experion Console Stations and Experion-TPS Console Stations Extensions. ES-Ts, GUSs, and USs are members of a LCN console. The ES-T members of an LCN console can optionally be configured as members of an Experion console. ES-Ts are members of both Experion and LCN consoles. Experion Stations with Console Extensions (ES-CE) that are clients of a host ES-T become members of the same Experion console as the host ES-T. The following figure illustrates the console concepts.
Control Integration

Both ES-T and ESVT can directly connect to Experion controllers as well as support the ACE-T. The Experion controllers require FTE connections. The Experion controllers are not directly connected to the TPN.
1. Overview of Experion and TPS Nodes
1.2. Architectural Overview

System data flow

In a plant-wide system, data is typically shared between servers over a high-bandwidth network, such as a 100Mb or higher Ethernet. In this case each server is assumed to be responsible for controlling a different part of the plant. Typically there are multiple control rooms, or multiple stations in the same control room, each associated with a specific server. The following diagram illustrates the data flow for ES-T and ESVT. LCN (TPN) alarms and events are published to the ES-T and ESVT nodes. The ES-T and ESVT nodes both have a TPN/LCN alarm list that collects the TPN/LCN alarms and events. They receive TPN/LCN data directly from their local TPS (LCNP) connection.

The Distributed System Architecture (DSA) option enables multiple Experion servers to share data, alarms, messages, and history without the need for duplicate configuration on any server. Specific configuration procedures are required to set up DSA. Point information brought into the Experion servers by way of DSA is then shared with the Experion stations. An ES-T accesses DSA and SCADA information through its Cluster Server (including information through DSA communications between two ESVTs. For more information about using Flex Stations and DSA, see *Remote TPN Operations using Flex Stations*.
1. Overview of Experion and TPS Nodes
1.2. Architectural Overview

About this section

The following section provides a functional overview of the ES-T and ESVT. Having an understanding of the node architecture assists in the performance of implementation and operation tasks.

ES-T Architecture

In addition to Console Station functions, the ES-T includes:

- **Console Station Services** – This software supports standard summaries, trends, reports, and HMIWeb displays. It directly connects to the TPN Server to access TPN/LCN data. Note: Reports are a function of the ES-T and can be generated and viewed on an ES-T only when it is connected and synched with its ESVT.

- **TPN Server** – This private OPC server obtains TPN/LCN data, alarms, and events directly through the local LCNP, and builds a data cache to serve data to its clients. The TPN Server is automatically linked to the Experion platform layer on the ES-T, where the node maintains the Experion data cache and alarm list.

- **LCNP** – This hardware board provides a connection to the TPN/LCN. When the board is loaded with the TPN/LCN personality, it provides the full functionality of a Universal Station, viewable through the Native Window. The LCNP board provides TPN/LCN data, process alarms, events, and support for the Native Window, TPN Server, and TPS Faceplates and GUS displays that service TPN/LCN data points.
ESVT Architecture

In addition to the Experion Server functionality (archiving, journaling, reporting, server redundancy, and SCADA facilities to communicate with controllers and remote terminal units), the primary components of an ESVT include the following:

- **TPN Server** – This private OPC server obtains TPN/LCN data, alarms, and events directly through the local LCNP, and builds a data cache to serve data to its clients. The TPN Server on the ESVT node is automatically linked to the Experion Server layer, where the node maintains the Experion data cache and alarm list.

- **LCNP** – This hardware and software component provides a connection to the TPN/LCN. When an ESVT is loaded with the LCNP personality, it acts as a specialized Application Processing Platform (APP).

---

**ATTENTION**

Honeywell has not qualified nor recommends that the user build Application Module (AM) points on the ESVT. The ESVT is dedicated to other Experion PKS platform functions such as event journaling of the TPN/LCN.
1.3 Enterprise Model Overview

About the Enterprise Model and TPN

The Enterprise Model Builder is the application used to build, edit and download an Enterprise Model in Experion. The enterprise model provides a means of organizing the core operational environment around a hierarchical asset model; typically configured to represent the physical assets of the plant or mill. The Enterprise Model is fully integrated with the TPN. TPN Units and the points that they contain are associated with Enterprise Model’s Assets in a similar way that they were previously associated with Experion Areas.
1. Overview of Experion and TPS Nodes
1.3. Enterprise Model Overview

TIP
In the Enterprise Model example, A1, A2, B1, and C1 are TPN Units while Mixer, Reactor A, Tank B, and Tank C are levels added by the Enterprise Model Builder to organize the TPN Units into logical groupings.

Enterprise Model Builder in Configuration Studio
Enterprise Model Builder is a standard tool in the Configuration Studio. The Enterprise Model Builder stores your user-configured assets in the Enterprise Model Database (EMDB). The EMDB resides on an Experion Server node. For TPS systems this can be the ESVT.

TIP
For more information about the Enterprise Model, see Enterprise Model Builder in the Enterprise Model Builder user's Guide.
1.4 Implementation Overview

About this section

The following provides an overview of the implementation approach and the resources you can refer to during configuration.

Implementation flowchart

Using checklists from this document that identify the resources you need, in general your implementation begins with the following tasks:

- Install and configure the Experion Server, Console Station, TPN/LCN, and TPS software. Refer to the Software Installation and Upgrade Guide for the necessary steps.
- Configure the TPN/LCN and TPS software. Refer to this guide for the necessary steps.
- Perform the site-specific tasks, as needed to fully implement the Experion nodes in support of plant operations. Refer to this guide for an overview of several key tasks. For detailed information, refer to the Experion Knowledge Builder and the Help available on each Experion node.
1. Overview of Experion and TPS Nodes
1.5. Implementation Environment

1.5 Implementation Environment

About this section

This section provides an overview of your implementation environment when deploying Integrated Experion-TPS nodes. The environment includes the following:

- Experion and TPS engineering tools
- System management
- Operating system
- Security management
- Hardware and furniture

Experion engineering tools

Experion engineering tools are available from Configuration Studio.

![Configuration Studio](image-url)
TPN/LCN engineering tools

TPN/LCN engineering tools are available from the Native Window of an ES-T.

![Native Window - EST 45](image)

### ENGINEERING MAIN MENU

- UNIT NAMES
- AREA NAMES
- CONSOLE NAMES
- LCN NODES
- SYSTEM WIDE VALUES
- HIWAY GATEWAY
- LOGIC BLOCKS
- APPLICATION MODULE
- COMPUTING MODULE
- NETWORK INTERFACE MODULE

TPS engineering tools

TPS engineering tools are available from the TPS program group under Programs->Honeywell Experion PKS->TPS Applications as shown below.

![TPS engineering tools](image)
1. Overview of Experion and TPS Nodes

1.5. Implementation Environment

**Network tree**

You can configure a Network tree so that you can view a network items’ status and health from the System Status Display. From the network tree in the System Status display, you can then access performance and configuration detail displays for the network tree items that display performance and configuration data. Refer to the *Server and Client Configuration Guide* for more details on how to configure the Network tree to appear in the Experion displays.

**System Management Display**

The System Management Display provides a hierarchical view of the Windows domains, the computers in TPS domain organizational units, and the status of HCI (Honeywell Communication Interface) components residing in those computers. The display appears within a Microsoft Management Console (MMC).

**Operating System**

System security

The ES-T and ESVT support operator-based security. Station-based security is not supported on an ES-T. ES-T starts with the credentials of the current Windows account. The equivalent operator definition must exist in Experion. Windows authenticates the user logging on to the computer against the Windows user account. The Experion server then controls authorization by using security levels and assets. Operators use an application called Signon Manager to sign on and off without having to log off of the computer, which would cause loss of view of the process.

ATTENTION

The operator-based security account needs to be linked to a Windows account or group.
1. Overview of Experion and TPS Nodes
1.5. Implementation Environment

PC station furniture
The furniture styles shown may be used to support the ES-T.
1.6 Viewing the Process

Summary of process interfaces

With an ES-T, you have the following facilities for viewing the process:

- HMIWeb displays
- SafeView® window management
- Experion Station application displays
- Native Window (TPN/LCN) displays
- HMIWeb Detail Displays and Faceplates for TPN
- Standard GUS Runtime Displays

HMIWeb displays

The HMIWeb Display Builder is a tool for building custom graphical displays using web-based features in HTML. Additionally, Experion supports TPN with its HMIWeb Detail displays for TPN points and HMIWeb Faceplates for TPN point.
1. Overview of Experion and TPS Nodes
1.6. Viewing the Process

SafeView application

The SafeView application enables you to create well-organized groupings of multiple windows and coordinate window placement across applications. SafeView helps ensure that display placement of critical operating displays is predictable and that they are never obstructed by other displays or applications. SafeView’s multi-window support, as shown in the following figure, provides the capability to view and manage multiple Station windows, a Native Window, and other Honeywell or third-party displays.
Experion standard displays

The Station application is the user interface to the Experion platform and includes setup and configuration displays, as well as displays that operators can use for monitoring and controlling plant processes. The following types of Experion displays, and others, are viewable through the Station application:

- Message Summary
- Trend displays
- Alarm Summary
- Group
- Detail

Experion Group displays support TPN/LCN points. The same Group and Detail displays that were available on the Universal Station for TPN/LCN points are available through the Native Window. Native Window displays (such as Groups 1-450) can be invoked from HMIWeb displays or directly accessed through the Native Window. Additionally, TPN points can be added to Experion Group displays.
1. Overview of Experion and TPS Nodes

1.6. Viewing the Process

The following figure shows examples of several Experion displays that are viewable through the Station application.
Native Window displays

The Native Window functionality of the ES-T allows you to access all functions of the TPN/LCN. If you are an experienced Honeywell Universal Station (US) user, you will recognize that the Native Window provides nearly identical functionality.

Native Window custom schematics can be invoked using standard Experion methods of display invocation.
HMIWeb Faceplates for TPN points

The HMIWeb-based faceplate displays support the TPN’s AM, NIM, HG point types. The HMIWeb-based faceplate provides a replacement for the classic TPN faceplate which is also supported in Experion.
HMIWeb Detail displays for TPN points

Experion provides a set of native HMIWeb displays that access an extended set of standard operational parameters associated with a given TPN point. The displays provide access to TPN operational parameters.
1. Overview of Experion and TPS Nodes

1.7. Analyzing the Process

GUS runtime displays

GUS runtime displays are supported in the ES-T. Additionally,

Remote GUS displays will function on an ES-T extension node; see the Remote GUS User’s Guide for more information.

1.7 Analyzing the Process

Reports

Experion reports provide a flexible way to get information from the Server database. The reports available as part of Experion are pre-formatted reports such as Alarm and Event, Alarm Duration, and Batch. You can also configure custom reports using Microsoft Excel and/or Free-format. After you have configured reports for your site, operators and other users can request these reports. Reports can be printed or viewed on Experion Server and Station displays, or saved in a file.

Historization

Trend displays are standard Station displays that provide a way of viewing historical data for points. Trend displays complement other types of displays that can be used to view historical data such as point detail trends, group trends, and custom display trends.
1. Overview of Experion and TPS Nodes

1.7. Analyzing the Process
1.8 Desktop Familiarization

About this section

This section identifies the desktop applications available at an ES-T or ESVT by program grouping.

Program groups

After selecting the Honeywell Experion PKS program group from the Start menu, users can access the following program groups.

ESVT:

![ESVT Program Groups](image1)

ES-T:

![ES-T Program Groups](image2)
Console Station program group

The following figure shows these Console Station applications:

- HMIWeb Display Builder – used to build displays that support your process. Typically, displays are built and saved on the Server and then replicated to Stations. You can build displays on the Station, but then you need to save the displays to the Server to ensure that they are made available to each Station.

- Station - provides the primary interface for interacting with the system.

REFERENCE - INTERNAL

References for using Console Station applications include:

- EP-DSX165 HMIWeb Display Building Guide
- EP-DSXX45 Operators Guide
1. Overview of Experion and TPS Nodes
1.8. Desktop Familiarization
System Management program group

The following figure shows several System Management applications:

- Configuration Utility – used to perform initial configuration
- FTE Status Display – used to monitor Fault Tolerant Ethernet health
- System Management Display – used to monitor node and HCI component status
References for using the System Management applications include:

- EP-DSX275, *Configuration Utility*
TPS Applications program group

The following figure shows the Native Window, which you can use to access TPN/LCN functionality as if you were at a Universal Station.
You can also use the TPS Application Program group to launch GUS Display Builder.

SafeView program group

The following SafeView applications are available from the SafeView group:
- SafeView Graphical Workspace Editor – used to configure workspaces
- SafeView Text Editor – used to configure workspaces
- SafeView – used to launch a configured workspace

References for using SafeView applications include:
- SafeView User’s Guide
- HMIWeb Display Building Guide
1.9 Monitoring Experion-TPS Nodes

Monitoring system alarms

Several system displays provide the Experion-TPS node status. Experion and TPN/LCN system alarms share the SYST STATS key’s LED. If a TPN/LCN system alarm is active or if no system alarms are active, then pressing the SYST STATS key will invoke the TPN/LCN System Status display. If an Experion system alarm is active, then it will invoke the Experion System Alarm Summary display. The Experion System Status Display can also be accessed by clicking the System item on the Status bar.

**TIP**

The TPS System Alarms requires the SES component to be running on the ESVT.

When using an ES-T, a TPN system alarm-related event is presented as an Experion system alarm.
1. Overview of Experion and TPS Nodes

1.9. Monitoring Experion-TPS Nodes
TPN/LCN system alarms are also indicated on the TPN/LCN Console Status and System Status displays, viewed through the Native Window. You can invoke the Native Window status displays using the following methods:

**Console Status display** - Click the C button on the Native Window status bar (as illustrated in the following figure), or press the CONS STATS key when the LED has been activated by a TPN/LCN system alarm.

**System Status display** – Click the S button on the Native Window status bar (as illustrated in the following figure), or press the SYST STATS key when the LED has been activated by a TPN/LCN system alarm.
Link from Experion System Status - Click the TPS System Status link (as illustrated in the following figure).
ATTENTION

In the Experion R300 System, a consolidated TPS system alarm is provided to alert operators of a problem with a TPS system component. This alarm is a consolidation of all outstanding TPS system alarms.

In certain cases when there is an outstanding TPS System alarm, it may re-alarm although there is no new fault. This includes the reloading of an LCN node and when the LCN system alarm is being caused by multiple faults, and one of the faults is acknowledged by a GUS or by a US.
1. Overview of Experion and TPS Nodes
1.9. Monitoring Experion-TPS Nodes

Monitoring Experion Stations

Experion Station status can be viewed when you click the item from the status bar.

Monitoring System Interfaces

The ES-T and ESVT nodes require a TPS System Interface. The status of system interfaces deployed in your system can be viewed thru the appropriate Station displays.

Clicking the link for a System Interface of interest invokes more detailed information about its status. In normal operating conditions, the indicators should appear green with an OK or Running status.

Monitoring LCNP Status

The LCNP Status display provides status about the health of the local LCNP board. It provides information previously available in physical TPN/LCN node LEDs and other alphanumeric board indicators.

REFERENCE - INTERNAL

For more information about the LCNP Status display, refer to EX24, LCNP Status User’s Guide.
Analysis Tools

Initial analysis can be performed on nodes using Experion’s Analysis Tools. The Network Tree’s Analysis Tools are integrated into Configuration Studio and are available on any Experion node. For more details, refer to the Server and Client Troubleshooting Guide.
1. Overview of Experion and TPS Nodes

1.10 Documentation Reference Listing

About this section

This section provides a quick reference listing to Experion and TPS documents that augment the current TPN/LCN book set.

ATTENTION

When referencing Experion user documentation, note the following:

- “Console Station” applies to both the ES-C and the ES-T.
- “Server” applies to all Experion Servers, including the ESVT.

References for common user tasks

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<td></td>
<td></td>
<td>Note: Refer to GUS documentation such as the <em>GUS Display Building Guide</em> and <em>GUS Display Scripting User’s Guide</em>, to support GUS Displays.</td>
</tr>
<tr>
<td>Administering the system</td>
<td>EP-DSX125, <em>System Administration Guide</em></td>
<td>Refer to these guides for TPS and Experion administration approaches, particularly when establishing security.</td>
</tr>
<tr>
<td>Troubleshooting the system</td>
<td>EP-DSXX25, <em>Server and Client Configuration Guide</em></td>
<td></td>
</tr>
<tr>
<td></td>
<td>EP-DCX495 (This guide)</td>
<td></td>
</tr>
</tbody>
</table>
### 1. Overview of Experion and TPS Nodes

#### 1.10. Documentation Reference Listing

<table>
<thead>
<tr>
<th>User task</th>
<th>Reference</th>
<th>Comment</th>
</tr>
</thead>
<tbody>
<tr>
<td>Starting and stopping the system</td>
<td>EP-DSXX25, <em>Server and Client Configuration Guide</em></td>
<td>Refer to the appropriate sections in these guides for system startup/shutdown procedures.</td>
</tr>
<tr>
<td></td>
<td>TP07X, <em>TPS System Operations Guide</em></td>
<td></td>
</tr>
</tbody>
</table>
2. Supplementary Installation Tasks

2.1 Installation Summary

Installation checklists

The following table lists the supplementary installation tasks (in sequential order) that should be performed after you have completed installing your T-Nodes with the Experion Application DVD.

<table>
<thead>
<tr>
<th>Task</th>
<th>Go To this checklist</th>
</tr>
</thead>
<tbody>
<tr>
<td>Prepare LCN</td>
<td>Section 2.2, Prepare TPN/LCN for Integrated Experion-TPS Nodes</td>
</tr>
<tr>
<td>Post Installation</td>
<td>Section 2.3, Post Installation Tasks for ES-T/ESVT/ACE-T</td>
</tr>
<tr>
<td>Optional Tasks</td>
<td>Perform the optional tasks under Additional tasks as required.</td>
</tr>
</tbody>
</table>
2. Supplementary Installation Tasks
2.2. Prepare TPN/LCN for Integrated Experion-TPS Nodes

2.2 Prepare TPN/LCN for Integrated Experion-TPS Nodes

Purpose of this Checklist

This is the checklist for preparing the TPN/LCN NCF and History Module to support ES-T, ESVT, and ACE-T nodes.

Prerequisites

Your TPN/LCN version has been upgraded to R641.2 or greater. Refer to the related Customer Release Guide for steps to upgrade your TPN/LCN.

Before you begin

To perform the following tasks, you will need the following software media:

- Utilities and Load Modules R641.2 or later CD (&Z12 and &Z14)
- For a Universal Station-only site (no existing GUS or ES-T nodes): Zip disk media containing load modules (&Z1, &Z12, &Z14)
- For a site with no existing US or GUS nodes: GUS-TPN Software R641.2 or later CD (&Z1)
- For a site with no existing APP or AM nodes: TPN Application Module Software R641.2 or later CD (&Z3)
## 2. Supplementary Installation Tasks

### 2.2. Prepare TPN/LCN for Integrated Experion-TPS Nodes

<table>
<thead>
<tr>
<th>Task</th>
<th>Go to</th>
<th>Done?</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Copy Experion Nodes with TPS option backplane Load Modules to the History Module</td>
<td><em>This guide - section 3.1</em></td>
<td>Use the Utilities and Load Modules Software CD or Zip disk.</td>
<td></td>
</tr>
<tr>
<td>Update the NCF with ES-T, ESVT, and ACE-T node configurations</td>
<td><em>This guide - section 3.2</em></td>
<td>LCN node numbers and types (AM for Integrated Experion Server-TPS, US for Integrated Experion Station – TPS, AM for Integrated Experion - TPS ACE-T node) are specified at this step.</td>
<td></td>
</tr>
<tr>
<td>Note: An ACE-T requires the same NCF configuration as a TPS App node.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Verify or create a checkpoint volume on the History Module for an ESVT or ACE-T node.</td>
<td><em>This guide - section 3.3</em></td>
<td>Note: The procedure to implement the ESVT or ACE-T checkpoint volume depends on site factors.</td>
<td></td>
</tr>
<tr>
<td>Note: An ACE-T node requires the same actions as a TPS APP node</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Configure the NCF as necessary</td>
<td><em>This guide - sections 3.4 and 3.5</em></td>
<td>LCN Nodes System Wide Values – Console Data System Wide Values – Clock Source</td>
<td></td>
</tr>
</tbody>
</table>

*ATTENTION*

These tasks are required only once for an ESVT cluster.

---

You have completed this task.
2.3 Post Installation Tasks for ES-T/ESVT/ACE-T

TIP

Ensure you have installed the LCNP4 personality. See "Install LCNP Personality Software on local drive" in the Software Installation User's Guide (SIUG).

1. Configure TPS Components

<table>
<thead>
<tr>
<th>Task</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Configure LCNP Board0</td>
<td>This guide-section 3.9 Configure LCNP (Board0) Settings</td>
</tr>
<tr>
<td>(Optional) Examine Configuration of TPN Server</td>
<td>This guide-section 3.7, Verify TPN Server Configuration</td>
</tr>
<tr>
<td>(Optional) Installation creates a default configuration for the TPN server. Examine the default settings.</td>
<td></td>
</tr>
</tbody>
</table>

2. Connect LCN

<table>
<thead>
<tr>
<th>Task</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Shut down the computer</td>
<td></td>
</tr>
<tr>
<td>Connect TPN/LCN Cables</td>
<td>This guide-section 3.8 Connect the Transceiver and TPN/LCN Cables</td>
</tr>
<tr>
<td>Restart the computer</td>
<td></td>
</tr>
</tbody>
</table>
### 2. Supplementary Installation Tasks

#### 2.3. Post Installation Tasks for ES-T/ESVT/ACE-T

<table>
<thead>
<tr>
<th>Task</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Verify LCNP Status</strong></td>
<td>Following shutdown/restart and after the board’s software has completed loading, the LCNP status should go to &quot;OK.&quot; To verify the LCNP status, invoke the LCNP Status application: Start&gt;Programs&gt;Honeywell Experion PKS&gt;TPS Applications If the LCNP status is not OK, refer to the troubleshooting section of this guide.</td>
</tr>
<tr>
<td><strong>Verify TPN Server status:</strong></td>
<td>Note: TPN Server status will not change to &quot;Running&quot; until after you define the TPS Interface (next task). Note: A yellow triangle on a component indicates that events exist – Right-click to display the events for that component.</td>
</tr>
<tr>
<td><strong>Determine which Experion Server contains the EMDB repository.</strong></td>
<td>Enterprise Model Builder Guide One Experion Server for each configured system must have the Enterprise Model Builder Database (EMDB) installed.</td>
</tr>
<tr>
<td><strong>Build Experion Assets so that you can later map TPS Units to Assets.</strong></td>
<td>Station access level must be MNGR. If “Oper” is indicated in lower right status pane, then select &quot;Oper&quot; and enter &quot;mngr&quot; in the dialog.</td>
</tr>
<tr>
<td><strong>Add and Configure TPS System Interface</strong></td>
<td></td>
</tr>
</tbody>
</table>
## 2. Supplementary Installation Tasks

### 2.3. Post Installation Tasks for ES-T/ESVT/ACE-T

<table>
<thead>
<tr>
<th>Task</th>
<th>Guide Reference</th>
<th>Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>Map TPS Units to Experion Assets</td>
<td>This guide</td>
<td>Ensure that the “Notifications Enabled” checkbox is enabled on the status tab after mapping TPS Units.</td>
</tr>
<tr>
<td>Add and Configure Operators</td>
<td>This guide-section 4.4 Add and Configure Operators</td>
<td>Verify Station is in MNGR security level (says &quot;Mngr&quot; in lower right status pane)</td>
</tr>
<tr>
<td>Configure Experion Console</td>
<td>For initial steps, this guide-section 4.6 Add Experion Console</td>
<td>Refer to the Server and Client Configuration Guide for Console configuration details.</td>
</tr>
<tr>
<td>If this is an ES-T, add Console Station to an Experion Console (if not already done)</td>
<td>For initial steps, section 4.7 Add Console Station</td>
<td>Refer to the Server and Client Configuration Guide for Console Station configuration details.</td>
</tr>
<tr>
<td>Configure other Experion items.</td>
<td>Refer to the SIUG, SITG, or Server and Client Configuration Guide for configuration details</td>
<td>Refer to the SIUG or Server and Client Configuration Guide for configuration details</td>
</tr>
</tbody>
</table>
### 2. Supplementary Installation Tasks

#### 2.3. Post Installation Tasks for ES-T/ESVT/ACE-T

<table>
<thead>
<tr>
<th>If this is an ES-T, verify operation of the ES-T applications.</th>
<th>At the ES-T, perform the following verification steps:</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>- Invoke Native Window</td>
</tr>
<tr>
<td></td>
<td>(Honeywell Experion PKS&gt;TPS Applications&gt;Native Window). The Native Window should launch with a view to the TPN/LCN.</td>
</tr>
<tr>
<td></td>
<td>- Invoke Station application:</td>
</tr>
<tr>
<td></td>
<td>Honeywell Experion PKS&gt;Console Station&gt;Station</td>
</tr>
<tr>
<td></td>
<td>- View Alarm Summary, System Alarm Summary, and other standard displays as appropriate.</td>
</tr>
</tbody>
</table>

At the ESVT, perform the following steps:

- Invoke Station application: Honeywell Experion PKS>Console Station>Station
- View > System Status > Stations > Console Station then select node of interest.
- The Console Station status should be Ok.

You have completed this task.
## 2. Supplementary Installation Tasks

### 2.3. Post Installation Tasks for ES-T/ESVT/ACE-T

#### Additional tasks

<table>
<thead>
<tr>
<th>Task</th>
<th>Go to</th>
<th>Done?</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Install optional applications</td>
<td>Supplementary Installation Tasks Guide and this guide</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Configure Station keyboard</td>
<td>This guide section</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Configure ES-T audible annunciation</td>
<td>This guide - section 4.10 Configure Audible Annunciation</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Configure ES-T startup</td>
<td>Knowledge Builder</td>
<td></td>
<td>Configure ES-T startup to ensure the desired results for operations personnel (logon script and SafeView workspace configuration). The startup scenario and SafeView workspaces may be modified to support the TPS Faceplate and Native Window.</td>
</tr>
<tr>
<td>If this is an ACE installation, configure the ACE control execution environment.</td>
<td>Refer to the Application Control Environment User Guide</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Adding Integrated Experion-TPS nodes to System Management Display</td>
<td>This guide, Section 3.6 Add Experion nodes to System Management Display</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Verifying TPN Server Configuration</td>
<td>This guide, Section 3.7 Verify TPN Server Configuration</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Connecting the Transceiver and TPN/LCN Cables</td>
<td>This guide, Section 3.8 Connect the</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
## 2. Supplementary Installation Tasks

### 2.3. Post Installation Tasks for ES-T/ESVT/ACE-T

<table>
<thead>
<tr>
<th>Task</th>
<th>Go to</th>
<th>Done?</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Configuration of the LCNP (Board0) Settings</td>
<td>This guide, Section 3.9 Configure LCNP (Board0) Settings</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Loading Personality and Checkpoint into Server</td>
<td>This guide, Section 3.11 Load Personality and HM Checkpoint into ESVT</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Loading Personality and Checkpoint into ACE-T</td>
<td>This guide, Section 3.12 Load Personality and HM Checkpoint into ACE-T</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

You have completed this task.
3. Common Platform Tasks

ATTENTION
These procedures are to be used in conjunction with an installation checklist.

3.1 Copy Load Modules to HM

For the Experion nodes to operate properly on the LCN, system files called external load modules are required in the &CUS and &CLX directories on the TPN/LCN system History Module. Use the following procedure to copy the system files to the TPN/LCN system History Module.

ATTENTION
This procedure needs to be performed only once per TPN/LCN, not per node.

If Experion nodes are added to a system that already has Experion nodes running, then this procedure is not required, as the files already exist on the system History Module.

ATTENTION

If no mechanism exists for copying from CD to the History Module (for example, there is no Native Window to provide emulated disk functionality), then the load modules must be copied using a Universal Station and Honeywell-provided Zip disk media.

The following procedure uses CDs and emulated disks.

ATTENTION:

If you have VIEW ONLY access to the Native Window (that is, you are logged on as administrator and the administrator does not have permission to change the keylevel of the Native Window), then you will have to do the following to have permission to copy files to the TPN/LCN History Module:

Sign on to Signon Manager as an engineering user, that is, a member of the High Security Policy's Local Engineer group.
### 3. Common Platform Tasks

#### 3.1. Copy Load Modules to HM

<table>
<thead>
<tr>
<th>Step</th>
<th>Action</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Open Native Window by selecting the following: <strong>Start</strong>&gt;<strong>Programs</strong> &gt; <strong>Honeywell Experion PKS</strong> &gt; <strong>TPS Applications</strong> &gt; <strong>Native Window</strong>.</td>
</tr>
<tr>
<td>2</td>
<td>Invoke the Console Status display.</td>
</tr>
<tr>
<td>3</td>
<td>Locate this station (will be marked by an asterisk *).</td>
</tr>
<tr>
<td>4</td>
<td>Determine and record the Drive Numbers for this station: $F___$ and $F___$.</td>
</tr>
</tbody>
</table>
| 5    | Insert the **Utilities and Load Modules CD**.  
Click **Exit** button to close the **Welcome** dialog box.  
Click **Yes** button in the **Are You Sure** dialog box. |
| 6    | Create the Emulated Drives and mount **Disk_&Z14.lcn** and **Disk_&Z12.lcn**:
  a) Select **Access** from the Native Window upper menu bar.  
b) Select Mount/Dismount Emulated Disks menu item.  
c) Click **Create** button.  
d) Navigate to the appropriate CD path for your LCN/TPN system (Ex. **TPN_R620_R650**).  
e) Select system file **Disk_&Z14.lcn**, and then click the **Open** button.  
f) Accept the default information on the Emulated Disk Information screen and click **OK**.  
g) Select the file **Disk_&Z14.lcn** in the **Available (Dismounted) Emulated Disks** port.  
h) Click the **Mount** button, select either the Left Drive or the Right Drive, and then click **OK**.  
• Repeat steps a) through h) for system file **Disk_&Z12.lcn**. |
| 7    | Go to the Native Window Command Processor:  
• In the Native Window, select **Engineering**>**Menu** from the top menu.  
• From the Engineering Main Menu, select the **Command Processor** target. |
### 3. Common Platform Tasks

#### 3.1. Copy Load Modules to HM

<table>
<thead>
<tr>
<th>Step</th>
<th>Action</th>
</tr>
</thead>
</table>
| 8    | Type the **LSV NET** command to verify that the &CUS and &CLX directories exist.  
      | If they do not exist, use the **Create Directory** command to create them. |
| 9    | To support ES-T nodes, copy the files from the **Utilities and Load Modules CD** to the History Module using the following individual commands:  
      | Where:  
      | "$Fn" represents the drive number with Disk_{&z14}.lcn mounted.  
      | "$Fx" represents the drive number with Disk_{&z12}.lcn mounted.  
      | **UNPT NET>&CUS>*.***  
      | **CP $Fn>&CUS>MSCHEM.LO NET>&CUS>=**  
      | **CP $Fn>&CUS>CSCHEM.LO NET>&CUS>=**  
      | **CP $Fx>&CUS>YGOCX.LO NET>&CUS>=**  
      | **CP $Fx>&CUS>EST.LO NET>&CUS>=**  
      | **PROT NET>&CUS>*.*** |
3. Common Platform Tasks
3.1. Copy Load Modules to HM

**TIP**

Instead of entering the above commands, you may choose to enter the following command to execute a command file:

```
EC $Fn>&EC>MSCHEMZ.EC $Fn
```

**Question from MSCHMZ.EC and Your Response**

- Continue (Yes/No) ? **Yes**
- This EC will expect the &Z14 media in $Fn. Is this correct? **Yes**
- Update Experion or TPS nodes? (Yes/No)? **Yes**
- Are you using a CD-ROM? (Yes/No)? **Yes**
- The drive for mounting &Z12 is currently set to $Fn
- Do you wish to change to another drive (Yes/No) ? **Yes**
- On what drive will the &Z12 CD-ROM be mounted ($F1 - $F20) ? **$Fx**
- This EC will expect the &Z12 CD-ROM in $Fx
- Is this correct (Yes/No) ? **Yes**
## 3. Common Platform Tasks
### 3.1. Copy Load Modules to HM

<table>
<thead>
<tr>
<th>Step</th>
<th>Action</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>10</strong></td>
<td>To support <strong>Experion Server</strong> nodes, copy the file from the <strong>Utilities and Load Modules CD</strong> to the History Module using the following commands:</td>
</tr>
<tr>
<td></td>
<td><strong>UNPT NET&gt;&amp;CUS&gt;<em>.</em></strong></td>
</tr>
<tr>
<td></td>
<td><strong>CP $Fx&gt;&amp;CUS&gt;ESTV.LO NET&gt;&amp;CUS&gt;=</strong></td>
</tr>
<tr>
<td></td>
<td><strong>PROT NET&gt;&amp;CUS&gt;<em>.</em></strong></td>
</tr>
<tr>
<td></td>
<td>Where: “$Fx” represents the drive number with <strong>Disk_&amp;_z12.lcn</strong> mounted.</td>
</tr>
<tr>
<td><strong>11</strong></td>
<td>Dismount the Emulated Disks:</td>
</tr>
<tr>
<td></td>
<td>• Select <strong>Access</strong> from the Native Window upper menu bar.</td>
</tr>
<tr>
<td></td>
<td>• Select the <strong>Mount/Dismount Emulated Disks</strong> menu item.</td>
</tr>
<tr>
<td></td>
<td>• Click the <strong>Dismount</strong> button adjacent to the Drive containing the <strong>disk_&amp;_Z14.lcn</strong> file and the <strong>disk_&amp;_Z12.lcn</strong> file.</td>
</tr>
<tr>
<td></td>
<td>• Click <strong>OK</strong>.</td>
</tr>
<tr>
<td><strong>12</strong></td>
<td>Remove the Utilities and Load Modules CD.</td>
</tr>
<tr>
<td><strong>13</strong></td>
<td>The following steps are <strong>NOT</strong> required if your TPN/LCN is already operating with <strong>Universal Stations</strong>.</td>
</tr>
<tr>
<td><strong>14</strong></td>
<td>Insert the <strong>GUS-TPN Software CD</strong>.</td>
</tr>
<tr>
<td><strong>15</strong></td>
<td>Using steps similar to the previous operation, mount the emulated disk <strong>Disk_&amp;_Z1.lcn</strong>.</td>
</tr>
<tr>
<td><strong>16</strong></td>
<td>From the Native Window Command Processor, perform the following copy command, where $Fn represents the drive number that has <strong>Disk_&amp;_z1.lcn</strong> mounted.</td>
</tr>
<tr>
<td></td>
<td><strong>CP $Fn&gt;&amp;CUS&gt;UPBASE.LO NET&gt;&amp;CUS&gt;=</strong></td>
</tr>
<tr>
<td><strong>17</strong></td>
<td>Dismount the Emulated Disk <strong>disk_&amp;_Z1.lcn</strong>.</td>
</tr>
<tr>
<td><strong>18</strong></td>
<td>Remove the <strong>GUS-TPN Software CD</strong>.</td>
</tr>
</tbody>
</table>
3. Common Platform Tasks
3.2. Update an Existing NCF for Experion Nodes

<table>
<thead>
<tr>
<th>Step</th>
<th>Action</th>
</tr>
</thead>
<tbody>
<tr>
<td>18</td>
<td>Insert the TPN Application Module CD.</td>
</tr>
<tr>
<td>19</td>
<td>Using steps similar to the previous operation, mount the emulated disk Disk_&amp;_z3.lcn.</td>
</tr>
</tbody>
</table>
| 20   | Copy the files from the TPN Application Module CD using the following commands:  

```
UNPT NET>&CUS>*.*  
UNPT NET>&CLX>*.*  
CP $Fx>&CUS>AMCL06_2.LO NET>&CUS>=  
CP $Fx>&CUS>XACCES.LO NET>&CUS>=  
CP $Fx>&CUS>XOPTN.LO NET>&CUS>=  
CP $Fx>&CLX>AMCL06.SF NET>&CLX>=  
PROT NET>&CUS>*.*  
PROT NET>&CLX>*.*  
```

Where:  
"$Fx" represents the drive number with Disk_&_z3.lcn mounted |
| 21   | Dismount the Emulated Disk. |
| 22   | Remove the TPN Application Module Software CD. |

You have completed this task. Return to the checklist that led you to this task.
3.2 Update an Existing NCF for Experion Nodes

Purpose
This procedure will update the TPN/LCN NCF with the Integrated Experion-TPS node (ES-T, ESVT, ACE-T) information. This can be done from a Universal Station, from the Native Window on a GUS, or from the Native Window of an ES-T.

ATTENTION

The ESVT node and the ACE-T node are specialized AM/APP nodes. You must assign one (1) unit to the node in its NCF.

ATTENTION

When installing and configuring redundant Servers, associated AMs MUST BE CONFIGURED AS SEPARATE (NON-REDUNDANT) AMs in the NCF. They will not function properly if configured as a redundant pair.

Prerequisites

Determine the requirements for time synchronization between LCN and Experion nodes. See Time Synchronization Considerations for more details.

For an ESVT or ACE-T node:

- Identify or create one Unit to be assigned to the ESVT or to the ACE-T.
  - From Engineering Main Menu, select UNIT NAMES, locate/configure the Unit to be used and note its index number.

- If necessary, verify that the Unit is not already being used:
  - Using the Command Processor, type LSV NET and verify that a checkpoint directory named &Fxx does not already exist, where xx is the index number of the unit of interest.
3. Common Platform Tasks
3.2. Update an Existing NCF for Experion Nodes

ATTENTION

This procedure requires Engineering access level.

If you have VIEW ONLY access to the Native Window (that is, you are logged on as administrator and the administrator does not have permission to change the keylevel of the Native Window), then you will have to do the following to have permission to copy files to the TPN/LCN History Module:

Sign on to Signon Manager as an engineering user, that is, a member of the Local Engineer group.
### Overview of NCF node configuration procedure

The following figure depicts an overview of the NCF configuration procedure for ESVT.

1. **Configure Server as an AM**
2. **Assign units. Select Modify Node**
3. **Assign Load Modules. ESVT assigned last.**
3. Common Platform Tasks
3.2. Update an Existing NCF for Experion Nodes

The following figure depicts an overview of the NCF configuration procedure for ES-T.

**CAUTION**

In the NCF, if you define the STATION DEFAULT ACCESS LEVEL as VIEW for the ES-T then the ES-T cannot set the Native Window to Operator because it will be clamped to VIEW by the LCN. The VIEW access level permits you to only call up and view displays. It does not permit you to make any changes.
3. Common Platform Tasks
3.2. Update an Existing NCF for Experion Nodes

The following figure depicts an overview of the NCF configuration procedure for an ACE-T.

1. Configure ACE as AM
2. Assign units. Select Modify Node
3. Assign Load Modules.
3. Common Platform Tasks
3.2. Update an Existing NCF for Experion Nodes

ATTENTION
Review Load Module Memory

Load modules typically increase in size as newer versions are released. You may use the LCN/TPN tool kit schematic CBREV to determine the version of load modules currently in use. If newer versions have just been installed, ensure that your NCF configuration allows sufficient space for the larger load modules.

For more information on the CBREV schematic, refer to section 12.18 Verifying TPN/LCN Installation and Version.

Procedure

<table>
<thead>
<tr>
<th>Step</th>
<th>Action</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>From a Universal Station or Native Window with engineering access level, go to the Engineering Main Menu.</td>
</tr>
<tr>
<td>2</td>
<td>Go to Support Utilities &gt; Modify Volume Paths</td>
</tr>
<tr>
<td>3</td>
<td>Ensure that the NCF backup path points to one of the <em>bkupasy</em> disks and then return to the Engineering Main Menu.</td>
</tr>
</tbody>
</table>

Server and/or ACE Node Configuration

<table>
<thead>
<tr>
<th>Step</th>
<th>Action</th>
</tr>
</thead>
<tbody>
<tr>
<td>4</td>
<td>Select LCN Nodes and select the relevant node number for the Server and/or ACE.</td>
</tr>
</tbody>
</table>
| 5    | **On a new node**, select APPLICATION MODULE and then go to the next step.  
**On an existing node**, select Modify Node and skip the next step. |
| 6    | On a new node, enter the following node information and then go to the next configuration page:  
Assigned Units *(Assign the unit identified in the prerequisites.)* |
### Step 7: Update an Existing NCF for Experion Nodes

For an ESVT, leave the entries with the default values. AM points, algorithms, and CL processing are not supported.

For an ACE-T, if AM points, algorithms or CL programs will be used, configure the User Memory as described in the *Application Module Implementation Guidelines*, otherwise leave these entries with the default values.

Go to the next NCF page.

---

### Step 8: Update an Existing NCF for Experion Nodes

For a Server, add the following External Load Modules for the personality so that the ESVT Load module is the last entry in a load module sequence:

- AMCL06_2 AMO
- XACCES AMO
- XOPTN AMO
- ESVT AMO

For an ACE-T, add the following External Load Modules:

- AMCL06_2 AMO
- XACCES AMO
- XOPTN AMO

If AM points, algorithms, or CL programs are being used, configure additional load modules and module memory as described in the *Application Module Implementation Guidelines*, otherwise leave these entries with the default values.

### Step 9: Update an Existing NCF for Experion Nodes

Enter, Check, and Install the NCF change.

### Experion Station-TPS Configuration

#### Step 10: Update an Existing NCF for Experion Nodes

Return to the LCN Nodes display and select the relevant node number for the ES-T.

#### Step 11: Update an Existing NCF for Experion Nodes

On a new LCN node: select **UNIVERSAL STATION** and then go to the next step.

On an existing node: Select **Modify Node** and skip the next step.

#### Step 12: Update an Existing NCF for Experion Nodes

On a new LCN node, configure first page for the Universal Station (refer to ATTENTION box), then page forward to the External Load Module page.
3. Common Platform Tasks
3.2. Update an Existing NCF for Experion Nodes

<table>
<thead>
<tr>
<th>Step</th>
<th>Action</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>REFERENCE</strong></td>
<td>Refer to the <em>Network Form Instructions</em> manual in the TPN/LCN book set for node configuration instructions for the Universal Station node type (US, GUS, or ES-T).</td>
</tr>
</tbody>
</table>
| **ATTENTION** | For ES-T nodes, Honeywell recommends selecting *YES* for the following configuration item:  
Station Options  
Annun During Eng Func  
YES  
For ES-T nodes, the "NO" setting will be effective only if Experion audible annunciation is disabled. The "NO" setting in the NCF configuration will not disable annunciation driven by the Experion station application. |
| 13 | Add the following External Load Modules for the personality so that the ES-T Load Module is the last entry in a load module sequence:  
- UPBASE - UP  
- MSCHENEM - UP  
- CSCHENEM - UP  
- YGOCX - UP  
- EST - UP |
| 14 | Clear the value in the MAXIMUM EXTERNAL MODULE MEMORY UP port. |
| 15 | Select **ENTER**.  
Result: The total amount of memory required is recalculated and displayed as the TOTAL (MODULES PLUS ADDITIONAL MEMORY). |
| 16 | The MAXIMUM must be 10,000 greater than the TOTAL.  
Type in the appropriate value into the MAXIMUM EXTERNAL MODULE MEMORY UP port. |
| 17 | Enter, Check, and Install the NCF change. |
3. Common Platform Tasks

3.2. Update an Existing NCF for Experion Nodes

Fast Load Disks

| 18 | If you use fast load disks, then copy the new NCF to the fast load disks and emulated fast load disks. |

REFERENCE
For information on fast load cartridges, refer to the following book in the TPN Knowledge Builder: Engineer’s Reference Manual (SW09605), Section 20.

Building AM Points

After you configure the AM on the ACE-T node, you can build and load your AM points by using the TPS Builder, or by using the Data Entity Builder that is available through the Native Window.

REFERENCE
The following AM documents provide information about implementation guidelines, point types, parameters, and configuration form instructions:

- AM12-610, Application Module Implementation Guidelines
- AM09-602, Application Module Control Functions
- AM09-601, Application Module Algorithm Engineering Data
- AM09-640, Application Module Parameter Reference Dictionary
- AM12-500, AM Configuration Form Instructions
- AM27-610, Control Language Application Module Reference Manual
- SW27-500, Control Language Application Module Overview

You have completed this task. Return to the checklist that led you to this task.
3.3 Create Checkpoints for ESVT and ACE-T

Overview
An ESVT and ACE-T when installed on an LCN are specialized AM/APP nodes. When you configure the NCF, you must assign at least one (1) TPN/LCN Unit. This unit assignment determines the name for the node’s checkpoint directory (For example, if Unit AA has a unit index of 04, its checkpoint directory name must be &F04). A checkpoint file in the appropriate directory must exist on the HM in order to load the ESVT or ACE-T.

The ESVT and ACE-T can be configured in the HM Volume Configuration to be a node that is auto-checkpointed, such that the HM reserves space for it and automatically configures the checkpoint volume (&5nn, where nn is the node number) during HM initialization.

If the above step is not done, then the user can manually create the appropriate HM directory for the specific Unit Index on a user volume of the HM, and then copy the NULL checkpoint file to that directory. In the later case, automatic checkpointing is not supported.

ATTENTION
The ESVT clients can access AM points that are on other AM nodes

Prerequisite
Using the NCF Unit Names display, determine the index (1...100) of the Unit that was assigned to the ESVT and ACE-T through the NCF LCN Nodes configuration.
## 3. Common Platform Tasks

### 3.3. Create Checkpoints for ESVT and ACE-T

**Procedure**

<table>
<thead>
<tr>
<th>Step</th>
<th>Action</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>From a Universal Station or Native Window with engineering access level, go to the Engineering Main Menu.</td>
</tr>
</tbody>
</table>
| 2    | On a user volume, create a directory with the name &Fxx:

    CD NET>vol &Fxx

    Where:

    vol is the user volume name
    xx is the index of the unit identified in the prerequisite |
| 3    | If using a Universal Station, locate and mount the physical &Z6 zip disk.

If using a Native Window:

- Locate the emulated disk file disk_{&z6}.lcn on the GUS-TPN Software CD and mount it as an emulated disk.
- In the Native Window, select the **Access>Mount/Dismount Emulated Disks** menu item and mount the emulated disk. |
| 4    | Based on the index for the unit identified in the prerequisites, copy the associated master null checkpoint file from the &amc directory on the disk to the &Fxx directory on the HM.

The master null checkpoint files are named AMxxxMAS.CP, where xxx is unit numbers 001-100.

**Example**

The Commands for unit 16, drive $F11, are as follows:

CP $F11>&AMC>AM016MAS.CP <space>
NET>&F16>AM016MAS.CP
UNPT NET>&F16>AM016MAS.CP |

---

You have completed this task. Return to the checklist that led you to this task.
3.4 Additional NCF Considerations

**LCN Nodes**

Honeywell recommends the following NCF configuration selections.

<table>
<thead>
<tr>
<th>NCF Configuration Item</th>
<th>Recommended Selection</th>
</tr>
</thead>
<tbody>
<tr>
<td>Annun During Eng Func</td>
<td>For US and GUS nodes, leave as required.</td>
</tr>
<tr>
<td></td>
<td>For ES-T nodes, select <strong>YES</strong>.</td>
</tr>
<tr>
<td></td>
<td>For ES-T nodes, the <strong>NO</strong> setting will be effective only if Experion audible annunciation is disabled. The <strong>NO</strong> setting in the NCF configuration will not disable annunciation driven by the Experion station application.</td>
</tr>
<tr>
<td></td>
<td>There would therefore be no matching Experion settings. The setting would be left the same as for NCF.</td>
</tr>
</tbody>
</table>

**System Wide Values – Console Data**

Honeywell recommends the following NCF configuration selections.

<table>
<thead>
<tr>
<th>NCF Configuration Item</th>
<th>Recommended Selection</th>
</tr>
</thead>
<tbody>
<tr>
<td>CL Message Confirmation-</td>
<td>YES (Message confirmation is allowed only after Acknowledgment occurs.)</td>
</tr>
<tr>
<td>After-Acknowledgement</td>
<td>On an Experion system, uncheck the box <strong>Perform Auto Acknowledge when Conform Message key pressed (IKB only)</strong>.</td>
</tr>
<tr>
<td>Horn Annunciation Policy:</td>
<td></td>
</tr>
<tr>
<td>Console Status Event</td>
<td>Contact 1, Contact 2, or Contact 3</td>
</tr>
<tr>
<td>System Status Event</td>
<td>Match the selection for the Urgent Alarm on the <strong>Experion Connection Properties – Sounds</strong> page.</td>
</tr>
<tr>
<td></td>
<td>For additional information about the <strong>Experion Connection Properties – Sounds</strong> page, refer to section 4.10 Configure Audible Annunciation.</td>
</tr>
<tr>
<td>Operator ACK Only Message</td>
<td>Leave as required by the US/GUS nodes, or select None</td>
</tr>
<tr>
<td>Operator Confirm Message</td>
<td></td>
</tr>
</tbody>
</table>
### 3. Common Platform Tasks

#### 3.4. Additional NCF Considerations

<table>
<thead>
<tr>
<th>NCF Configuration Item</th>
<th>Recommended Selection</th>
</tr>
</thead>
<tbody>
<tr>
<td>Low Priority Alarm</td>
<td>Match this configuration with the selections for the Low, High and Urgent Alarms – respectively, on the Experion Connection Properties – Sounds page. For additional information about the Experion Connection Properties – Sounds page, refer to section 4.10 Configure Audible Annunciation.</td>
</tr>
<tr>
<td>High Priority Alarm</td>
<td></td>
</tr>
<tr>
<td>Emergency Priority Alarm</td>
<td></td>
</tr>
<tr>
<td>Contact 1 Output State</td>
<td>STEADY</td>
</tr>
<tr>
<td>Contact 2 Output State</td>
<td>Note: The MOMENTARY setting may be considered if it exactly matches settings on the Experion Server-wide Settings – Alarm/Event Options configuration page.</td>
</tr>
<tr>
<td>Contact 3 Output State</td>
<td></td>
</tr>
<tr>
<td>Audible Alarm Annunciation Suppression Time-Out (Seconds)</td>
<td>Leave as required by the US/GUS nodes. This configuration item is related to the operation of the Audible Suppress Option on the US TPN/LCN Alarm Summary display (see the following ATTENTION box).</td>
</tr>
<tr>
<td>Console-Wide Silence Button?</td>
<td>NO</td>
</tr>
</tbody>
</table>

**ATTENTION - TPN/LCN Alarm Summary Display**

Use of the Audible Suppress option (the target that is labeled AUDIBLE) on the TPN/LCN Alarm Summary display is not recommended on ES-T nodes.

**System Wide Values – Clock Source**

To maintain consistent alarm and event time stamping between LCN/TPN nodes and Experion nodes, a selected Windows node (Experion nodes with a LCNP card, GUS, or APP) must be configured as the primary clock source. An alternate Windows node may be designated as a secondary clock source.

**REFERENCE - INTERNAL**

For details on time synchronization between LCN/TPN and Experion nodes, refer to section 3.5 Time Synchronization Considerations.
3. Common Platform Tasks
3.5. Time Synchronization Considerations

3.5 Time Synchronization Considerations

LCN (TPN) time and Windows time should be synchronized to maintain consistent alarm and event time stamping between LCN and Experion nodes. The LCN and Windows times must be synchronized using one of the following solutions:

- Windows Time Source
- Common Time Source (parallel synchronization mechanisms).

REFERENCE - INTERNAL

For details about LCN/TPN time synchronization, refer to the following documents:

- DP-DSX275, System Configuration Utility:
  - Section 2.2, "TPN Time Sync Controls"
  - Section 2.9, "TPN Time Sync Page"
- TP22000A, GPS Antenna User’s Guide (pdf)
- TN08-100c, TPN Bridge Overview and Implementation Guide (pdf)

Solution 1 - Windows Time Source

Using a Windows time source, Windows nodes (such as ESVT, ES-T, GUS, and APP) are synchronized through Windows domain time synchronization mechanisms. The LCN time is periodically synchronized by a selected Windows node through TPS infrastructure mechanisms. Honeywell suggests using this approach if the LCN is not currently being synchronized with GPS.

Using this approach,

- The LCN NCF must be configured to designate a selected Windows node as the primary clock source.
- An alternate Windows node may be designated in the NCF as a secondary clock source.
- The clock source node(s) must contain the LCNP4-GPS card (although, for the approach described here, a GPS source is not required).
Solution 2 - Common Time Source, Parallel Synchronization Mechanisms

If it is required to synchronize multiple LCNs, solution 2 is preferable, as the Windows time synchronization is not as high resolution as the GPS or the LCN, so there can be variations between LCNs, even if basing time on the same PC network.

Using this approach,

- A common, accurate GPS time source must be available.
  - If the LCN is already time synchronized to GPS time (using existing LCN mechanisms), then that mechanism can continue to be used.
  - In parallel, the Windows domain must be synchronized to a GPS source.
- The LCN NCF must be configured to designate a Windows node (ESVT, ES-T, GUS, or APP) as the primary clock source.
- An alternate Windows node may be designated in the NCF as a secondary clock source.
- The clock source node(s) must contain the LCNP4-GPS card.
### 3.6 Add Experion nodes to System Management Display

**Multicast consideration**

System Management utilizes multicasting to process information between Experion nodes. Multicasting must be enabled on all network switches and routers that interconnect participating nodes.

**REFERENCE - INTERNAL**

For details, refer to the *System Management Configuration Guide*, section "Configuring the System Management Display," subsection "Using the Multicast/Heartbeat Settings property page for multiple computers."

If you are using Fault Tolerant Ethernet (FTE), the multicast configuration establishes the FTE community. The multicast address setting must be configured from the FTE configuration page and not the System Management Display.

**REFERENCE - INTERNAL**


**Procedure for adding a node as managed item**

The following procedure demonstrates how to add a node to be monitored by the System Management Display, a Microsoft Management Console (MMC) containing the Honeywell Node Administration snap-in.

**TIP**

This procedure assumes you are aware of which domain contains the computer of interest. If you do not know, you can browse for the computer from the domain’s *Properties* tab.

<table>
<thead>
<tr>
<th>Step</th>
<th>Action</th>
</tr>
</thead>
</table>
| 1    | Open the System Management display:  
      | **Start > Programs > Honeywell Experion PKS > System Management > System Management Display** |
### 3. Common Platform Tasks

#### 3.6. Add Experion nodes to System Management Display

<table>
<thead>
<tr>
<th>Step</th>
<th>Action</th>
</tr>
</thead>
<tbody>
<tr>
<td>2</td>
<td>From the MMC Tree view, right click the domain that contains the computer of interest and select <strong>Properties</strong> from the menu.</td>
</tr>
</tbody>
</table>

![Image](image.png)

RESULT: The selected domain's **Properties** dialog box appears.
### 3. Common Platform Tasks

3.6. Add Experion nodes to System Management Display

<table>
<thead>
<tr>
<th>Step</th>
<th>Action</th>
</tr>
</thead>
<tbody>
<tr>
<td>3</td>
<td>From the <strong>Domain Properties</strong> dialog box, click the <strong>Add/Remove Monitored Organizations</strong> tab.</td>
</tr>
</tbody>
</table>

**RESULT:** The monitored organizations appear in the selection window of the **Add/Remove Monitored Organizations** tab.
### 3. Common Platform Tasks

#### 3.6. Add Experion nodes to System Management Display

<table>
<thead>
<tr>
<th>Step</th>
<th>Action</th>
</tr>
</thead>
<tbody>
<tr>
<td>4</td>
<td>Select the <strong>Add Static Computers</strong> checkbox so that you can browse to the computers of interest.</td>
</tr>
</tbody>
</table>

RESULT: The selection window refreshes to include computers that are not members of a managed Organizational Unit.

---

3. Common Platform Tasks
3.6. Add Experion nodes to System Management Display

<table>
<thead>
<tr>
<th>Step</th>
<th>Action</th>
</tr>
</thead>
<tbody>
<tr>
<td>5</td>
<td>From the updated selection window, expand the domain's tree view to locate the computer of interest. In this example, the computer of interest resides in the domain named DESIGN. It is not necessary to click the checkbox of the domain (otherwise you would be monitoring all the computers in that domain), just click the PLUS sign (+) to expand the view.</td>
</tr>
<tr>
<td>6</td>
<td>Continue to expand the view until you locate the computer of interest. Select the checkbox for the computer of interest then click <strong>OK</strong>.</td>
</tr>
</tbody>
</table>
### 3. Common Platform Tasks
#### 3.6. Add Experion nodes to System Management Display

<table>
<thead>
<tr>
<th>Step</th>
<th>Action</th>
</tr>
</thead>
<tbody>
<tr>
<td>7</td>
<td>The computer of interest appears in the MMC Tree view. You can proceed with other administration tasks or continue to modify and save the console view.</td>
</tr>
</tbody>
</table>

**ATTENTION**

If you attempt to start the TPN Server before the LCNP personality is loaded and running, then the TPN Server will go to the WARNING state. This is expected behavior.

To attempt to start the TPN Server, right-click the node’s TPN Server component and select **All Tasks > Start**.

You have completed this task. Return to the checklist that led you to this task.
3.7 Verify TPN Server Configuration

Procedure

The TPN Server is automatically configured for your Experion node with TPS options. Use the following procedure to review or change the TPN Server configuration settings for an Experion node on TPS.

<table>
<thead>
<tr>
<th>Step</th>
<th>Action</th>
</tr>
</thead>
</table>
| 1    | Go to the following:  
      Start>Programs> Honeywell Experion PKS > System Management > Configuration Utility |
| 2    | Select the following to display the HCI Component Configuration page:  
      Configure> HCI Component |
| 3    | From the Component Name pull down list, select the TPN Server initially configured for the Experion node.  
      RESULT: The configuration page displays TPN Server properties. |
| 4    | Accept the default HCI Persistent Filename for the checkpoint file. The file represents a saved database for your TPN Server that is located in the directory HWIAC > Checkpoints. |
| 5    | Do not change the Auxiliary Status Display ProgID from the default. The entry represents a status display used to monitor your TPN Server. |
| 6    | Click the Enter/Edit Server Specific Configuration button to display the remaining configuration pages. |
### 3. Common Platform Tasks

#### 3.7. Verify TPN Server Configuration

<table>
<thead>
<tr>
<th>Step</th>
<th>Action</th>
</tr>
</thead>
</table>
| 7    | Click **YES**, and then click **OK**.  
RESULT: The **Server Specific Configuration** pages appear. |
| 8    | Click the **Automatic Checkpointing** tab.  
Review specified Time Period or Pre-Defined Times:  
**Establishing Time Periods to Checkpoint:**  
Select the **Enabled** checkbox in the **Time Period** group to establish periodic backups of the TPN Server’s cache.  
An integer value between 1 and 255 is a valid entry in the **Checkpoint Every** box. The Time Period is relative to the start-up time of the TPN Server.  
Example: With a Time Period of 1, if the TPN Server started at 10:30am, it automatically checkpoints at 11:30am, 12:30pm, 1:30pm, and so forth.  
**Establishing Pre-Defined Times to Checkpoint**  
Select the **Enabled** checkbox in the **Pre-Defined Times** group to set up pre-defined times for saving the cache to the checkpoint file.  
When enabled, the TPN Server copies the cache to the checkpoint file at the specified times. A 24-hour clock is used to specify the Pre-Defined times. All times are to the nearest hour. Up to six pre-defined times can be configured. Leaving a Time box blank has no effect on automatic checkpointing. Duplicate values are allowed, but are ignored by the TPN Server.  
Example: 23 (11pm). |

**TIP**
- The checkbox in the Pre-Defined Times group can be enabled if the checkbox in the Time Period group is also enabled. The auto checkpoint options are not mutually exclusive.  
- Automatic checkpointing helps maintain fast display invocation times, since the TPN Server will not have to rebuild its entire cache following “unadvised” stops.
### 3. Common Platform Tasks

#### 3.7. Verify TPN Server Configuration

<table>
<thead>
<tr>
<th>Step</th>
<th>Action</th>
</tr>
</thead>
</table>
| 9    | Retain the defaults on the remaining pages:  
|      | Channels (for the correct default values, see Section 12.19)  
|      | Default Access and Priority Levels  
|      | Security |
| 10   | Click OK to close the dialogs. |

---

**TIP**

See Section 14.1 Processing custom defined IKB/OEP keys on an ES-T in this document for information on TPN Server access constraints.

---

You have completed this task. Return to the checklist that led you to this task.
3.8 Connect the Transceiver and TPN/LCN Cables

Procedure

Use the following procedure to physically connect the node to the TPN/LCN.

<table>
<thead>
<tr>
<th>Step</th>
<th>Action</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Go to the following: <strong>Start&gt; Shut Down.</strong>&lt;br&gt; Select <strong>Shut Down.</strong></td>
</tr>
<tr>
<td>2</td>
<td>Click the <strong>OK</strong> button to verify the shutdown.</td>
</tr>
<tr>
<td>3</td>
<td>If necessary, turn off the power to the node.</td>
</tr>
<tr>
<td>4</td>
<td>Connect the <strong>AUI</strong> cable from the LCNP board to the Transceiver (MAU).</td>
</tr>
<tr>
<td>5</td>
<td>Connect the cable from the <strong>Transceiver</strong> to the <strong>TPN/LCN</strong>.</td>
</tr>
<tr>
<td>6</td>
<td>Power up the node.</td>
</tr>
</tbody>
</table>

You have completed this task. Return to the checklist that led you to this task.
3.9 Configure LCNP (Board0) Settings

ATTENTION

Do not run multiple instances of the Configuration Utility as it can present inconsistent views of the information and may cause problems.

Edit LCNP Settings

<table>
<thead>
<tr>
<th>Step</th>
<th>Action</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Go to the following:</td>
</tr>
<tr>
<td></td>
<td>Start&gt;Programs&gt; Honeywell Experion PKS &gt; System Management &gt; Configuration Utility</td>
</tr>
<tr>
<td>2</td>
<td>Go to the following to display the LCNP page:</td>
</tr>
<tr>
<td></td>
<td>Configure&gt;Board 0</td>
</tr>
<tr>
<td>3</td>
<td>Enter the pre-determined LCN Address.</td>
</tr>
<tr>
<td>4</td>
<td>Enter the pre-determined NG Name, if any. If no NG name, enter a space.</td>
</tr>
<tr>
<td>5</td>
<td>Enter an LCN Name that is meaningful to your plant personnel.</td>
</tr>
</tbody>
</table>

TIP

The LCN Name displays on the Native Window’s title bar and may be shown in the system alarm display (if you select 'LCN Name' for Experion TPS System Alarm).

The following example, the individual node’s computer name (PIT-TSP001) was specified as the LCN Name.

You can, however, give the same LCN Name to all stations on the same LCN (for example, NorthPlant_LCN), so that the TPN System Alarm will be reported with the same message all the time. For more information about the TPN System Alarm, see Managing System Alarms.
### 3. Common Platform Tasks

3.9. Configure LCNP (Board0) Settings

<table>
<thead>
<tr>
<th>Step</th>
<th>Action</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td><img src="image.png" alt="Image" /></td>
</tr>
</tbody>
</table>

**REFERENCE – INTERNAL**

For detailed information on LCNP (Board0) screen entries, refer to TP20X, *Configuration Utility User's Guide*.

6. If you want to allow the LCNP to be able to be reset from a remote node, select the **LCNP Reset Controls Remote** checkbox.
3. Common Platform Tasks
3.9. Configure LCNP (Board0) Settings

<table>
<thead>
<tr>
<th>Step</th>
<th>Action</th>
</tr>
</thead>
<tbody>
<tr>
<td>7</td>
<td>Select the source for an <strong>Experion TPS System Alarm</strong> and type the name of the source in the space provided. (The default selection is <strong>Cluster Server Name</strong> and the server name is automatically provided by the ES-T.)</td>
</tr>
</tbody>
</table>

- **Computer Name** – There is one TPS system alarm for each ES-T. Type the Computer Name in the `<Source Name>` space.
- **LCN Name** – LCN Name is a user-selected TPS system alarm source identifier to allow the aggregation of TPS system alarms among a set of ES-Ts, based on configuration or operational considerations.

The Experion PKS System Alarm Summary Display will show a TPS system alarm per LCN Name. Type the LCN Name in the `<Source Name>` space.

- **Cluster Server Name** – Default. Every ES-T in the Experion PKS cluster is configured for the **Cluster Server Name** as a default. If **Cluster Server Name** is selected, there is only one TPS System Alarm on the Experion PKS System Alarm Summary Display per cluster.

**TIP:** When a TPS System Alarm occurs, a Windows event occurs on each ES-T. The System Event Server (SES) captures and converts this Windows event into an Experion PKS System Alarm, or updates an existing alarm.

Your selection in step 7 determines what is to be the source of the Experion TPS System Alarm and specifies the name of the source. In the following example, the Computer Name IDEVESVT18 is the alarm source.

**ATTENTION**
All ES-Ts must have the same LCN Node Annunciation Policy and the same Process Network Annunciation Policy in the ES-T Area databases.

Select **Computer Name** or **LCN Name** in step 7 if the ES-Ts' Area databases have different annunciation policies.
3. Common Platform Tasks
3.9. Configure LCNP (Board0) Settings

<table>
<thead>
<tr>
<th>Step</th>
<th>Action</th>
</tr>
</thead>
</table>
| 8    | If you want the Personality to:  
      | • Load automatically whenever the node transitions to the PWR_ON state. 
      |   Then select the **Enable LCNP Auto Restart** checkbox.  
      | • Not load automatically, whenever it transitions to the PWR_ON state. 
      |   Then leave the **Enable LCNP Auto Restart** checkbox unchecked.  
      | (If you are not sure what to configure, leave the **Enable LCNP Auto Restart** checkbox unchecked.) |
| 9    | Click the **Apply** button. |
| 10   | **For the ESVT**, you have completed this task. Return to the checklist that led you to this task.  
      | **For ES-T**, continue with the “Edit ES-T Native Window Settings” procedure |
3. Common Platform Tasks
3.9. Configure LCNP (Board0) Settings

Edit ES-T Native Window settings

<table>
<thead>
<tr>
<th>Step</th>
<th>Action</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Click the <strong>Native Window</strong> tab.</td>
</tr>
<tr>
<td>2</td>
<td>Use the following table to set the options.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Option</th>
<th>Option Setting</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Enable Local Connections</strong></td>
<td>It is recommended that this checkbox be checked.</td>
</tr>
<tr>
<td><strong>Enable Remote Connections</strong></td>
<td>Check this box to enable Native Window connection to the local LCNP board by remote users.</td>
</tr>
<tr>
<td><strong>Enable Local Connection Override</strong></td>
<td>It is recommended that this box be checked. Check this box to enable the ability to override a remote user’s Native Window connection when a local user Native Window connection is requested. The local user is notified that the Native Window is in use by another user (user is identified) and is warned that the remote user will be disconnected. If the local user overrides the connection, the remote user is disconnected and is informed that the connection was terminated.</td>
</tr>
<tr>
<td><strong>Allow Disconnect</strong></td>
<td>Check the checkbox to allow any user account to disconnect a local Native Window connection.</td>
</tr>
<tr>
<td><strong>Confirm Disconnects</strong></td>
<td>It is recommended that this checkbox be checked.</td>
</tr>
<tr>
<td><strong>Clear Display On Disconnect</strong></td>
<td>It is recommended that this checkbox be checked.</td>
</tr>
<tr>
<td><strong>LCNP Auto Restart</strong></td>
<td>Check the <strong>Enable LCNP Auto Restart Menu Item</strong> checkbox to display the LCNP Auto Restart menu item in the Access menu of the Native Window.</td>
</tr>
</tbody>
</table>
| **LCNP Reset Enables**          | **Local** Check **Local** to allow a reset only from the local Native Window or Emulators Status display.  
**Remote** Check **Remote** to allow the LCNP to be reset from a remote node. |
| **Print Trend**                 | Check the **Disable Print Trend** checkbox to disable the continuous trend print function. |
### 3. Common Platform Tasks

#### 3.9. Configure LCNP (Board0) Settings

<table>
<thead>
<tr>
<th>Option</th>
<th>Option Setting</th>
</tr>
</thead>
<tbody>
<tr>
<td>Maintain 1:1 Aspect Ratio</td>
<td>It is recommended that this box be checked.</td>
</tr>
<tr>
<td>Font Smoothing</td>
<td>It is recommended that this box be checked.</td>
</tr>
<tr>
<td>Full Screen</td>
<td>It is recommended that this box be unchecked.</td>
</tr>
<tr>
<td>Show Menu/Title Bars</td>
<td>It is recommended that this box be checked.</td>
</tr>
<tr>
<td>Show Status Bar</td>
<td>It is recommended that this box be checked.</td>
</tr>
<tr>
<td>Mouse Button Function Selection Options</td>
<td>It is recommended to use the default settings. Click the Help button for function information.</td>
</tr>
</tbody>
</table>
| IKB/OEP Annunciation          | **Set to Engineer Menu on close** -- When checked, closing the Native Window sets the emulators to the Engineering Main menu and suppresses IKB alarm annunciation.  
**TPN in absence of Experion** -- If an ES-T, then uncheck so Experion events can annunciate from the IKB/OEP. If a Native-Window-only Station, or Experion-ready node (that is, the node does not have Experion Station functionality available), then check so TPN events can annunciate from the IKB/OEP. |
3. Common Platform Tasks
3.9. Configure LCNP (Board0) Settings

<table>
<thead>
<tr>
<th>Option</th>
<th>Option Setting</th>
</tr>
</thead>
<tbody>
<tr>
<td>Printer</td>
<td>Emulated Disks</td>
</tr>
<tr>
<td>LCNP</td>
<td>Common</td>
</tr>
<tr>
<td></td>
<td>Native Window</td>
</tr>
</tbody>
</table>

**Board 0: IDEV-EST7**

- **Connection Controls**
  - □ Enable Local Connections
  - □ Enable Remote Connections
  - □ Enable Local Connection Overrides
  - □ Allow Disconnect
  - □ Confirm Disconnects
  - □ Clear Display On Disconnect

- **Native Window Appearance**
  - □ Maintain 1:1 Aspect Ratio
  - □ Font Smoothing
  - □ Full Screen
  - □ Show Menu/Title Bars
  - □ Show Status Bar

- **Mouse Button Function Selection**
  - Left: Select
  - Middle: None
  - Right: Menu

- **LCNP Auto Restart**
  - □ Enable LCNP Auto Restart Menu Item

- **LCNP Reset Enables**
  - □ Local
  - □ Remote

- **Print Trend**
  - □ Disable Print Trend

- **IKB/DEP Annunciation**
  - □ Set to Engineer Menu on Close
  - □ TPN - in absence of Experion

For ES-T, continue to the procedure “Edit ES-T Keyboard Settings.”
3. Common Platform Tasks
3.9. Configure LCNP (Board0) Settings

Edit ES-T Keyboard settings

<table>
<thead>
<tr>
<th>Step</th>
<th>Action</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Click the <strong>Keyboard</strong> tab.</td>
</tr>
</tbody>
</table>
| 2    | Honeywell recommends leaving all annunciator contacts **Disabled**.          
      ATTENTION: Enable the contacts only if required on non-IKB nodes (for example, to make the TPN/LCN system event audible). If enabled, the PC Speaker association in the Experion Station application must be **disabled** (Connection Properties – Sounds page).  
For details, refer to section 4.10, **Configure Audible Annunciation**. |
| 3    | Continue with the “Configure TPN/LCN Printer Settings” procedure. |

Configure TPN/LCN Printer Settings

**Definition of printer configuration choices**

The three printer configuration choices are described below:

- If the node will not connect to a printer, select the **No Printer Selected** option button. Select this mode if the printer function of the Universal Station is not to be used. If this mode is selected and the TPN/LCN NCF has a printer configured for the node, then the Native Window Console Status display will indicate that the printer for this node is off-line.

- The **Batch Printer Selection** option causes printed output from the Universal Station to be collected until the configured time or line limit is reached, and then printed as a batch. In this mode, the true status of the printer is hidden by the Windows operating system, and will most often show as OK on the Native Window Console Status display, even when the printer is off-line or absent.

- The **Continuous Printer Selection** option most closely emulates the printing behavior of the Universal Station. In this mode, only the Signum serial printer is supported. The Signum printer must be connected to a serial port of this node. It cannot be used across the network. When used in this mode, the printer is dedicated to this function, and cannot be shared with any other application on this or any other node. In this mode, print output from the Universal Station is sent immediately to the printer. This is particularly useful for printing alarms.
3. Common Platform Tasks
3.9. Configure LCNP (Board0) Settings

**Procedure to configure TPN/LCN printer**

To begin: Click the **Printer** tab and perform one of the following procedures, depending upon the printer requirements for the node:

- *No Printer Selected*
- *Batch Printer Selection*
- *Continuous Printer Selection*

**TIP**

Separate configuration must be performed to enable Experion printing.

**No Printer Selected**

<table>
<thead>
<tr>
<th>Step</th>
<th>Action</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Select the <strong>No Printer Selected</strong> option button.</td>
</tr>
<tr>
<td>2</td>
<td>Click the <strong>OK</strong> button to complete LCNP board configuration.</td>
</tr>
</tbody>
</table>

You have completed this task. Return to the checklist that led you to this task.
Batch Printer Selection

<table>
<thead>
<tr>
<th>Step</th>
<th>Action</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Select the <strong>Batch Printer Selection</strong> option shown below.</td>
</tr>
<tr>
<td>2</td>
<td>Complete the Windows printer setup, and then execute the next step.</td>
</tr>
<tr>
<td>3</td>
<td>Click the <strong>Print Setup</strong> button to display the standard Windows <strong>Print Setup</strong> dialog box.</td>
</tr>
<tr>
<td>4</td>
<td>Select the desired options and then click the <strong>OK</strong> button.</td>
</tr>
<tr>
<td>5</td>
<td>Click <strong>Font Setup</strong> button to change the font used for printing.</td>
</tr>
<tr>
<td>6</td>
<td>Change <strong>Idle Flush Time</strong> field to the desired number of seconds.</td>
</tr>
<tr>
<td>7</td>
<td>Change <strong>Queue Length</strong> field to the desired number of lines.</td>
</tr>
</tbody>
</table>
### 3. Common Platform Tasks
#### 3.9. Configure LCNP (Board0) Settings

<table>
<thead>
<tr>
<th>Step</th>
<th>Action</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>TIP:</strong></td>
<td></td>
</tr>
</tbody>
</table>
**Idle Flush Time** is the maximum period of time in seconds that RTJ entries are stored before they are automatically flushed from the RTJ print queue and sent to the printer.  
The Idle Flush Time setting controls printing only when the Idle Flush Time maximum is reached before the Queue Length maximum.  
**Queue Length** is the maximum number of lines allowed in the RTJ print queue before the lines are automatically sent to the printer.  
The Queue Length setting controls printing only when the Queue Length maximum is reached before the Idle Flush Time maximum.  
**Idle Flush Time and Queue Length**  
If RTJ events occur at infrequent intervals, the Idle Flush Time parameter can be set to over a year (32 million seconds). This forces the Queue Length parameter to activate printing when the desired number of lines is reached, instead of when the idle time runs out.  
If the Idle Flush Time and Queue Length are both set to 60, then after every 60 seconds or every 60 lines (whichever comes first) the RTJ print queue will be sent to the printer. |
| 8 | Click **OK** button to complete LCNP board configuration. |

You have completed this task. Return to the checklist that led you to this task.
### Continuous Printer Selection

<table>
<thead>
<tr>
<th>Step</th>
<th>Action</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Select the <strong>Continuous Printer Selection</strong> option shown below.</td>
</tr>
<tr>
<td><img src="image" alt="Continuous Printer Selection" /></td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>Select <strong>ASPI Serial Printer</strong> as the <strong>Model</strong> as this release of TPS only supports the Signum ASPI printer.</td>
</tr>
<tr>
<td><img src="image" alt="TIP" /></td>
<td><strong>TIP:</strong> If your system has additional printer filters installed, select the correct printer type in the <strong>Model</strong> field. Also, some print filters may display a <strong>Protocol</strong> field; if so; set that selection to match the configuration of the printer.</td>
</tr>
<tr>
<td>3</td>
<td>Select the correct <strong>Port</strong> for the printer.</td>
</tr>
<tr>
<td><img src="image" alt="TIP" /></td>
<td><strong>TIP:</strong> The printer must not be configured as a shared Windows printer. If the printer is currently configured as a shared printer, then the printer’s port will not be selectable. Use the Printer Control Panel to reconfigure the printer, so it can be used as a continuous mode printer.</td>
</tr>
</tbody>
</table>
### 3. Common Platform Tasks

#### 3.10. Load Personality into ES-T

<table>
<thead>
<tr>
<th>Step</th>
<th>Action</th>
</tr>
</thead>
<tbody>
<tr>
<td>4</td>
<td>Click the OK button to complete LCNP board configuration.</td>
</tr>
</tbody>
</table>

**ATTENTION**

**Signum 2043 printer:**

On the Signum 2043 printer, set the parameter, LENGTH, to be one line for every path (manual, front push, rear push), allowing the printer to print a real-time alarm line, followed by a one line page feed.

---

You have completed this task. Return to the checklist that led you to this task.

### 3.10 Load Personality into ES-T

**TIP**

If LCNP Auto Restart has been enabled for this node, you may not have to perform this task, as the personality will automatically load whenever the node transitions to the PWR_ON state.

<table>
<thead>
<tr>
<th>Step</th>
<th>Action</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Log on to the node as Administrator.</td>
</tr>
</tbody>
</table>
| 2    | Display the Native Window by selecting:  
Start > Programs Honeywell Experion PKS > TPS Applications > Native Window |
| 3    | Click the LEDs: xx button to display the LCNP Status display where xx is the LCN address of your node. |
| 4    | Click the Details button. |
| 5    | Click the Reset LCNP button, and then click Yes to the Are you sure? prompt. |
3. Common Platform Tasks
3.10. Load Personality into ES-T

### Step 6
When the State shows PWR_ON and the Native Window shows the GREATER THAN symbol (>), click the **Load** button on the Native Window status bar.

### Step 7
Type **W** and press ENTER in response to the **W, N, 1, 2, 3, 4, X?** prompt in the Native Window.

RESULT: The personality load begins.
(If ??? appear after the W prompt, there are no personalities available on this station. Refer to the procedure to copy personalities to the station and then attempt another personality load.)

### Step 8
Type **N** and press ENTER in response to the **NCF? N, 1, 2, 3, 4, X?** prompt in the Native Window.

Result: The HM loads the NCF into the node. When the loading completes, the Native Window's System Status display appears.
(If ??? appear after the NCF prompt, the HM is not available in your system. Restart your HM or locate a current NCF that can be loaded from removable media.)

### Step 9
Select the node, and then select **Node Status**.

Result: The Node Status display indicates EST as the node type. (If the node appears as GUS, the node’s TPN Server is not running. Select and right-click the TPN Server from the System Management Display, then select All Tasks>Start.)

You have completed this task. Return to the checklist that led you to this task.
### 3.11 Load Personality and HM Checkpoint into ESVT

**TIP**
If LCNP Auto Restart has been enabled for this node, you may not have to perform this task, as the personality will automatically load whenever the node transitions to the PWR_ON state.

<table>
<thead>
<tr>
<th>Step</th>
<th>Action</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>From the TPN/LCN System Status display, select the ESVT node of interest and then select <strong>Node Status</strong>. The ESVT appears as an AM.</td>
</tr>
<tr>
<td>2</td>
<td>Select the node of interest and perform a <strong>Shut Down</strong> as necessary to set the node to the PWR_ON or FAIL state.</td>
</tr>
<tr>
<td>3</td>
<td>Load the LCN-side of the node with the <strong>AM</strong> personality using the <strong>AUTOLOAD NET</strong> target.</td>
</tr>
</tbody>
</table>

**TIP**
Engineer access level may be required to AUTOLOAD. To change the access level to Engineer, sign on to Signon Manager using an account with ENGR access level.

| 4    | When the loading completes, check that the Node Status display (Native Window) indicates ESVT as the node type. |

**TIP**
If the node does not appear as an ESVT, verify the following:
- The node’s TPN server is running.
- The load modules for the ESVT have been configured in the NCF and exist on the History Module.

You have completed this task. Return to the checklist that led you to this task.
3. Common Platform Tasks

3.12. Load Personality and HM Checkpoint into ACE-T

## 3.12 Load Personality and HM Checkpoint into ACE-T

### TIP

If LCNP Auto Restart has been enabled for this node, you may not have to perform this task, as the personality will automatically load whenever the node transitions to the PWR_ON state.

<table>
<thead>
<tr>
<th>Step</th>
<th>Action</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>From the TPN/LCN System Status display, select the ACE-T (AM) node of interest and then select <strong>Node Status</strong>. The ACE-T appears as an AM.</td>
</tr>
<tr>
<td>2</td>
<td>Select the node of interest and perform <strong>Shut Down</strong> as necessary to set the node to the PWR_ON or FAIL state.</td>
</tr>
<tr>
<td>3</td>
<td>Load the LCN-side of the node with the <strong>AM</strong> personality using the <strong>AUTOLOAD NET</strong> target.</td>
</tr>
</tbody>
</table>

### TIP

Engineer access level may be required to AUTOLOAD. To change the access level to Engineer, sign on to Signon Manager using an account with ENGR access level.

<table>
<thead>
<tr>
<th>Step</th>
<th>Action</th>
</tr>
</thead>
<tbody>
<tr>
<td>4</td>
<td>When the loading completes, check that the Node Status display (Native Window) indicates APP as the node type.</td>
</tr>
</tbody>
</table>

### TIP

If the node does not appear as an APP, verify the following:

- The APP node's TPN server is running.
- The external load modules for the APP node have been configured in the NCF and exist on the History Module.

You have completed this task. Return to the checklist that led you to this task.
3.13 Establishing Access Permissions for Signon Manager

Purpose of establishing access permissions

To enable a user or group of users to access the TPN/LCN through a specific node’s LCNP, the user or group must be in a **High Security Policy** local group.

The best practice is to add your global users to the global groups at the Domain Controller. In Active Directory, a global user is a normal user account in the user's domain. For example, add *Joe Engineer* to the global Engineers group.

The global Engineers group should be a member of the Local Engineers group and have Engineer access by default. The LinkDomainGroups.cmd script performs this action. This script should be executed following installation of the High Security Policy on Experion-TPS nodes.

**ATTENTION**

A physical key switch is not used to establish the security access level for Experion nodes.

Default access permissions

<table>
<thead>
<tr>
<th>This Default access level...</th>
<th>Is granted to Members of this Local Group...</th>
<th>This Global Group is a member of the Local Group</th>
</tr>
</thead>
<tbody>
<tr>
<td>Engineer</td>
<td>Local Engineers</td>
<td>Domain\Engineers*</td>
</tr>
<tr>
<td>Supervisor</td>
<td>Local Supervisors</td>
<td>Domain\Supervisors*</td>
</tr>
<tr>
<td>Operator</td>
<td>Local Operators</td>
<td>Domain\Operators*</td>
</tr>
</tbody>
</table>

* “Domain” represents the name of the user domain.

Prerequisites for establishing access permissions

- The **High Security Policy – Domain Controller Package** is installed on the Domain Controller; this installation creates Experion global domain user groups.

- The **High Security Policy – Workstation Package** is installed on the Experion being implemented. This installation creates Experion local user groups and occurs during Experion node installation.

- The command script LinkDomainGroups.cmd has been executed on the Experion node being implemented. This user-run script establishes global group membership in the node’s local groups.
To configure a user “Joe” as an operator, the following steps must be taken:

<table>
<thead>
<tr>
<th>Step</th>
<th>Action</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Complete the steps defined in the Prerequisites to install the “High Security Policy.”&lt;br&gt;RESULT: The workstation and domain controller “High Security Policy” packages create local and global domain user groups. A command script establishes global group membership in the node's local groups.)</td>
</tr>
<tr>
<td>2</td>
<td>At the domain controller, create the Windows domain user accounts.&lt;br&gt;For example: Domain\Joe.</td>
</tr>
<tr>
<td>3</td>
<td>Add each account to be a member of a global domain group that was created in the High Security Policy security model.&lt;br&gt;For example: Add “Domain\Joe” account to be a member of the global domain group Operators.</td>
</tr>
<tr>
<td>4</td>
<td>Complete the definition of “Domain\Joe” account using the Experion Station System Configuration&gt;Operator Security&gt;Operators page.&lt;br&gt;For example: Define the access level for user account Domain\Joe as Oper.</td>
</tr>
</tbody>
</table>

**TIP:**<br>Membership in each group also provides access to all lower levels.

**REFERENCE**<br>For more information, refer to the subsection *Experion operator security requirements*.

**Experion operator security requirements**

- You must use integrated accounts.
- The access level must match local group membership.
- The access level AckView is not supported on TPN/LCN.
- The Experion MNGR access level should be mapped to the TPN/LCN ENGR access level through the local user group membership (that is, users with MNGR access level should belong to the local Engineers group).
The ViewOnly access level will be obeyed automatically by the Experion and TPS faceplates. For Native Window, VIEW ONLY must be configured separately (otherwise OPR will be assumed).

- “Use operator security” must be defined for ES-T nodes.
- Operator security is recommended for ESVT nodes. You must use Quick Builder to define operator security for an ESVT (Flex Station).
- “Single signon” must be checked.
- You must run the "linkdomaingroups.vbs" script if you are in a windows domain.

REFERENCE - INTERNAL
For more information about setting Operator Security, refer to the Server and Client Configuration Guide.
4. Configure Experion Database

4.1 Procedures included in this section

This section provides the following procedures:

- Integrate TPN Units into the Enterprise Model
- Add and configure TPS System Interface
- Add and Configure Operators
- Map TPS Units to Experion Assets
- Add Experion Console
- Add the node as a Console Station
- Support remote GUS with Console Extensions
- Specify Station Toolbar Definition (.stb) File
- Configure Audible Annunciation
- Support TPS on Console Station Extension

Procedures in other publications

If you plan to use Distributed System Architecture (DSA), then see Configuring Distributed System Architecture in the Client and Server Configuration Guide.
4. Configure Experion Database
4.2. Integrate TPN Units into the Enterprise Model

4.2 Integrate TPN Units into the Enterprise Model

Prerequisites

ATTENTION

- Before you map TPS Units to Experion Assets during TPS System Interface configuration, you should first create Assets using Enterprise Model Builder. See the following,
  - Planning Your Asset Model in the Server and Client Planning Guide
- Run the Enterprise Model Builder from Configuration Studio to perform this task.
Overview

Configure Assets using Enterprise Model Builder as shown in the following figure. TPN Units can then be mapped to Assets.

Procedure

<table>
<thead>
<tr>
<th>Step</th>
<th>Action</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Start Configuration Studio.</td>
</tr>
<tr>
<td></td>
<td>Start&gt;Programs&gt; Honeywell Experion PKS &gt; Configuration Studio</td>
</tr>
</tbody>
</table>

Honeywell

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4. Configure Experion Database
4.2. Integrate TPN Units into the Enterprise Model

<table>
<thead>
<tr>
<th>Step</th>
<th>Action</th>
</tr>
</thead>
<tbody>
<tr>
<td>2</td>
<td>From Connect dialog, click the icon that represents the system of Experion nodes.</td>
</tr>
<tr>
<td></td>
<td>• Verify that the Experion Server for the target system supports the EMDB repository; an IsEMBDB = True indication appears.</td>
</tr>
<tr>
<td></td>
<td>• Click Connect.</td>
</tr>
<tr>
<td></td>
<td>• Type the user name and password.</td>
</tr>
</tbody>
</table>

**NOTE:** The user name and password must exist in the Experion operators' database.

![Connect dialog](image)
### 4. Configure Experion Database
#### 4.2. Integrate TPN Units into the Enterprise Model

<table>
<thead>
<tr>
<th>Step</th>
<th>Action</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>ATTENTION</strong>&lt;br&gt; If system icons do not appear in the Connect dialog, then the station you are connecting from does not have EMDB client capability. You will not be able to build assets from this station. If system icons do appear in the Connect dialog, verify that the Experion server for the system is an EMDB repository so that you can build assets as shown in the previous figure.</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>From Configuration Explorer, click the icon representing the target system.</td>
</tr>
<tr>
<td>4</td>
<td>From the System Tasks menu, select <strong>Configure Assets for this system</strong>:&lt;br&gt;Result: Enterprise Model Builder starts.</td>
</tr>
<tr>
<td>5</td>
<td>Right-click the Assets icon and define a New Asset.&lt;br&gt;<strong>Reference:</strong> Refer to the <em>Enterprise Model Builder Guide</em> for more information about configuring asset properties.</td>
</tr>
<tr>
<td>6</td>
<td>Ensure that the new asset’s alarming enable/disable property is checked if you wish to enable.</td>
</tr>
<tr>
<td>7</td>
<td>Load the new asset.</td>
</tr>
<tr>
<td>8</td>
<td>Define additional new assets as needed.&lt;br&gt;<strong>NOTE:</strong> If direct TPS unit mapping is selected (See Section 4.5 Map TPS Units to Experion Assets), then you will need to build assets that have the same two character TPN unit names as well as an SY named asset.</td>
</tr>
</tbody>
</table>
4. Configure Experion Database
4.2. Integrate TPN Units into the Enterprise Model

You have completed this task. Return to the checklist that led you to this task.
### 4.3 Configure TPS System Interface

<table>
<thead>
<tr>
<th>Step</th>
<th>Action</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>From Configuration Studio, expand the Server.</td>
</tr>
<tr>
<td>2</td>
<td>Click <strong>System Interfaces</strong> and then click the <strong>Configuration</strong> tab to call up the System Interfaces display.</td>
</tr>
<tr>
<td>4</td>
<td>Click the <strong>TPS</strong> hyperlink in the Alias field:</td>
</tr>
</tbody>
</table>

![System Interfaces](image)

- **Type**: TPS
- **Alias**: TPS

**RESULT:**

The System Interface display appears for the TPS Connection:
### 4. Configure Experion Database

#### 4.3. Configure TPS System Interface

<table>
<thead>
<tr>
<th>Step</th>
<th>Action</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>5</strong></td>
<td><strong>Configuration tab</strong></td>
</tr>
</tbody>
</table>

Select the appropriate configuration in the Configuration tab:

- **Configuration Options**: Choose the options for your site.

<table>
<thead>
<tr>
<th>TPS Connection</th>
<th>Alias</th>
<th>TPS</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Status</strong></td>
<td><strong>Configuration</strong></td>
<td><strong>Timing</strong></td>
</tr>
</tbody>
</table>

#### Connection Identity

- **Alias**: TPS

#### Configuration Options

- **Maintain unacknowledged alarms on Experion Server**
  This option controls whether unacknowledged returned-to-normal alarms and informational messages from this connection will be maintained on the Experion Server (option enabled) or whether they will be removed as soon as they return to normal (option disabled). This option only affects flex stations connected to the Experion Server.

- **Follow the backup server on TPS communications failure if the servers are synchronized**

- **Use TPS groups**
  If this option is enabled, the first 450 groups will be used to represent TPS groups configured in the Native Window.

- **Use classic TPS faceplates and details on console stations (does not affect flex stations)**

- **Disable automatic deletion of TPS points**
  This option should only be turned on temporarily when moving TPS points on the LCI.

#### Point Browser List

- **Populate list at startup**

**Last update time**: 00:00:00

**REFERENCE:**

The following table describes Configuration Options for the TPS Connection.
### 4. Configure Experion Database

#### 4.3. Configure TPS System Interface

<table>
<thead>
<tr>
<th>Step</th>
<th>Action</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Configuration Options – TPS Connection</strong></td>
<td></td>
</tr>
<tr>
<td><strong>Maintain Unacknowledged Alarms for ESVT</strong></td>
<td></td>
</tr>
<tr>
<td><strong>Unchecked (Disabled):</strong></td>
<td></td>
</tr>
<tr>
<td>● If the checkbox is disabled (default setting), the Server will automatically acknowledge TPN/LCN alarms that are being received from the local TPN/LCN. Upon alarm condition return to normal, the alarm will be removed from the Experion Alarm Summary.</td>
<td></td>
</tr>
<tr>
<td><strong>Checked (Enabled):</strong></td>
<td></td>
</tr>
<tr>
<td>● If the checkbox is enabled, new alarms received at this Server will require operator acknowledgement - through the server’s station, through a Flex station connected to this Server, or through the DSA connection.</td>
<td></td>
</tr>
<tr>
<td><strong>ATTENTION</strong></td>
<td></td>
</tr>
<tr>
<td>“Maintain unacknowledged alarms” should always be checked when the ESVT has alarm clients. You must have the checkbox checked if you are to see messages on Flex Stations</td>
<td></td>
</tr>
<tr>
<td><strong>Failover to Backup Server on TPS communications failure if servers are synchronized</strong></td>
<td></td>
</tr>
<tr>
<td><strong>Unchecked (Disabled):</strong></td>
<td></td>
</tr>
<tr>
<td>● If this box is unchecked, the state of the TPN Server connection will not cause the Experion system server to failover to the backup. For example, you may uncheck this box when the LCN is being disconnected from the Server for a period of time, but the Server is to be kept running. This may be useful, for example, when performing an online upgrade.</td>
<td></td>
</tr>
<tr>
<td><strong>Checked (Enabled):</strong></td>
<td></td>
</tr>
<tr>
<td>● In normal operation, this checkbox should always be checked (enabled).</td>
<td></td>
</tr>
<tr>
<td>● When enabled, the Experion system server will failover to the backup if it is synchronized and either of the following events occur: An Experion system loses connection to the TPN server, or the TPN Server loses connection to the TPN/LCN</td>
<td></td>
</tr>
<tr>
<td>The status “Servers synchronized” is a requirement for Experion system server failover. When required, the engineer can synchronize the Backup Server from the Primary through the redundant Server configuration page. Once this has occurred, all further database changes made on the Primary are transferred to the backup.</td>
<td></td>
</tr>
</tbody>
</table>
## 4. Configure Experion Database

### 4.3. Configure TPS System Interface

<table>
<thead>
<tr>
<th>Step</th>
<th>Action</th>
</tr>
</thead>
<tbody>
<tr>
<td><img src="image" alt="Use TPS Groups" /></td>
<td><strong>Use TPS Groups</strong></td>
</tr>
<tr>
<td></td>
<td>• May be unchecked if Experion groups are used exclusively for TPN points. Checked if supporting TPS groups.</td>
</tr>
<tr>
<td><img src="image" alt="Point Browser List" /></td>
<td><strong>Point Browser List</strong></td>
</tr>
<tr>
<td></td>
<td>Unchecked (Disabled):</td>
</tr>
<tr>
<td></td>
<td>• If unchecked, EPKS point cache is only populated with TPS points already in the EPKS database, and then as new ones are discovered.</td>
</tr>
<tr>
<td></td>
<td>• If checked, EPKS browses the address space of the TPN server, populating the EPKS tag cache. The points are not built into the point's heap (heap 1). They are only built into the tag cache (heap 9).</td>
</tr>
<tr>
<td></td>
<td>• Prior to R300, this feature should not be used because it causes EPKS to timeout the TPN Server and drop the data connection. In R300, the browse is done on a parallel connection that allows it to take as long as necessary and not interfere with normal data requests. It will still put some load on the TPN Server and LCN so if point browsing of non-discovered points is not required, leave this disabled.</td>
</tr>
<tr>
<td><img src="image" alt="Update" /></td>
<td><strong>Update:</strong></td>
</tr>
<tr>
<td></td>
<td>When clicked, forces the TPN Server to be browsed and the EPKS tag cache to be populated with TPS points not yet in the EPKS point's heap.</td>
</tr>
<tr>
<td><img src="image" alt="Tuning tab" /></td>
<td><strong>Tuning tab</strong></td>
</tr>
<tr>
<td>6</td>
<td>Click the <strong>Tuning</strong> tab.</td>
</tr>
<tr>
<td></td>
<td>For the TPS System Interface, leave the tuning parameters at the default values.</td>
</tr>
</tbody>
</table>
### 4. Configure Experion Database
#### 4.3. Configure TPS System Interface

<table>
<thead>
<tr>
<th>Step</th>
<th>Action</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td><strong>CAUTION</strong>&lt;br&gt;The tuning properties are automatically adjusted to be compatible with the server’s global cache settings. &lt;br&gt;You should only change them if you have been instructed to do so by Honeywell support personnel, or you have extensive experience with system interfaces. &lt;br&gt;<strong>REFERENCE</strong>&lt;br&gt;For future reference, the tuning properties are defined in the Tuning Properties table following this procedure.</td>
</tr>
<tr>
<td>7</td>
<td>Click the <strong>Status</strong> tab. &lt;br&gt;The Status Display should show six green indicators for the TPS System Interface; if not, refer to section 13, <em>Troubleshooting Approach</em>. &lt;br&gt;<strong>Notifications Checkbox:</strong>&lt;br&gt;By default, this checkbox is disabled. Remember to check this box after mapping your Units. When this option is enabled, it allows EPKS to receive alarms/messages/events from the TPN server.</td>
</tr>
</tbody>
</table>

---

You have completed this task. Return to the checklist that led you to this task.
4. Configure Experion Database
4.3. Configure TPS System Interface

TPS Connection-Tuning properties

The following table describes the tuning properties for a TPS connection.

<table>
<thead>
<tr>
<th>Property</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Data Settings</strong></td>
<td></td>
</tr>
<tr>
<td>Cache flush time</td>
<td>The intervals (in milliseconds) that the subscription list is checked for references to old data. The default value is 15 seconds.</td>
</tr>
<tr>
<td>Cache age time</td>
<td>The amount of time (in milliseconds) old data remains in the dynamic cache. The default value is 60 seconds.</td>
</tr>
<tr>
<td>Maximum subscription time</td>
<td>The slowest subscription time (in milliseconds). The default value is 10 seconds. If the subscription time is slower than that specified, the subscribing server switches from subscription to synchronous read (polls). Maintaining a slow subscription is not efficient.</td>
</tr>
<tr>
<td>Connection Timeout</td>
<td>The maximum time (in seconds) the Experion server allows for a data request to complete. If the connection times out, a connection failure is recorded and a new connection is attempted. The default value is 30 seconds.</td>
</tr>
<tr>
<td>List fragment size</td>
<td>The size of data packets sent over the network. The default is 500 parameter values. This is tuned for optimal performance on low bandwidth links.</td>
</tr>
<tr>
<td>Drift Deadband</td>
<td>The TPS system only sends an updated value to the Experion server if the value has changed by the deadband percentage since the last update. The default value is 0.00.</td>
</tr>
<tr>
<td><strong>Notification Settings</strong></td>
<td></td>
</tr>
<tr>
<td>Connection timeout</td>
<td>The amount of time (in seconds) a packet of data can remain on the network without being acknowledged. When the timeout period expires, the connection is broken and communication is initiated again. The default value is 10 seconds.</td>
</tr>
<tr>
<td>Notification buffer interval</td>
<td>The maximum amount of time (in seconds) a notification can be delayed on the publishing server before being sent to the subscribing server. The default value is 2 seconds</td>
</tr>
<tr>
<td>Notification keep alive interval</td>
<td>The maximum amount of time (in seconds) the publishing server does not send packets to the subscribing server. If there are no notifications within this time, an empty keep-alive packet is sent to the subscribing server. The default value is 15 seconds.</td>
</tr>
<tr>
<td>List Fragment Size</td>
<td>The default value is 100 notifications.</td>
</tr>
</tbody>
</table>
4.4 Add and Configure Operators

Purpose
This procedure is used to define the operator security settings. ES-T requires the use of Signon Manager with Operator-Based security using Integrated Windows accounts. Signon Manager is also used to control the Native Window security level.

Procedure
Perform the following steps to define the operator security settings from Configuration Studio:

<table>
<thead>
<tr>
<th>Step</th>
<th>Action</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>From Configuration Studio with the Server of interest expanded, select Security.</td>
</tr>
<tr>
<td>2</td>
<td>From the Security menu, choose Configure operators and Windows group accounts.</td>
</tr>
<tr>
<td>3</td>
<td>For each operator, check Use Windows account.</td>
</tr>
</tbody>
</table>

**TIP**
The accounts were created on the domain controller and must also belong to the local user group, for example local Operators. The link between domain and local groups is established via the script linkdomaingroups.vbs.

**ATTENTION**
After creating the Assets, use the Operators Assignment tab to assign assets to Operators.

<table>
<thead>
<tr>
<th>Step</th>
<th>Action</th>
</tr>
</thead>
<tbody>
<tr>
<td>4</td>
<td>From the System Configuration Menu, select the Sign-on Administration menu and select Allow Single Signon.</td>
</tr>
</tbody>
</table>

**REFERENCE - INTERNAL**
For more information about setting Operator Security, refer to Server and Client Configuration Guide.
4. Configure Experion Database
4.4. Add and Configure Operators

You have completed this task. Return to the checklist that led you to this task.
4.5 Map TPS Units to Experion Assets

Prerequisites

**ATTENTION**
- Before you can map TPS Units to Experion Assets during TPS System Interface configuration, you must first create Assets using Enterprise Model Builder.
- You must be logged on to the Enterprise Model Builder or Server’s Station application with the ENGR or MNGR security level to perform this task.

Procedure

<table>
<thead>
<tr>
<th>Step</th>
<th>Action</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>From Configuration Studio, with the system's server of interest expanded, click <strong>System Interfaces</strong>.</td>
</tr>
</tbody>
</table>

Note: You can also configure System Interfaces from Station when you click **System Status** on the System Menu and then click **System Interfaces**.
## 4. Configure Experion Database
### 4.5. Map TPS Units to Experion Assets

<table>
<thead>
<tr>
<th>Step</th>
<th>Action</th>
</tr>
</thead>
<tbody>
<tr>
<td>2</td>
<td>From the System Interfaces menu, click <strong>Configure system interfaces</strong>.</td>
</tr>
<tr>
<td>3</td>
<td>Select the <strong>TPS</strong> system interface.</td>
</tr>
<tr>
<td>4</td>
<td>Click <strong>Status</strong> tab and disable Notifications, if enabled.</td>
</tr>
<tr>
<td>5</td>
<td>Click <strong>Unit Mapping</strong> tab and review the mapping options. <strong>Note:</strong> Before you can map TPS Units to Experion Assets during TPS System Interface configuration, you must first create Assets using Enterprise Model Builder.</td>
</tr>
<tr>
<td>6</td>
<td>Select the Unit Mapping option that you want to use to map TPS Units to Experion Assets.</td>
</tr>
</tbody>
</table>
### ATTENTION

Depending on your selected option, you will also need to account for the reserved TPN System Unit (SY) in your TPS Unit to Asset mapping strategy. You map the SY unit, which is a TPN-system defined and reserved unit, so that you can support system event journaling and silence synchronization from your Experion system.

The Unit Mapping options represent the following:

<table>
<thead>
<tr>
<th>Option</th>
<th>Description</th>
</tr>
</thead>
</table>
| Map all TPS Units to Assignable Asset | Maps all TPS units (including the reserved TPN System Unit, SY) to the specified Experion Asset.  
**Notes:** Asset(s) that were previously defined using Enterprise Model Builder appear in the drop down list.  
**Example usage scenario:** TPS users with a small number of units or small LCN or users who do not need an Experion alarm management strategy may consider selecting this option. This option is the easiest to implement, but provides least flexibility of the 3 options. |

| Use the Units from this TPS connection as areas (**direct mapping**) | Automatically maps TPS units to Experion Assets with same user-defined names. For example, Unit T1 is mapped to Asset T1.  
**Notes:** You must build an Asset named “SY” in order the reserved TPN System Unit (SY) to be directly mapped.  
**Example usage scenario:** TPS users with a single LCN who want their operators to support a similar alarm management strategy from Experion as on the LCN may consider selecting this option. |
4. Configure Experion Database
4.5. Map TPS Units to Experion Assets

<table>
<thead>
<tr>
<th>Step</th>
<th>Action</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Map TPS Units as follows</td>
</tr>
<tr>
<td></td>
<td>Individually map TPS units to Experion Assets.</td>
</tr>
<tr>
<td></td>
<td><strong>Notes:</strong> Asset(s) that were previously defined using Enterprise Model Builder appear in the drop down list. Although a user-defined Asset named “SY” is not required, you must still assign TPN System Unit (SY) to a user-defined Experion Asset. Note that the default selection for TPN System Unit (SY) is “Not Mapped”.</td>
</tr>
<tr>
<td></td>
<td><strong>Example usage scenario:</strong> TPS users with a large number of units, large LCN, multiple LCNs, or users who want a hierarchical alarm management strategy may consider selecting this option. If you are connecting multiple LCNs to an Experion system using DSA, you must select this option. This option provides the most flexibility of the 3 options.</td>
</tr>
</tbody>
</table>

7 After completing Unit Mapping, check that **Notifications** is **Enabled** on the **Status** tab. If it is not checked, alarms from TPS will not be displayed.
Configuration example

The following figure shows an example of individually mapped TPS Units to Experion Assets. The TPS Units that appear in the Unit Mapping tab are initially discovered by a running TPN Server.
SY Unit mapping to Assets

The reserved TPS system unit SY supports system event journaling and silence synchronization. Depending on the mapping option you choose, you must map the SY system unit to an Asset. You build assets, including an SY Asset if necessary, using Enterprise Model Builder.

Map all TPS Units to Assignable Assets

When selecting the option, Map all TPS Units to Assignable Asset, all user defined TPS units (including the reserved TPS System Unit, SY) are assigned to one selected Asset.

Map all TPS Units to Assignable Asset: /Assets/All_units_in_one_Asset
### 4. Configure Experion Database

#### 4.5. Map TPS Units to Experion Assets

**Use the Units from the TPS connection as areas (direct mapping)**

When selecting the option, use the Units from the TPS connection as areas (direct mapping). All user-defined TPS Units are assigned to similarly user-defined Experion Assets. You must build and name Experion Assets to have the same 2 character names as each of one of your TPS units. You must also build an Experion Asset named SY to support the TPS reserved system unit, SY.

- Use the Units from this TPS connection as areas (direct mapping).

**You must build an SY Asset if you select direct mapping**

---

### Map TPS units as follows option

When selecting the option, Map TPS units as follows, all user defined TPS units are assigned to user defined Experion Assets. You can name your Assets to have unique names representing LCN Areas, TPN Units, or other plant organizations (for example, Reactor1, Boiler 2). Note that you must also map the TPS reserved system unit, SY, to an Experion Asset of your choice. The Experion Asset for this option does not need to be named SY, but you must not leave the TPS reserved system unit, SY, unmapped.

- Map TPS Units as follows:

  **TPS Unit** | **Assignable Asset**
  --- | ---
  72 SY | ![Assets/TPS_System_Unit_LCN1](Assets/TPS_System_Unit_LCN1)
  73 T1 | ![Assets/TankFarm_NorthPlant](Assets/TankFarm_NorthPlant)
  74 T2 | ![Assets/TankFarm_SouthPlant](Assets/TankFarm_SouthPlant)

---

**TIP**

The unit names on the left are directly obtained from the TPN/LCN.
4. Configure Experion Database
4.5. Map TPS Units to Experion Assets

Special considerations

Refer to the section *Mapping of TPN/LCN Units to Experion Assets* for special mapping considerations when more than one LCN is connected to an Experion system using DSA.

You have completed this task. Return to the checklist that led you to this task.
4.6 Add Experion Console

Prerequisites
Use Configuration Studio with ENGR or MNGR security level to perform this task.

ATTENTION
Refer to the Server and Client Configuration Guide for Console configuration details.

Procedure

<table>
<thead>
<tr>
<th>Step</th>
<th>Action</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>From Configuration Explorer, with the system’s server of interest expanded, click Stations and Consoles</td>
</tr>
<tr>
<td>2</td>
<td>From the Stations and Consoles menu, click Configure consoles.</td>
</tr>
<tr>
<td>3</td>
<td>From the Consoles listing, click a blank line.</td>
</tr>
</tbody>
</table>

![System Configuration]  
**General**  
**System Hardware**  
Connections  
Controller Interfaces  

<table>
<thead>
<tr>
<th>Console</th>
<th>1</th>
<th>2</th>
</tr>
</thead>
</table>
4. Configure Experion Database
4.6. Add Experion Console

<table>
<thead>
<tr>
<th>Step</th>
<th>Action</th>
</tr>
</thead>
<tbody>
<tr>
<td>4</td>
<td>From the Detail tab, define a console name.</td>
</tr>
<tr>
<td></td>
<td><img src="image" alt="Console Configuration" /></td>
</tr>
<tr>
<td></td>
<td><strong>Console Definition</strong></td>
</tr>
<tr>
<td></td>
<td><strong>Name:</strong> InfoDev</td>
</tr>
<tr>
<td></td>
<td><strong>Station Configuration</strong></td>
</tr>
<tr>
<td></td>
<td><strong>Normal update rate:</strong> 1 sec</td>
</tr>
<tr>
<td></td>
<td><strong>Fast update rate:</strong> 1 sec</td>
</tr>
<tr>
<td></td>
<td><strong>Operator sign-on required</strong></td>
</tr>
<tr>
<td>5</td>
<td>Complete the remaining configuration choices on the Detail, Options, and Operator Keyboard tabs. Refer to the Server and Client Configuration Guide for configuration information.</td>
</tr>
<tr>
<td>6</td>
<td>Repeat this procedure for each console.</td>
</tr>
</tbody>
</table>

**ATTENTION**

The node must belong to one Experion Console. The Experion Console and TPN Console should have a one-to-one relationship. In other words, an Experion Console may not span across multiple TPN Consoles. An Experion Console should be created to match the TPN Console and the ES-T can be added to this Experion Console.

You have completed this task. Return to the checklist that led you to this task.
4. Configure Experion Database

4.7 Add Console Station

Prerequisites

Use Configuration Studio with ENGR or MNGR security level to perform this task.

Procedure

<table>
<thead>
<tr>
<th>Step</th>
<th>Action</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>From Configuration Explorer, with the system’s server of interest expanded, click <strong>Stations and Consoles</strong>.</td>
</tr>
<tr>
<td>2</td>
<td>From the Stations and Consoles menu, click <strong>Configure console stations</strong>.</td>
</tr>
<tr>
<td>3</td>
<td>From the Consoles Stations listing, click a blank line.</td>
</tr>
</tbody>
</table>
| 4    | From the **Detail** tab:  
  - Type the Network Name for the Experion Station  
  - Assign any extension stations to this station (refer to next procedure)  
  - Select a console name from the drop down list. |

**ATTENTION**

Ensure that each node is added to its matching Experion Console.

**ATTENTION**

The default Normal update rate is 1 sec. To decrease the load on the LCN, you should consider setting this rate to 4 seconds.
### 4. Configure Experion Database
#### 4.7. Add Console Station

<table>
<thead>
<tr>
<th>Step</th>
<th>Action</th>
</tr>
</thead>
</table>
| 5    | Review the listing of Console Stations  
RESULT: The Console Station appears in the list along with its IP address |

<table>
<thead>
<tr>
<th>Console Station</th>
<th>I.P. Address</th>
<th>Console</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 id-est7</td>
<td>123.456.789.100</td>
<td>InfoDev</td>
</tr>
</tbody>
</table>

**ATTENTION**

If an IP address does not appear, you will not be able to establish communication between the server and station or complete the TPN/LCN integration. To resolve this situation, review your hosts file setup and computer name entry for accuracy.

| 6    | Repeat this procedure for each ES-T. |

You have completed this task. Return to the checklist that led you to this task.
4.8 Support Remote GUS with Console Extensions

Purpose

To support Experion Remote GUS Displays, you must add Experion Stations as Console Extensions to a host an ES-T.

Prerequisites

Use Configuration Studio with ENGR or MNGR security level to perform this task.

Procedure

<table>
<thead>
<tr>
<th>Step</th>
<th>Action</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>From Configuration Explorer, with the system’s server of interest expanded, click Stations and Consoles.</td>
</tr>
<tr>
<td>2</td>
<td>From the Stations and Consoles menu, click Configure console stations.</td>
</tr>
<tr>
<td>3</td>
<td>From the Consoles Stations listing, click a Console Station.</td>
</tr>
</tbody>
</table>
## 4. Configure Experion Database

### 4.8. Support Remote GUS with Console Extensions

<table>
<thead>
<tr>
<th>Step</th>
<th>Action</th>
</tr>
</thead>
<tbody>
<tr>
<td>4</td>
<td>From the <strong>Detail</strong> tab:</td>
</tr>
<tr>
<td></td>
<td>• Assign any extension stations to the host station. Extension stations are required if you wish to use Remote GUS Displays with Experion.</td>
</tr>
<tr>
<td></td>
<td>• Complete remaining extension configuration.</td>
</tr>
</tbody>
</table>

**REFERENCE - INTERNAL**

Refer as needed to the **Server and Client Configuration Guide** for additional console information.

<table>
<thead>
<tr>
<th>Step</th>
<th>Action</th>
</tr>
</thead>
<tbody>
<tr>
<td>5</td>
<td>Repeat this procedure for additional consoles.</td>
</tr>
</tbody>
</table>

You have completed this task. Return to the checklist that led you to this task.
4.9 Specify Station Toolbar Definition (.stb) File

Experion Station Toolbar Definition Files

Experion Stations use Station toolbar definition (.stb) files to define the actions of the keyboard. Several .stb files are installed on the ES-T, including the following:

- **ikb-est.stb** (for the Integrated Keyboard)
- **icon-est.stb** (for the OEP on the Honeywell Icon Series Console)
- **ikb-est_Multiwindow.stb** (for the Integrated Keyboard with Multiple Displays)
- **icon-est_Multiwindow.stb** (for the OEP on the Honeywell Icon Series Console with Multiple Displays)

The above files are similar to the standard files, except that the definitions for *user-programmable* keys are removed and the default processing of the user-programmable keys is left to the Native Window (as defined by the TPN/LCN Area Button Configuration (.KS and .KO) files. This ensures that, by default, the user programmable keys and LEDs on a Station will operate according to the Button Configuration file of the TPN/LCN Area installed on the station.

Customizing the file

All .stb files are customizable by the user. The initial files are only starting templates. It is possible to mix processing of the user-programmable keys, leaving some unconfigured in the .stb file, to be processed by the Native Window Button Configuration file; and configuring others to be processed by the Experion Station application.
ATTENTION

If a given user-programmable key is included in the current .stb file (Connection Properties, Toolbars tab), then it is “owned by Station”. If this key is not in the .stb file, then it should be considered “owned by Native Window” and should be left for Native Window to control.

The standard (Rxxx) ikb.stb and icon-est.stb toolbar files are examples in which Station owns all user-programmable keys. The ikb-est.stb and icon.stb are examples in which the user-programmable keys are omitted, thus Native Window owns all these keys, allowing Native Window to retain ownership of these keys and LEDs by default. Users can edit these files and save-as to configure the desired mix of both native Window and Station-owned user-programmable keys.

When Native Window has access to one or more user-programmable IKB/OEP buttons with LEDs, the Experion system will allow Native Window to update the LEDs of these buttons. In this case, you should avoid configuring the Experion system to also control these same particular LEDs (for example, by using the Operator Keypad tab for Console Station configuration), because if both Native Window and the Experion system attempt to control an LED, the behavior will be unpredictable.

Specifying the .stb file

As part of configuring the connection for the ES-T, indicate the type of keyboard being used and select one of the keyboard template files provided by the installation. Perform the following steps to specify the ES-T button configuration file.

<table>
<thead>
<tr>
<th>Step</th>
<th>Action</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Go to the following: Station &gt; Connection Properties &gt; Toolbars.</td>
</tr>
<tr>
<td>2</td>
<td>Browse to the following location: Program Files &gt; Honeywell &gt; Experion PKS &gt; Client &gt; System &gt; Rxxx</td>
</tr>
<tr>
<td>3</td>
<td>Select the appropriate .stb file in the Menu. Toolbar &amp; keyboard shortcuts (see the following screen example).</td>
</tr>
</tbody>
</table>
4. Configure Experion Database

4.9. Specify Station Toolbar Definition (.stb) File

For more information, refer to Server and Client Configuration Guide.
4.10 Configure Audible Annunciation

In order for TPN/LCN alarms to be processed correctly by the Experion alarm subsystem, the NCF and the Experion configuration must be aligned. The contacts for horn annunciation of alarm priorities must be set the same in the NCF and in Experion.

Perform one of the following procedures, depending on whether an IKB is present on the ESC.

Procedure - IKB present

<table>
<thead>
<tr>
<th>Step</th>
<th>Action</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Go to the Experion Station application and navigate to the following: Station &gt; Connect &gt; Edit Connection.</td>
</tr>
<tr>
<td>2</td>
<td>Click the Sounds tab.</td>
</tr>
<tr>
<td>3</td>
<td>Select the Use keyboard contact checkbox.</td>
</tr>
<tr>
<td></td>
<td><strong>ATTENTION</strong> The Use keyboard contact portion of the dialog box will not appear until the IKB Service is installed and running. (The IKB Service can be installed from the Experion Application DVD, IKB OEP Package.)</td>
</tr>
<tr>
<td>4</td>
<td>Uncheck the Use PC Speaker and Use external contact checkboxes.</td>
</tr>
<tr>
<td>5</td>
<td>Select an Event (Urgent Priority Alarm, High Priority Alarm, or Low Priority Alarm), and then select a contact from the Keyboard Contact for selected event dropdown list to align it with the NCF configuration.</td>
</tr>
</tbody>
</table>

Shown below is an example Experion configuration that aligns with the following NCF configuration example. For additional NCF information, refer to section 3.4 Additional NCF Considerations.
## 4. Configure Experion Database

### 4.10. Configure Audible Annunciation

<table>
<thead>
<tr>
<th>Step</th>
<th>Action</th>
</tr>
</thead>
<tbody>
<tr>
<td>Example Experion Configuration:</td>
<td><img src="image" alt="Connection Properties - Default" /></td>
</tr>
<tr>
<td>Sound for selected event:</td>
<td><img src="image" alt="Sound for selected event" /></td>
</tr>
<tr>
<td>Example NCF Configuration:</td>
<td><img src="image" alt="Example NCF Configuration" /></td>
</tr>
<tr>
<td>6</td>
<td>Verify that you have activated corresponding alarm selections in Experion.</td>
</tr>
</tbody>
</table>
4. Configure Experion Database
4.10. Configure Audible Annunciation

### Procedure - IKB not present

*If local annunciation through the PC speaker is required,* perform the following steps to disable the PC speaker association in the Experion Station application, and then enable the PC speaker through the Configuration Utility. Note: Audible sound level may be low.

<table>
<thead>
<tr>
<th>Step</th>
<th>Action</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Go to the Experion Station application and navigate to the following: <strong>Station &gt; Connect &gt; Edit Connection.</strong></td>
</tr>
<tr>
<td>2</td>
<td>Click the <strong>Sounds</strong> tab.</td>
</tr>
<tr>
<td>3</td>
<td>Uncheck the <strong>Use PC Speaker</strong> checkbox. Click the <strong>Save</strong> button.</td>
</tr>
<tr>
<td>4</td>
<td>Go to <strong>Honeywell Experion PKS&gt;System Management&gt;Configuration Utility&gt;Board0&gt;Keyboard.</strong></td>
</tr>
</tbody>
</table>
Configure Experion Database

4.10. Configure Audible Annunciation

<table>
<thead>
<tr>
<th>Step</th>
<th>Action</th>
</tr>
</thead>
<tbody>
<tr>
<td>5</td>
<td>Ensure that the Contacts are <strong>Enabled</strong> (boxes checked), as shown below.</td>
</tr>
</tbody>
</table>

![Image of the Configure Audible Annunciation screen]

**TIP**

The Experion Station application drives the PC speaker (based on the content of the current Experion Alarm Summary display and other Experion configuration), if the **Use PC Speaker** checkbox on the Sounds tab is enabled.

However, some TPN/LCN events may not be annunciated (for example, a TPN/LCN System Alarm event).

For this reason it is recommended that **Use PC Speaker** be disabled on the Sounds tab; but optionally, PC speaker annunciation may be enabled on the System Management>Configuration Utility>Board0>Keyboard page.
4. Configure Experion Database
4.11. Support TPS on Console Station Extension

ATTENTION
Use of the Audible Suppress option (the target that is labeled AUDIBLE) on the TPN/LCN Alarm Summary display is not recommended on ES-T nodes.

4.11 Support TPS on Console Station Extension

Overview
ES-CE with TPS Extension is a “marriage” of ES-C and Remote GUS Displays. Functions dependent on the presence of an LCNP are limited in Remote GUS Displays, and those limitations exist in ES-CE with the TPS Extension. On ES-CE with TPS Extension (as in a Remote GUS Displays “cluster”), the Native Window can be active on only one of the stations in an ES-T or ES-CE with TPS Extension “cluster” at any given time.

Native Window Displays
Native Window displays can be invoked only on the Station that currently has possession of the Native Window. Attempts to invoke Native Window displays will fail on other stations. This also applies to TPN Detail Displays and Native Window Group Displays. Unlike the ES-T, it is not possible for GUS or HMIWeb displays to invoke Native Window displays, and vice versa. (This behavior is the same as Remote GUS.)

TPN Faceplates and Group Displays
HMIWeb faceplates for TPN points, HMIWeb detail displays for TPN points and HMIWeb group displays based upon them, will run on ES-CE with TPS Extension.

GUS faceplates and group displays will run on ES-CE with TPS Extension.

Native Window group displays will run only if the station currently possesses the Native Window. Also, they cannot be invoked from a GUS or HMIWeb display.

GUS Displays
GUS displays will function on ES-CE with TPS Extension just as they do on Remote GUS Displays.
IKB

The remote GUS Display package currently does not support the IKB. An ES-CE with TPS Extension will support the IKB in the same way that ES-CE does. Experion components will “own” the IKB on ES-CE with TPS Extension. (Note that this section describes the behavior of the IKB/OEP on the ES-CE with TPS Extension, which will differ in some aspects from the behavior of the ES-T).

- Hot Keys—Hot keys for the ES-CE with TPS Extension will behave in the same way as for an ES-T (see below), with the following exceptions:
  - User Configured Keys – All User Configured Keys are controlled by the Experion system. The user will configure the lights and the response to a key press using existing Experion system configuration functions. The key configuration will be on a per-station basis and will not change when the TPN Area is changed.
  - CONS STATS – On the ES-CE with TPS Extension, this key is owned exclusively by Experion system and invokes the Experion system Console Status Display. This differs from the ES-T, where it is shared by Experion system and the Native Window.
  - GROUP – Will invoke an HMIWeb Group Display or a GUS Group Display, depending on configuration.
  - SCHEM – If no HMIWeb or GUS display with the specified name is available, an error indication is returned.
  - SIL – Silences alarms on all stations (ES-T, ES-CE with TPS Extension, GUS, US) in the console, if so configured. This occurs when the SIL key is pressed on any station in the console. SIL key behavior must be configured in both the LCN (NCF) and the Experion system, as described in “Additional NCF Considerations” in this document and in the Experion Server and Client Configuration Guide. Note that if a GUS or US is configured with a different TPN Area from that configured on the silencing station, the alarm will not be silenced on that station (with the differing Area).
  - SYST STATS – On the ES-CE with TPS Extension, this key is owned exclusively by Experion system, and invokes the Experion System Status Display. This differs from the ES-T, where the key is shared by Experion system and the Native Window.
4. Configure Experion Database
4.11. Support TPS on Console Station Extension

- Context Specific Keys—Inputs from context specific keys are passed to the window that currently has focus, GUS display, HMIWeb display, or Native Window. These keys are fully functional for Native Window. Certain keys (e.g. ramp keys) will be limited in GUS displays (just as they are on Remote GUS Displays). Specific limitations will be described in the user documentation. Refer to Experion system documentation for a description of the functionality provided by the context specific keys when a window presenting an HMIWeb display has focus.

- Annunciation via IKB—Annunciation via the IKB, IKB contacts, and PC speakers on the ES-CE with TPS Extension will behave in the same way as for ES-T (see “LED annunciation”), with the following exceptions
  - **User Configured Keys**—annunciations are driven exclusively by Experion system.
  - **Console Status**—Annunciation is driven exclusively by Experion system on an ES-CE with TPS Extension.
  - **System Status**—Annunciation is driven exclusively by Experion system on an ES-CE with TPS Extension.
5. Integrate Experion Control

5.1 Integrating ACE-T with TPS

Overview
The ACE-T with TPS Option node can be directly connected to the TPN using an LCNP and the TPS (AM-based) infrastructure.

<table>
<thead>
<tr>
<th>TIP</th>
</tr>
</thead>
<tbody>
<tr>
<td>The AM functionality is configured in the same manner as an APP node. Make sure you have assigned enough units to the AM and enough AM memory for AM-CL.</td>
</tr>
</tbody>
</table>

Platform
The platform for an ACE-T is the standard ACE platform, with the addition of an LCNP card and selected components of the APP version of the TPS infrastructure. (This refers to the TPS Infrastructure components of the APP; for example, TPN Server, HCI, and System Management. Other components such as CL Server are not included on the ACE.) Both single and dual CPU versions are supported, to the extent that they are supported by ACE.

The TPN Server on ACE-T is private, available only to locally resident ACE-T components. The Redirection Manager is not used.

<table>
<thead>
<tr>
<th>ATTENTION</th>
</tr>
</thead>
<tbody>
<tr>
<td>The ACE-T with APP Solution Pack is not intended to serve as an APP; that is, non-ACE-T applications are not supported by Honeywell.</td>
</tr>
</tbody>
</table>

Functionality
An ACE-T provides all ACE functions. ACE is a member of an Experion cluster, and may interface to the TPN through an APP; that is, through a remote connection to the TPN Server. The ACE-T is a member of an Experion cluster, and interfaces to the TPN through its local TPN Server.

Therefore, the only differences between ACE and ACE-T are:

- ACE-T is hosted (supported) by an ESVT rather than an Experion Server
- The ACE-T connection to the TPN Server is local rather than remote.
An ACE-T has exactly the same relationship with TPN data owners as ACE does currently. The ACE-T node participates in Peer-to-Peer relationships with other Experion controllers in the same manner as does an ACE on an Experion system.

The ACE-T does not participate in Peer-to-Peer relationships with TPN data owners. Instead, it functions as an HCI Data Access client of TPN data owners, using its local TPN Server and LCNP. TPN data owners have no access to ACE data or functions.

The Engineering Repository database and Control Builder tools will be hosted on ESVT, ES-T, and ES-CE with TPS Extension in the same way they are hosted on the Experion Server, ES-C, and ES-CE, respectively.

5.2 Integrating Experion Controllers

Experion Controllers (ACE, C200, FIM)

C200, ACE, and FIM can be directly connected to both ESVT and an ES-T. This capability is restricted to C200s that are connected by FTE. ControlNet connections are not supported. These controllers are not directly connected to the TPN.

The C200, ACE, and FIM participate in Peer-to-Peer relationships with one another as they would on a “regular” Experion system. There are no Peer-to-Peer connections to TPN data owners; however, to the extent that support is provided by Experion facilities, they may be able to access TPN data.

The Engineering Repository database and Control Builder tools will be hosted on ESVT, ES-T, and ES-CE with TPS Extensions in the same way they are hosted on the Experion Server, ES-C, and ES-CE, respectively.

FTE Network Implications

The addition of Experion controllers to an integrated Experion-TPS system requires that the FTE network be configured to support these controllers according to Honeywell guidelines. These guidelines are documented in the FTE user documentation.

ES-T/ESVT Capacity Implications

The addition of Experion controllers to an existing integrated Experion-TPS system limits the maximum number of ES-Ts that can be supported by an ESVT to 11 ES-Ts per ESVT.
6. Authoring Custom Displays

6.1 Display Authoring Approach

About HMIWeb Display Builder

The HMIWeb Display Builder tool provides a display area for creating and modifying custom displays in HTML format. The tool provides dockable menus and toolbars that can be placed where the user prefers. An object explorer presents a tree view of objects in the display. A Properties window shows each object’s properties.

Dynamic objects

When adding a dynamic object to an HMIWeb display, the user selects the Data tab and chooses a point from a drop down list. The drop down list browses the available TPN/LCN points from the units that were mapped to the TPS Interface.
6. Authoring Custom Displays
6.1. Display Authoring Approach

TPN/LCN data access authorization

A data access request from Station to the TPN/LCN makes it request through the TPN Server. The TPN Server passes the current access level down to the TPN/LCN with every data access, so the TPN/LCN data owner can make the correct access authorization decision.

However, the TPN Server does not support/implement the additional access constraints specified in the NCF and enforced from the Native Window/Universal Station. Experion provides its own mechanism for providing an equivalent capability.

If you select Data entry allowed, users with a security level equal to or higher than the specified Security Level can edit the object's value. The security levels are: Operator, Supervisor, Engineer, and Manager. The following figure shows an example of how to set the security for an HMIWeb display object.

REFERENCE - INTERNAL
For more information about HMIWeb Display Building, refer to the HMIWeb Display Building Guide.
REFERENCE - INTERNAL

Refer to the HMIWeb Display Building Guide section Object Properties>Data Tab>Defining a Link to a Point.

The section describes how to set the security level for the properties of Data Entry Allowed and Security Level.

**Entering object script**

Clicking an object name changes the script window to allow the user to enter script against that object. Object names appear bold if script already exists for that object.
Invoke TPN/LCN displays

HMIWeb Displays can invoke TPN/LCN displays using Experion display invocation methods, as illustrated in the following example (where DATACHNG is the TPN/LCN schematic name).
### Shape gallery

The HMIWeb Display Builder tool provides a pre-built gallery of shapes to facilitate display building.

### Faceplates

A popup is a secondary window that appears when a user clicks the HMIWeb display object to which it is attached. A faceplate is a specialized type of popup that shows critical information about the point to which the object is linked. HMIWeb Displays can invoke faceplates from a script or a button. *Experion Faceplates* are available to display Experion and TPN point data. The Experion faceplates allow TPN points to be viewed. The TPS Interface Configuration Page allows you to choose between Experion and TPS faceplates.

<table>
<thead>
<tr>
<th>Connection Identity</th>
<th>TPS Connection</th>
<th>Alias</th>
<th>TPS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Status</td>
<td>Configuration</td>
<td>Tuning</td>
<td>Unit Mapping</td>
</tr>
</tbody>
</table>

**Configuration Options**

- **Maintain unacknowledged alarms on Experion Server**
  - This option controls whether unacknowledged returned-to-normal alarms and informational messages from this connection will be maintained on the Experion Server (option enabled) or whether they will be removed as soon as they return to normal (option disabled). This option only affects flex stations connected to the Experion Server.

- **Failover to backup server on TPS communications failure if the servers are synchronized**

- **Use TPS groups**
  - If this option is enabled, the first 450 groups will be used to represent TPS groups configured in the Native Window.

- **Use classic TPS faceplates and details on console stations (does not affect flex stations)**

- **Disable automatic deletion of TPS points**
  - This option should only be turned on temporarily when moving TPS points on the LCN.

**Point Browser List**

- **Populate list at startup**

**Last update time**: 00:00:00
6. Authoring Custom Displays

6.1. Display Authoring Approach

The following figure shows an example of an analog point Faceplate.

Classic TPS Faceplates also provide a way to invoke TPN/LCN point data from an HMIWeb display and can be invoked from a script or through the configured faceplate behavior on the object, as described in this guide. A TPS Faceplate mimics the functionality of one of the slots in a classic Universal Station Group display. TPS Faceplates provide

- Access to process variables, mode and mode attribute parameters through both the display and the keyboard, and
- Access to the Native Window point Detail display.

The following figure shows an example of a TPS Faceplate for an analog controller.

Operators can manipulate parameters of a selected point using the bottom portion of the TPS Faceplate. The middle portion of the TPS Faceplate displays a graphical representation of the point values. The top portion of the TPS Faceplate displays the TPN/LCN point name and description.
6. Authoring Custom Displays

6.1. Display Authoring Approach
6. Authoring Custom Displays

6.1. Display Authoring Approach

Invoke HMIWeb display from Station command zone

Custom and standard HMIWeb displays can be invoked by typing the display name into the Command Zone of the Station application and pressing <Enter>.

Invoke GUS Display from Station Command Zone

You can invoke GUS Displays when you type the GUS Display name into Experion Station's Command Zone and then press <Enter>.

For example, if you want to build and call up a GUS Display called "Myplant" in Station, and then do the following:

- Build and validate the GUS Display called "Myplant.pct" using GUS Display Builder.
- Place the "Myplant.pct" in an accessible folder that you have defined either,
  - in the Area Database's Pathname Catalog. For example, you could enter "C:\GUSDISP" as the folder name. Refer to GU23 GUS Display Builder User's Guide, Section 3.22 "Pathname Planning" for more details. Or,
  - in the Displays Search Path Extension from the Configuration Utility. For example, you could enter "C:\GUSDISP". Refer to TP20W Configuration Utility User's Guide, Section 6 "GUS Display Runtime Settings Page" for more details.
- In Station's Command Zone, type Myplant then press <Enter>. Result: the GUS Display, Myplant, appears.
6.2 Accessing HMIWeb TPN detail displays

About HMIWeb TPN detail displays

Experion provides a set of native HMIWeb displays that access an extended set of standard operational parameters associated with a given TPN point. The displays provide easy access to TPN operational parameters. A link on the HMIWeb’s TPN detail display provides immediate access to the Native Window detail display (depending on Native Window availability) for TPN engineering parameters.

Example display with TPN operational parameters

The displays include operational parameters as provided in their respective Native Window displays, but within a tabbed display framework similar to existing Experion detail displays. The TPN detail displays behave as HMIWeb displays in terms of availability on all Experion configurations including operation across DSA.
Native Window Detail invocation

You can invoke a Native Window Detail display from the HMIWeb TPN detail display.
Additional tabbed displays

Additional tabbed displays can appear providing operator’s information such as:

- control tuning parameters, or

<table>
<thead>
<tr>
<th>General</th>
<th>PV Information</th>
<th>Control Tuning</th>
<th>Trend</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>CTL ALG:</strong></td>
<td><strong>PID</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>CV:</td>
<td>40.00</td>
<td></td>
<td></td>
</tr>
<tr>
<td>OP:</td>
<td>40.00</td>
<td></td>
<td></td>
</tr>
<tr>
<td>OP EU:</td>
<td>40.00</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Control Limits</th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>SP HELP:</td>
<td>100.00</td>
<td></td>
<td></td>
</tr>
<tr>
<td>SP LOM:</td>
<td>0.00</td>
<td></td>
<td></td>
</tr>
<tr>
<td>OP HELP:</td>
<td>105.00</td>
<td></td>
<td></td>
</tr>
<tr>
<td>OP LOM:</td>
<td>-5.00</td>
<td></td>
<td></td>
</tr>
<tr>
<td>OPM CUM:</td>
<td>0.00</td>
<td></td>
<td></td>
</tr>
<tr>
<td>OPM CLH:</td>
<td>NaN</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Control Inputs</th>
<th>Tuning Parameters</th>
</tr>
</thead>
<tbody>
<tr>
<td>PV:</td>
<td>K:</td>
</tr>
<tr>
<td>SP:</td>
<td>T1:</td>
</tr>
<tr>
<td>PVAUTO:</td>
<td>T2:</td>
</tr>
<tr>
<td></td>
<td>1.00</td>
</tr>
<tr>
<td></td>
<td>0.00</td>
</tr>
<tr>
<td></td>
<td>0.00</td>
</tr>
</tbody>
</table>
6. Authoring Custom Displays
6.2. Accessing HMIWeb TPN detail displays

- trend information

Display invocation
You invoke HMIWeb TPN detail displays the same way as invoking Native Window detail displays in earlier releases, which includes:

- Double-clicking a parameter included on a given Experion display,
- Selecting the DETAIL key on an IKB/OEP keyboard and entering the point,
- Selecting the detail icon in the Station toolbar.
- Enter point name in command window, press F12.
Enabling HMIWeb TPN detail displays

TPS Integrated Nodes already have HMIWeb TPN detail displays loaded and enabled; you do not need to perform any additional configuration. During Experion node installation, the display files install by default to directory \Program Files\Honeywell\Experion PKS\Client\System\R3xx, along with other standard Experion system displays. The Experion node’s default configuration is to invoke the HMIWeb TPN detail display instead of the Native Window Detail display.

Native Window Detail display invocation

If you prefer to invoke Native Window Detail displays instead of HMIWeb TPN detail displays, you enable the Native Window option from System Configuration>System Interfaces>TPS>Configuration> Enable “Use Classic TPS Faceplates.”

HMIWeb TPN detail display integration with SafeView

Earlier released SafeView workspace configurations utilizing the HW_System_Detail category for their point-detail window management require no changes in order to manage the HMIWeb TPN detail displays. Workspaces designed specifically to utilize the Native Window for purposes including presentation of TPN point detail displays may continue to do so. However, if you choose to keep the Experion node default configured to no longer invoke the Native Window detail displays, then you will need to update your SafeView workspace configurations accordingly.

Script invocation of HMIWeb TPN detail

When you use a programmatic interface to invoke a HMIWeb TPN detail for a TPN point, you need to specify the proper (.htm) file name. You can identify the filename by examining the TPN’s DISPTYPE parameter of the point in question. There is a corresponding detail display with the DISPTYPE before the “.htm” suffix. The displays are in three categories – Analog, Digital, and Miscellaneous.

- Analog: PID, ANALGIN, ANALGOUT, ANALOUT, OUTPUT, NONPV, PVOUTPUT, DAS, ANALGACC, 3INPUT, NUMERIC, COUNTERE, COUNTER, TIMER, POSPROP, LLFILL, LLFILL
- Digital: DIGCOMP, DEVCTL, DIGIN, DIGOUT, DIGINOUT, SWITCH, SEQUENCE
- Miscellaneous: CUSTOM, ARRAY, NULL, ACID, LOGIC

Example script invocation of HMIWeb TPN detail

The following script fragment illustrates an HMIWeb TPN detail invocation:
6. Authoring Custom Displays
6.2. Accessing HMIWeb TPN detail displays

window.external.currentpage "sysdtltpspid.htm?hscpoint=HG050708"

The following figure summarizes script syntax.

Identifying the DISPTYPE parameter

You can identify the DISPTYPE parameter value through the use of the DATACHNG display
Examples of other script invocations

The following script fragments illustrate invocations:

-- invoke GUS display, where "some" is the GUS display name
window.external.CurrentPage = "some.pct"

-- invoke Native Window display, where "some" is the Native Window display
window.external.CurrentPage = "some.do"

-- invoke HMIWeb display
window.external.CurrentPage = "some.htm"

-- invoke HMIWeb faceplate
window.external.Parent.InvokePopup "some.htm",40,30,0
6.3 Deploying HMIWeb Faceplates for TPN

Overview of HMIWeb faceplate usage with TPN

HMIWeb faceplates, when used to access TPN points, are consistent with current Experion faceplate usage with regards to configuration, invocation, general user interactions, and SafeView management. The HMIWeb faceplate, if used with TPN points, appears similar to current HMIWeb faceplate styles as those used for Experion. HMIWeb Faceplate displays, if used to access TPN, can also operate across DSA connections. The following example shows a HMIWeb faceplate displaying a Native Window’s TPN control point.
6. Authoring Custom Displays

6.3. Deploying HMIWeb Faceplates for TPN

Supported TPN point types

HMIWeb-based faceplate displays are available for the following TPN point types.

- **AM Points**
  - REGAM, FLAGAM, NUMERCAM, TIMERAM, COUNTAM, SWITCHAM, CUSTOMAM

- **NIM Points**
  - ANINNIM, ANOUTNIM, DIINNIM, DIOUTNIM, DICMPNIM, REGPVNIM, REGCLNIM, LOGICNIM, FLAGNIM, TIMERNIM, NUMERNIM, DEVCTL, PRMODNIM

- **HG Points**
  - ANLINHG, ANLOUTHG, ANLCMPHG, DIGINHG, DIGOUTHG, DIGCMPHG, REGHG, COUNTHG, HGTIMER, FLAGHG, PRCMODHG, CTLCOUNT, NUMERCHG, LGCBLKHG

It is not unusual for common faceplate parameters such as ‘SP’ to actually be associated with a parameter of a different name. For example, the PVTV parameter may be used to represent the ‘SP’ parameter on the faceplate. The faceplate will (for PVTV) range the value per SPEUHI/LO or PVEUHI/LO as applicable. Additionally, the faceplates will employ SP/PVDSPHI & SP/PVDSPLO range-overrides when they are available.

HMIWeb TPN faceplates can participate in HMIWeb group displays. These group displays may consist exclusively of TPN points or may include a mixture of TPN points and points from other sources which have HMIWeb faceplates.

Note: TPS Fieldbus points are not supported by the HMIWeb TPN faceplate or HMIWeb TPN Detail displays.
Configuration overview

Configuration of a TPN-based point follows similar approaches as an Experion-based point as shown in the following figure. This example assigns a faceplate behavior to an alphanumeric object.
GUS display invocation of HMIWeb faceplate

GUS displays are able to invoke HMIWeb faceplate displays. Based on a TPN point name, the GUS display script that is handling operator requests may obtain the name of the detail display from the local TPN Server, append the “_fp” suffix to create the faceplate name, and invoke it using the Experion station automation interface. Note that GUS displays may continue to use classic TPS (GUS) faceplates.

Example

For a given parameter displayed on a GUS display, determine the “DISPTYPE” parameter value for that same point, then use that DISPTYPE value to invoke the proper Experion HMIWeb faceplate for that point.

In the example below, a given parameter is shown on a GUS display and, when the operator clicks on that parameter, an Experion HMIWeb faceplate is displayed for that TPS point. The point is known to have a DISPTYPE value of “PID”.

TIP

You can discern any point’s DISPTYPE value using e.g. the standard “datachg” schematic, and typing <yourpointname>.DISPTYPE into one of the fields.

An OnLButtonClick script then is constructed to invoke the proper HMIWeb faceplate associated with “PID type” points as shown below.

Sub OnLButtonClick()
   invokedisplay "sysdtltpspid_fp.htm?currentpoint=hp050708"
End Sub

In general, the script for invoking a given point.parameter’s faceplate is:

Invokedisplay “sysdtltps<DISPTYPE>_fp.htm?currentpoint=<name of point>”

Station invocation script invocation example

The HMIWeb faceplate does not provide any intrinsic programmatic interfaces. Each faceplate may, however, be invoked programmatically from Station via the following example automation call. Note that when using a programmatic interface to invoke an HMIWeb faceplate for a TPN point, you have specified the proper faceplate (.htm) file name. This can be determined by examining the TPN’s DISPTYPE parameter of the point in question.
6. Authoring Custom Displays
6.3. Deploying HMIWeb Faceplates for TPN

Application.InvokePopup "sysdtltpsPID_fp.htm?currentpoint=analogpoint", 0, 0, 1.

The classic TPN ActiveX-based faceplate may also be invoked programmatically, as shown in the following script fragment.

Application.InvokePopup "sysdtltps_fp.htm?currentpoint=analogpoint", 0, 0, 1

Identifying the DISPTYPE parameter for a faceplate

You can identify the DISPTYPE parameter value through the use of the DATACHNG display, as noted previously for HMIWeb TPN detail displays. DISPTYPE is also viewable from the faceplate’s title bar.
6.4 Supporting Display Operations in TPN/LCN

TPN/LCN and Experion Display support

Display operations for ES-T and ESVT nodes are supported in the following manner:

- Experion Group displays support inclusion of TPN points.
- The multi-window Station application provides a command zone, a status window, and a configurable number of display windows. For an ES-T, the SafeView application is used to manage the various Station windows and a single Native Window.
- HMIWeb Displays allow operators to view and manipulate data including data from the TPN/LCN, data from other Experion servers through DSA, data from local, direct-connect Experion controllers, and data from SCADA interfaces. HMIWeb displays running in an ES-T access TPN/LCN data directly. HMIWeb displays can invoke TPN/LCN displays in the Native Window.
- The Native Window allows operators to view existing standard and custom TPN/LCN displays. The Native Window supports all functions of the TPN/LCN displays.
- Experion displays can be invoked from the Native Window.
- The TPS Faceplates are one way that operators can control TPN/LCN points through user-authored displays. The TPS Faceplate may be embedded in HMIWeb displays.

Replacing TPN/LCN schematics

You can replace existing TPN/LCN Schematics or GUS displays as HMIWeb displays on a per display basis without having to modify existing TPN/LCN Schematics, GUS displays or Button Configuration files.

For example, consider a system with 500 TPN/LCN Schematics, all of which reference MyDisplay.DO through the SCHEM actor:

\[
\text{SCHEM ("MyDisplay")}
\]

After MyDisplay.DO is replaced with a corresponding HMIWeb (that is, a file named MyDisplay.HTM), execution of the Actor \text{SCHEM ("MyDisplay")} in any existing TPN/LCN Schematic or Button Configuration File will result in invocation of MyDisplay.HTM.

The TPN/LCN SCHEM actor first looks for an HMIWeb display. If the HMIWeb display with the requested name does not exist, the SCHEM Actor attempts to invoke a GUS display and finally, the TPN/LCN Schematic if the GUS display name does not exist.
Pathname search behavior

When an HMIWeb display is invoked, the system searches a set of pathnames to locate a display; thus, the invoking display does not have to carry the full pathname of the HMIWeb display. The pathnames for HMIWeb displays are separate from the pathnames used for TPN/LCN Schematics.

Pathnames for HMIWeb displays

Pathnames for HMIWeb displays are defined as part of Station application’s connection properties.

The Displays tab defines HMIWeb Display search paths in the Connection Properties dialog.
Pathnames for Universal Station schematics

Pathnames for Universal Station style schematics are supported from the TPN/LCN’s Area database pathname catalog.

Pathnames for GUS displays

Path names for GUS displays are defined as they have been in the past within GUS Display Builder. For more information on GUS pathnames, see Managing Your Environment->Schematic Invocation in the *GUS Display Builder Guide*.
6.5 Deploying Displays on ES-T and Server

Tools for deploying displays

Each ES-T and ESVT node in the Experion cluster automatically discovers TPN/LCN points and parameters on the first-ever access from displays (including the Experion Alarm Summary display).

Depending on the number of points and parameters in the display, the first ever invocation of the display on a node may consume a significant amount of time.

To facilitate fast initial callup of displays with discovered point parameter data, the following Honeywell tools may be used:

- Cache Import Tool, and/or
- Dspprime utility

When to use the Cache Import Tool

The major benefit from using the Cache Import Tool comes when there is a significant duplication of LCN/TPN data-item usage among multiple Stations. Under this scenario, the Cache Import Tool allows the user to incur the overhead needed to for the TPN Server to resolve external to internal IDs only one time, and then copy the internal ID cache to other TPN Servers. However, if there is little duplication of LCN/TPN data item usage among the Stations then there is little benefit in using the Cache Import Tool.

Dspprime utility

The dspprime utility extracts point parameter references from HMIWeb displays. It uses this data to create point parameter structures in Experion representing data from a device specific server that supports point parameter discovery (for example, TPS). The utility can also prime the cache in the device specific server if applicable (for example, TPN Server).

ATTENTION

You should run the dspprime utility after you have built all displays referencing discovered point parameters (e.g. TPS point parameters), or you have changed a display, or you have created a new display. Refer to Section 6.10 Improving initial display invocation using Dspprime for more information.
Cache Import Tool

The Cache Import Tool is available to load a TPN Server’s internal ID cache from the cache of a partner server. The approach for importing TPN Server cache may work best if one of the nodes (for example, the Server) is used for display development and a number of stations (for example ES-F’s) are used for the initial callup of the displays to populate the TPN Server cache. Then, import the cache of the TPN Server on this Server node to the other TPN Servers in the cluster to (re)initialize their cache.

REFERENCE - INTERNAL
For details about importing cache, refer to TP11W, TPN Server User’s Guide.

6.6 Implementing the TPS Faceplate Control

Inserting TPS Faceplate Control as an ActiveX control

The TPS Faceplate Control is an ActiveX component for viewing and manipulating parameters of a selected TPN/LCN point from an HMIWeb Display.

The Honeywell TPS Faceplate Control appears on the HMIWeb Display Builder’s list of ActiveX controls available for insertion into an HMIWeb display.
6. Authoring Custom Displays
6.6. Implementing the TPS Faceplate Control

TPS Faceplate Property page in HMIWeb Display Builder

In HMIWeb Display Builder, the TPS Faceplate presents the following property page. HMIWeb Display Builder assigns the name to the particular Faceplate ActiveX Control object in the form of Control###, where ### represents a sequence number.

![Faceplate assigned "control###" name]

TPS Faceplate usage consideration

If you add the Honeywell TPS Faceplate ActiveX to a HMIWeb display and add a tag name from a unit that is not assigned through its Asset to the Experion station, the information for the point is still displayed and can be modified by the operator even though the unit has not been assigned through its Asset to the Experion station.

![Enter TPN tagname]
ATTENTION

The TPS Faceplate control should be used only in displays intended for use on ES-T nodes but not used in displays on an ESVT or in displays on Flex Stations directly connected to an ES-T node.

Script access to TPS Faceplate properties and method

<table>
<thead>
<tr>
<th>Property name</th>
<th>Script access in HMIWeb display</th>
</tr>
</thead>
<tbody>
<tr>
<td>Description</td>
<td></td>
</tr>
<tr>
<td>Name</td>
<td>Not applicable. No data, no error.</td>
</tr>
<tr>
<td>TagName</td>
<td>Note: must be accessed explicitly through the “Object” element, as in:</td>
</tr>
<tr>
<td></td>
<td>Control001.object.tagname = “A100”</td>
</tr>
<tr>
<td>Visible</td>
<td>Not applicable. Results in error.</td>
</tr>
<tr>
<td></td>
<td>Instead, use the “Style” object, as in</td>
</tr>
<tr>
<td></td>
<td>Control001.style.visibility = “hidden”</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Method name</th>
<th>Script access in HMIWeb display</th>
</tr>
</thead>
<tbody>
<tr>
<td>SetFocus</td>
<td>Not applicable. Results in error.</td>
</tr>
<tr>
<td></td>
<td>Instead, use the “Focus” method, as in:</td>
</tr>
<tr>
<td></td>
<td>Control001.focus</td>
</tr>
</tbody>
</table>

Faceplate sysDtITPS_fp.htm

A faceplate popup display: sysDtITPS_fp.htm is provided as part of the Experion installation. The display contains a single TPS Faceplate ActiveX Control, which is scripted to:

- retrieve the TPN/LCN point name
- activate the faceplate with the given point name
- present errors emitted by the faceplate in Station’s Message Zone
The sysdtltps_fp.htm display services the built-in Faceplate behavior on the HMIWeb display for the TPN/LCN data points. The sysdtltps_fp.htm display has the generic TPS_Faceplate SafeView category. The display may be used as-is to service the HMIWeb Faceplate behavior, or this display may be used as an example template when creating customized faceplate displays.

**ATTENTION**

Note: For the TPN/LCN points, there is a strong relationship between the name of the standard faceplate display and the execution of the Faceplate behavior. In the initial release of the Experion Station-TPS, this display file name must be sysDtlTPS_fp.htm.

**Invoking the faceplate – popup display**

The HMIWeb display has an alphanumeric (for example, alpha001) object that is associated through the Data tab with a TPN/LCN point parameter. Clicking the object will result in the invocation of the standard TPS faceplate popup display. The TPS Faceplate will then present the associated TPN/LCN point.
6. Authoring Custom Displays

6.6. Implementing the TPS Faceplate Control

This option allows you to control whether a databound element will launch a faceplate when clicked.
Invoking the TPS faceplate through scripting

Example 1 - Faceplate control control001 embedded in current display script:

```vbnet
sub onbuttonclick_
control001.object.tagname = strPointName
control001.focus
end sub
```

Example 2 - Invoke tps faceplate custom display, passing tagname in the invocation parameter list

An HMIWeb display test.htm has a pushbutton001 object. On mouse click, the custom TPS faceplate display (tps_custom_fp) will be invoked, setting the tag name A100 on the faceplate object control001. Keyboard input focus will be set at the TPS faceplate control window.

```vbnet
Sub pushbutton001_onclick
'invoke the tps_custom_fp display and set tag “A100”
window.external.currentpage = "tps_custom_fp.htm?currentpoint=A100"
End Sub
```
Tps_custom_fp.htm:

Sub Page_onpagecomplete
'this display is assumed to be invoked from another hmiwebdisplay by the following script:
'    window.external.currentpage = "displayname?currentpoint=pointname"
' per convention, the string "?currentpoint=?” must be there - note: no spaces
'
'the invocation URL for this display will be then:
"...displayname?currentpoint=pointname%26..."
' -- during display startup we need to extract the "pointname" string and give it to the faceplate activex (control001)
dim strHRef
dim strPointName
dim nPointNameStart
dim nPointNameEnd
strHRef = window.location.href ' get the invocation URL
' msgbox strHRef ' simple debugging
nPointNameStart = InStr(1, strHRef, "?currentpoint=", 1) ' if nPointNameStart > 0 then
    nPointNameStart = InStr(nPointNameStart, strHRef, ",", 1)
    nPointNameEnd = InStr(nPointNameStart, strHRef, "%26", 1)
    if nPointNameEnd > 0 then
        strPointName = Mid(strHRef, nPointNameStart + 1, nPointNameEnd - nPointNameStart - 1)
    else
        strPointName = Mid(strHRef, nPointNameStart + 1)
    end if
' check for the network gateway character "\" that maybe presented as "%5C"
    strPointName = Replace(strPointName, "%5C", ",", 1, -1, 1)
end if
' set tagname; must go through the ".object" explicitly
control001.object.tagname = strPointName
' assign keyboard input focus to the faceplate control
control001.focus
End Sub
6. Authoring Custom Displays

6.7 Accessing Actors

About Actors

Actors are built-in software components providing specific functions and operations on the TPN/LCN’s GUS or US nodes, such as invocation of the Point Detail display.

Actors purpose in TPN/LCN

Actors in a GUS or US schematic typically provide a way to call up specified displays on the same or other screens in the Universal Station console. Additionally, actors can output messages to the screen, update displays, read data from the screen and store it, or read information from various databases and present it on the screen. Activating a target on a US schematic or pressing one of the configurable buttons on the operator’s keyboard triggers execution of scripted actors. Some of the actor functions connect internally to IKB and OEP "hot keys".

With the exception of the SCHEM actor, all actors execute according to the documented TPN/LCN definition.

REFERENCE - INTERNAL

For more information about Actors, refer to the TPN/LCN Actors Manual

SCHEM actor for display invocation

The SCHEM actor attempts to invoke an Experion display file (.htm or .dsp) with the given name. If such display exists, it appears in the Station application window; otherwise, the US schematic with the given name appears in the Native Window.

TIP

GUS displays will appear if in the search path.

KEYLEVEL actors

HMIWeb displays use scripting functions,

- SetDataValue with security level and,
- SetDataValue synchronously with security level

To execute writes at particular access levels.
6. Authoring Custom Displays

6.8 Accessing Actors from HMIWeb script using TPSCommands

### TIP

Functions must be enabled in Experion Server-wide Station Settings, Security.

**Experion Standard displays – no access through Actors**

The TPN/LCN standard display invocation actors will not invoke the Experion standard displays. For example, the ALARMSUM actor in a target on a US schematic will invoke the standard Native Window Alarm Summary, not the Experion Alarm Summary display. If this behavior is unwanted then US schematics that have targets with the standard display actors must be re-implemented as HMIWeb displays on an ES-T. The configurable buttons that are dependent on these actors must be redefined using Experion configuration tools.

### 6.8 Accessing Actors from HMIWeb script using TPSCommands

**About TPSCommands**

The TPSCommands component allows the Station application to access the selected Native Window display actors through display scripting. Display authors create an instance of the automation object using the ProgID `TPSCommands` to create the component, as in the following example:

```vbscript
set tpscmd = CreateObject("TPS.Commands")
```

Display authors then include script to invoke the TPN/LCN Display, as in the following example where a Native Window Detail display is invoked to display the tagname A100 and position the initial display on page three.

```vbscript
tpscmd.InvokeDisplay "TPN_Detail", "A100",3
```

**ATTENTION**

Use of TPSCommands should be limited to only those cases where the Experion Station display invocation method does not meet the need.

Internally, Experion Station uses the TPSCommands object to invoke Native Window actors when the display invocation request cannot be serviced by the Experion display.
6. Authoring Custom Displays
6.8. Accessing Actors from HMIWeb script using TPSCommands

For example, if the desired action is to display page three of a TPN/LCN Detail Display, then the use of TPSCommands is warranted.

Honeywell strongly recommends that the Experion Station display invocation method to access TPN/LCN data be used whenever possible in order to avoid future schematic maintenance issues.

Installation of TPSCommands

TPSCommands is installed as part of the ES-T; specifically, the TPS display infrastructure sub-package.

InvokeDisplay method

The InvokeDisplay method has the following syntax:

```
InvokeDisplay DisplayName [, Parameter1[, Parameter2, ...]]
```

Where:

| DisplayName | [string] | US custom schematic name or one of the predefined standard display names (refer to the table TPN/LCN standard displays that follows in this section).
|             |         | The DisplayName may include display file extension (".DO").
|             |         | With the exception of standard display names, length of the DisplayName string (excluding optional file extension) may not be greater than eight.
| Parameter1, Parameter2, ... | [string or integer] | Optional parameter(s); as required by the TPN/LCN standard displays only

Return value: None (see the ErrorMsg property)

The InvokeDisplay method will start the Native Window application if it is not already running. The InvokeDisplay request is sent to the LCNP in the form of an appropriate TPN/LCN actor.

Concurrently, the Native Window application main window restores, if necessary, and activates. In this way the operator immediately uses focus-dependent keys (such as Point Manipulation (PMK) keys after invocation of the Point Detail display), without additional clicking on the Native Window display.
ATTENTION
The display invocation request will fail if Native Window currently displays any Engineering Menu functions.

TPSCommand Properties

<table>
<thead>
<tr>
<th>Property name</th>
<th>Description</th>
<th>Comment.</th>
</tr>
</thead>
<tbody>
<tr>
<td>NodeNumber</td>
<td>[integer] TPN/LCN node number</td>
<td>Read only.</td>
</tr>
<tr>
<td>ConsoleNumber</td>
<td>[integer] TPN/LCN console number</td>
<td>Read only.</td>
</tr>
<tr>
<td>AreaNumber</td>
<td>[integer] TPN/LCN area number</td>
<td>Read only.</td>
</tr>
<tr>
<td>ErrorMsg</td>
<td>[string] Non-empty if the last executed method has failed</td>
<td>Read only, Max string length is 80 characters.</td>
</tr>
</tbody>
</table>

TPSCommand Error messages

The following error messages indicate system installation and/or configuration problems. In all circumstances, check the contents of Windows Event Viewer Application and System Event logs for additional information.

<table>
<thead>
<tr>
<th>ErrorMsg</th>
<th>Interpretation</th>
</tr>
</thead>
<tbody>
<tr>
<td>LCNP board is not present or not configured.</td>
<td>The system has no LCNP board or the LCNP board has not been installed/configured properly.</td>
</tr>
<tr>
<td>Internal error: cannot connect to hopcsrvr.exe</td>
<td>Verify that the software is properly installed and configured.</td>
</tr>
<tr>
<td>Unable to open Native Window (N).</td>
<td>Verify that the software is properly installed and configured. Note the value of “N” and contact Honeywell TAC.</td>
</tr>
</tbody>
</table>

Note that the Native Window SCHEM actor does not return an explicit error to the caller if the particular custom US schematic does not exist. Instead, Native Window schematic display area is cleared and presents the error message text.
## TPN/LCN standard display invocation using display name

Selected TPN/LCN standard displays may be invoked through the TPSCommands InvokeDisplay method, using the predefined display names. Some of the invocations may require additional parameters. Note: the list of TPN/LCN Standard Displays is much larger (refer to the TPN/LCN *Actors manual*). The displays that are not included in the table below may only be invoked using Native Window.

<table>
<thead>
<tr>
<th>TPN/LCN Standard Display</th>
<th>InvokeDisplay using DisplayName</th>
<th>Parameters</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>Detail Display</td>
<td>“TPN_Detail”</td>
<td>PointName [string] SelectedPage [1..] {optional}</td>
<td>First page will be shown if SelectedPage parameter is omitted. ErrorMsg will be set to “CAN NOT FIND POINT” if invalid point name has been given.</td>
</tr>
<tr>
<td>Group Display</td>
<td>“TPN_Group”</td>
<td>GroupNumber [1-450] SelectedSlot [0-8] {optional}</td>
<td>Group numbers 401-450 will invoke the Module Group Display. No slot will be initially selected if SelectedSlot = 0 or omitted.</td>
</tr>
<tr>
<td>Module Group Display</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Group Trend Display</td>
<td>“TPN_Grptrend”</td>
<td>GroupNumber [1-400] SelectedSlot [0-8] {optional}</td>
<td>No slot will be initially selected if SelectedSlot = 0 or omitted.</td>
</tr>
<tr>
<td>System Status Display</td>
<td>“TPN_Sys_stat”</td>
<td></td>
<td></td>
</tr>
<tr>
<td>System Menu Display</td>
<td>“TPN_Sys_menu”</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Alarm Summary Display</td>
<td>“TPN_Alarmsum”</td>
<td>UnitNumber [0-36] {optional}</td>
<td></td>
</tr>
<tr>
<td>Message Summary Display</td>
<td>“TPN_Msgsum”</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
6.9 Script Examples for Invoking Displays

**Invoking TPS Schematic from HMIWeb Display**

To invoke a TPN/LCN schematic, follow the Experion documentation. The following example shows invocation of the schematic “boilr22.”

```vbscript
Sub pushbutton001_onclick
    window.external.currentpage = “boilr22”
End Sub
```

**Invoking TPN/LCN Point Detail from HMIWeb Display**

To invoke a point Detail display for a TPN/LCN point, follow the Experion documentation. The following example shows invocation of the point “am2r0001.”

```vbscript
Sub pushbutton002_onclick
    window.external.RequestTask 21, 73, 0, 0, 0, "am2r0001"
End Sub
```

If the TPN/LCN point Detail display must be positioned on the second page (instead of the default first page), the TPSCommands object must be used explicitly:

```vbscript
Sub pushbutton003_onclick
    set tpscmd = CreateObject("TPS.Commands")
    tpscmd.InvokeDisplay "TPN_Detail", "am2r0001", 2
    Window.external.MessageZoneText(tpscmd.ErrorMsg)
End Sub
```

**Invoking TPN/LCN System Status Display from HMIWeb Display**

```vbscript
Sub pushbutton004_onclick
    set tpscmd = CreateObject("TPS.Commands")
    tpscmd.InvokeDisplay "TPN_Sys_stat"
    Window.external.MessageZoneText(tpscmd.ErrorMsg)
End Sub
```
Obtaining PSDP data in HMIWeb Display

TIP
The SY unit is required to be mapped in order to read PDSP values.

Use the PSDP (Processor Status Data Point) data for a node to obtain the CPU usage at the LCNP board:

' the shape has a text object that presents current CPU usage (%free) at the lcnp board
' the shape’s parameter PRSTS_TAG is this node $PRSTS point

Sub Page_onshapeload
set tpscmd = CreateObject("TPS.Commands")
MyNode = tpscmd.NodeNumber

if MyNode < 10 then
    PRSTS_TAG = "$PRSTS0" & Cstr(MyNode)
else
    PRSTS_TAG = "$PRSTS" & Cstr(MyNode)
end if
End Sub
6.10 Improving initial display invocation using Dspprime

About Dspprime

You can improve first-time call up of displays and faceplates through the use of the dspprime command line utility in Experion. When you use the dspprime utility to prime the primary ESVT and Experion-TPS Console Stations, it facilitates faster initial call-up of displays with discovered point parameter data.

Priming populates the TPN Server checkpoint file and the Experion point database on ESVTs and ES-Ts with information used to access TPS point parameters. If not primed, TPS point parameters are discovered the first time they are accessed.

Discovery takes a significant amount of time, increasing the initial call-up time for HMIWeb displays, including groups and faceplates. To prevent this from impacting the operation of the system, only a limited number of TPS point parameters are discovered on each display call-up. No data is shown for un-primed or un-discovered TPS point parameters. Most displays, including groups, will require multiple call-ups before all parameters are discovered.

Unnecessarily large TPN Server checkpoint files should be avoided as this can impact system performance. Priming TPS point parameters increases memory use. Available memory on all ESVTs and ES-Ts must be checked after the priming procedure is complete.

The Dspprime utility can prime using HMIWeb display files and text files as input.

When you should run Dspprime

You should run the dspprime utility after you have built all displays referencing discovered point parameters (e.g. TPS point parameters), or you have changed a display, or you have created a new display. You should also run it in the text file priming mode before requesting extensive TPS point parameters that use the Experion OPC server.

Nodes that should run Dspprime

You should run the utility on the primary ESVT. It should not be run on the backup ESVT. It can be used to prime the primary ESVT and Experion-TPS Console Stations so that first-time call up of displays and faceplates are faster. Some manual steps may be required in order to prime the Experion-TPS Console Stations and the backup ESVT. In addition, point parameters can be selectively primed by passing a list of points to the utility.
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Using Dspprime

Preparation

ATTENTION

Command prompt operations must be executed using an account in the Honeywell Administrators group, e.g. mngr account.

Follow the steps in the following procedure to prepare for Dspprime.

<table>
<thead>
<tr>
<th>Step</th>
<th>Action</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>On the Primary Experion Server (ESVT), ensure the “Use classic faceplates” option on the TPS configuration page in Experion is turned off.</td>
</tr>
</tbody>
</table>

TIP

No additional preparation is required on the Backup Experion Server (ESVT) or on the console stations (ES-Ts).

<table>
<thead>
<tr>
<th>Step</th>
<th>Action</th>
</tr>
</thead>
<tbody>
<tr>
<td>2</td>
<td>If you have some TPS points that are not on a custom display, but are accessed through the Experion OPC server, used on custom faceplates, or accessed through Experion any other way apart from on a custom display you will need to prime these points using a text file (e.g. pnts.txt). See the –f option in the dspprime syntax in the next section.</td>
</tr>
</tbody>
</table>

ATTENTION

The –pd and –fp options should only be used on points where the point detail display and faceplate may be called up by the operator. If you have a lot of points that operators will not view point details or faceplates of (e.g. points accessed by an application through the Experion OPC server), you should only prime the parameters required and not use the –pd and –fp options.

Procedure for first time access to TPS point parameters

The following procedure should be performed on the Primary Experion Server (ESVT)

<table>
<thead>
<tr>
<th>Step</th>
<th>Action</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Ensure the primary Experion Server (ESVT) is synchronized with the backup server.</td>
</tr>
<tr>
<td>2</td>
<td>Ensure all console stations (ES-Ts) are running and synched with the server.</td>
</tr>
</tbody>
</table>
6. Authoring Custom Displays

6.10. Improving initial display invocation using Dspprime

<table>
<thead>
<tr>
<th>Step</th>
<th>Action</th>
</tr>
</thead>
</table>
| 3    | Open a command prompt and run the following commands (replace c:\YourTPSDisplays with the location of your displays):  
  - dspprime --pd --fp "c:\YourTPSDisplays" > results.txt 2>&1  
  - dspprime --fpnts.txt >> results.txt 2>&1 |

**TIP**
The pnts.txt file is the file created during preparation.

Dspprime on the ESVT may take a number of hours to complete. It is recommended to run dspprime and leave it to complete overnight.

<table>
<thead>
<tr>
<th></th>
<th>ATTENTION</th>
</tr>
</thead>
<tbody>
<tr>
<td>4</td>
<td>Open results.txt in notepad. Fix any errors (see the Error Conditions section below for help).</td>
</tr>
</tbody>
</table>

If you do not fix errors, such as invalid points and parameters, the performance of some display call-ups may be slow.

<table>
<thead>
<tr>
<th></th>
<th>ACTION</th>
</tr>
</thead>
<tbody>
<tr>
<td>5</td>
<td>Open the System Management Display (Start → Programs → Honeywell Experion PKS → System Management → System Management Display).</td>
</tr>
<tr>
<td>6</td>
<td>Expand the tree out to the server that you just ran dspprime on.</td>
</tr>
<tr>
<td>7</td>
<td>Right click on the TPN Server component under this machine.</td>
</tr>
<tr>
<td>8</td>
<td>Select All Tasks → Checkpoint. This will save a checkpoint file (.HCI file) in the C:\HWIAC\Checkpoints directory. It is very important that you do this before shutting down. The name of this file will be the same name as the TPN Server component name in the System Management display with a .HCI extension.</td>
</tr>
<tr>
<td>9</td>
<td>Create a C:\HWIAC\Checkpoints\backup directory.</td>
</tr>
<tr>
<td>10</td>
<td>To avoid having to repeat this priming operation in the future, copy the TPN Server checkpoint file (.HCI file) from C:\HWIAC\Checkpoints to C:\HWIAC\Checkpoints\backup.</td>
</tr>
</tbody>
</table>

The following procedure should be performed on the Backup Experion Server (ESVT).

<table>
<thead>
<tr>
<th>Step</th>
<th>Action</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Open the System Management Display and stop the TPN Server that is...</td>
</tr>
</tbody>
</table>
6. Authoring Custom Displays
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<table>
<thead>
<tr>
<th>Step</th>
<th>Action</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Running on the backup server.</td>
</tr>
<tr>
<td>2</td>
<td>Open Task Manager and end the tpndss.exe process only if it is still running.</td>
</tr>
<tr>
<td>3</td>
<td>Copy the TPN Server checkpoint file (.HCI file) from C:\HWIAC\Checkpoints on the primary server (ESVT) to the same location on the backup server.</td>
</tr>
<tr>
<td>4</td>
<td>Delete the existing TPN Server checkpoint file and rename the TPN Server checkpoint file that you just copied to the same name as the deleted file.</td>
</tr>
<tr>
<td>5</td>
<td>Create a C:\HWIAC\Checkpoints\backup directory.</td>
</tr>
<tr>
<td>6</td>
<td>Copy the TPN Server checkpoint file (.HCI file) from C:\HWIAC\Checkpoints to C:\HWIAC\Checkpoints\backup.</td>
</tr>
<tr>
<td>7</td>
<td>Use the System Management Display to start the TPN server.</td>
</tr>
</tbody>
</table>

Perform the following procedure on each console station (ES-T).

<table>
<thead>
<tr>
<th>Step</th>
<th>Action</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Open the System Management Display and stop the TPN Server that is running on this computer.</td>
</tr>
</tbody>
</table>

**ATTENTION**

You will lose view to TPS points on this console station (ES-T) while the TPN Server is stopped.

<table>
<thead>
<tr>
<th>Step</th>
<th>Action</th>
</tr>
</thead>
<tbody>
<tr>
<td>2</td>
<td>Open Task Manager and end the tpndss.exe process only if it is still running.</td>
</tr>
<tr>
<td>3</td>
<td>Copy the TPN Server checkpoint file (.HCI file) from C:\HWIAC\Checkpoints on the primary server (ESVT) to the same location on this computer.</td>
</tr>
<tr>
<td>4</td>
<td>Delete the existing TPN Server checkpoint file and rename the TPN Server checkpoint file that you just copied to the same name as the deleted file.</td>
</tr>
<tr>
<td>5</td>
<td>Use the System Management Display to start the TPN server.</td>
</tr>
</tbody>
</table>
| 6    | Open a command prompt and run the following command (replace c:\YourTPSDISplays with the location of your displays):

- dspprime --pd --fp "c:\YourTPSDISplays" > results.txt 2>&1
- dspprime --f pnts.txt >> results.txt 2>&1 |
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---

**Step**

<table>
<thead>
<tr>
<th>Action</th>
</tr>
</thead>
<tbody>
<tr>
<td>TIP</td>
</tr>
</tbody>
</table>

The pnts.txt file is the file created during preparation.

Dspprime on the ES-Ts will take much less time to complete than on the ESVT. This is because dspprime on the ES-T is only creating parameters in the Experion database. The TPN Server checkpoint file from the ESVT does not need to be primed again.

---

**Procedure if additional new TPS point parameters need to be accessed**

TPS point parameters only need to be primed once on each ESVT and ES-T. If primed parameters are re-used, for example on new HMIWeb custom graphics, no priming is required.

If a small number of un-primed TPS point parameters need to be accessed, an alternative to priming is to call up the displays, groups or trends with the un-primed TPS point parameters on every ES-T and on one Flex Station. The point detail display must be included if it will be used on a station. Multiple call-ups may be required as a limited number will be discovered on each call-up. After this is complete, if priming was done from a Flex Station, the TPNServer checkpoint should be check pointed and copied to the backup ESVT as detailed in the section “Procedure for first time access to TPS point parameters” above. Changes in the primary ESVT TPNServer checkpoint are not automatically copied to the backup ESVT.

**Dspprime description and syntax**

The dspprime utility extracts point parameter references from HMIWeb displays or from a user supplied text file. It uses this data to create point parameter structures in Experion representing data from a device specific server that supports point parameter discovery (e.g. TPS). The utility also primes the cache in the device specific server if applicable (e.g. TPN Server). This facilitates fast initial call-up of displays with discovered point parameter data.

**Syntax**

You can run Dspprime in one of two modes:

Prime based on a set of displays:

```
             [-validate] [-fragdelay n] [-fragsize n]
```

Prime based on a file with a list of point parameters:
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6.10. Improving initial display invocation using Dspprime

```
```

**Dspprime argument description**

<table>
<thead>
<tr>
<th>Argument</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>None</td>
<td>Extract all point parameter references from displays in the displays search path. Use these references to create point parameter structures in Experion and, if applicable, cache entries in the device specific server from which they originate (e.g. TPN server cache).</td>
</tr>
<tr>
<td>-d display.htm</td>
<td>Only prime the single display &quot;display.htm&quot;</td>
</tr>
<tr>
<td></td>
<td>This option supports the use of wildcards (* and ?) to prime displays matching a certain criteria. For example, the following command would prime all displays starting with the letter ‘a’ in the c:\displays directory:</td>
</tr>
<tr>
<td></td>
<td><code>dspprime -d c:\displays\a*.htm</code></td>
</tr>
</tbody>
</table>
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<table>
<thead>
<tr>
<th>Argument</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>-f primefile.txt</td>
<td>If this option is used, dspprime will not prime displays, but instead will read its list of point parameters to prime from the “primefile.txt” specified. The format of “primefile.txt” is “point.parameter” or “point param1 param2 param3 …” on each line, as shown in the following listing.</td>
</tr>
<tr>
<td></td>
<td>FIC123.PV</td>
</tr>
<tr>
<td></td>
<td>FIC123.SP</td>
</tr>
<tr>
<td></td>
<td>FIC123.OP</td>
</tr>
<tr>
<td></td>
<td>FID207 PV MODE</td>
</tr>
<tr>
<td></td>
<td>FIC500.PV</td>
</tr>
<tr>
<td></td>
<td>FIC500.NAME</td>
</tr>
<tr>
<td></td>
<td>FIC500.EUDESC</td>
</tr>
<tr>
<td></td>
<td>FID200 PV SP OP MODE</td>
</tr>
<tr>
<td></td>
<td>If you are priming points in order to show the faceplate and/or point detail display, you may want to consider always priming the PointDetailDisplay parameter. For example,</td>
</tr>
<tr>
<td></td>
<td>FIC123 PointDetailDisplay PV OP SP</td>
</tr>
<tr>
<td></td>
<td>FIC500 PointDetailDisplay</td>
</tr>
<tr>
<td></td>
<td>FID207 PointDetailDisplay PV</td>
</tr>
</tbody>
</table>

**ATTENTION**

If this option is used, the options related to priming displays will be ignored (i.e. -d, -m, -p).
### 6. Authoring Custom Displays

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<table>
<thead>
<tr>
<th>Argument</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>-fp</td>
<td>For each point found on a display or in the primefile, also prime the parameters of the point required to call up the faceplate. Only the standard faceplates delivered with Experion will be primed. If you have some displays that use the &quot;Popup&quot; behavior on alphanumerics, the popup file will not be primed by dspprime. If using this option with TPS points, you must turn off the &quot;Use classic faceplates&quot; option on the TPS configuration page in Experion. Dspprime will read the PointDetailDisplay parameter of each point to figure out the name of the faceplate to prime. It will then read the faceplate display file to determine the list of parameters that need to be primed for this point and prime these.</td>
</tr>
<tr>
<td>-fragdelay n</td>
<td>The delay in milliseconds between each request to the TPN server. Default is 1000 milliseconds.</td>
</tr>
<tr>
<td>-fragsize n</td>
<td>The maximum number of point.parameter items to ask the TPN server for in a single request. Default is 50.</td>
</tr>
<tr>
<td>-m modhours</td>
<td>Only prime displays that were modified in the last “modhours” hours. Replace “modhours” with the number of hours</td>
</tr>
<tr>
<td>-p path</td>
<td>Directory to search. Use multiple –p for multiple directories. If not specified, the directories configured in the displays search path will be searched. The displays search path can be configured in the Experion Server Configuration Panel.</td>
</tr>
<tr>
<td>-pd</td>
<td>For each point found on a display or in the primefile, also prime the parameters of the point required to call up the point detail display. Note that if a point detail display consists of tabs that each call up a different display file, this option will only prime the parameters on the display file that is initially called up when executing a point detail command. If using this option with TPS points, you must turn off the “Use classic faceplates” option on the TPS configuration page in Experion. Dspprime will read the PointDetailDisplay parameter of each point to figure out the name of the point detail display to prime. It will then read the point detail display file to determine the list of parameters that need to be primed for this point and prime these.</td>
</tr>
</tbody>
</table>
### 6. Authoring Custom Displays

#### 6.10. Improving initial display invocation using Dspprime

<table>
<thead>
<tr>
<th>Argument</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><code>-r</code></td>
<td>Also perform a read of each point parameter value. Use this option if some points are built in Experion PKS but are not in the device specific server cache. Note that this option will slow down the priming.</td>
</tr>
<tr>
<td></td>
<td><strong>Should not be used for TPS points as this may cause an unnecessary load on the LCN. Dspprime will always connect directly to the TPN server to prime TPS points and will not cause LCN traffic if it finds they are already in the TPN server cache. Also perform a read of each point parameter value. Use this option if some points are built in Experion but are not in the device specific server cache. Note that this option will slow down the priming.</strong></td>
</tr>
</tbody>
</table>
| `-sd tpsdel.pnt` | Search the Experion database for TPS points that have been previously discovered but are no longer in the LCN. Output a list of these points to the "tpsdel.pnt" file. (You can replace "tpsdel.pnt" with another filename that you want to store the deleted point names in) The "tpsdel.pnt" will have lines similar to the following:  
  
  DEL SRVALIAS:TPSPNT1  
  DEL SRVALIAS:TPSPNT2  
  DEL SRVALIAS:TPSPNT3  
  
  After dspprime has created the "tpsdel.pnt" file, it can be used to delete the TPS points it found by running: `pntbld tpsdel.pnt -del`. These commands should be run on the primary ESVT and each ES-T. |
| `-tpnsrvonly`  | Only prime the TPN Server. Do not prime Experion. Used to move points in the LCN (e.g. to a different unit) and not lose how those points are already configured in Experion (e.g. history, groups, trends, etc.). |
| `-validate`    | Force a revalidate of points to ensure they are built in the correct asset.                                                                                                                                 |

**ATTENTION**

If this option is used, the options related to priming will be ignored (i.e. `-d`, `-m`, `-p`, `-f`).

---

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<table>
<thead>
<tr>
<th>Argument</th>
<th>Description</th>
</tr>
</thead>
</table>
| -v n     | Verbose output. Replace n with one of the following values:  
|          | • 0 – lists files containing errors (default)  
|          | • 1 – lists all files processed  
|          | • 2 – lists all files and points processed  
|          | • 3 – lists all files, points and parameters processed |

Dspprime usage scenarios

You can run the dspprime utility in a number of ways depending on the type of priming required. The following table lists the different scenarios and how you should run dspprime based on this scenario.

<table>
<thead>
<tr>
<th>Scenario</th>
<th>Dspprime Command</th>
</tr>
</thead>
</table>
| Operators will use a fixed set of custom schematics. Faceplates won’t be used. | dspprime  
| Will prime all displays in the search path.                             |                                                       |
| Operators will use a fixed set of custom schematics. Faceplates can be called up on the points in these displays. | dspprime –fp  
| Will prime all displays in the search path. For each point found on a display, also prime the parameters of the point required to call up the faceplate. |                                                       |
| Operators will use a fixed set of custom schematics. Point detail displays can be called up on the points in these displays. | dspprime –pd  
| Will prime all displays in the search path. For each point found on a display, also prime the parameters of the point required to call up the point detail display |                                                       |
| Have previously primed all displays but have a few new displays that need to be primed. The new displays were modified within the last 10 hours. The primed displays were modified more than 10 hours ago. | dspprime –m 10  
| dspprime –m 10 –fp  
| (if faceplates are to be primed as well)  
| Will prime all displays in the search path that were modified in the last 10 hours. |                                                       |
### 6. Authoring Custom Displays

#### 6.10. Improving initial display invocation using Dspprime

<table>
<thead>
<tr>
<th>Scenario</th>
<th>Dspprime Command</th>
</tr>
</thead>
</table>
| Have previously primed all displays but have one new display call "my display.htm" in c:\display. | dspprime –d "c:\\display\\my display.htm"  
  
  dspprime –d "c:\\display\\my display.htm" –fp  
  
  (if faceplates are to be primed as well)  
  
  Will prime the single display "c:\\display\\my display.htm" |
| Have a known list of point parameters that need priming, e.g. an OPC client is going to connect to the Experion OPC server and ask for TPS point parameters. | dspprime –f mypointparams.txt  
  
  Will prime the list of point parameters in mypointparams.txt. |

#### Setting up display directories for Dspprime search

If you don’t use dsprimes’s –p option, then perform the following steps on the server to setup the display directories that will be searched.

<table>
<thead>
<tr>
<th>Step</th>
<th>Action</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Choose Programs &gt; Honeywell Experion PKS &gt; Server &gt; Experion PKS Server Configuration Panel</td>
</tr>
<tr>
<td>2</td>
<td>Click the Edit button</td>
</tr>
</tbody>
</table>
| 3    | Enter the directories the dspprime tool should search for displays in the Displays search path edit box.  
  
  Note: Each directory should be separated by a semicolon. Be sure to leave the path for system displays as it is. (For example, C:\Program Files\Honeywell\Client\System\Rxx; C:\Program Files\Honeywell\Experion PKS\Client\Abstract; C:\Program Files\Honeywell\Experion PKS\Client\Dspbld; C:\MyDisplays; C:\My Other Displays) |
## 6. Authoring Custom Displays

### 6.10. Improving initial display invocation using Dspprime

#### Using Dspprime at initial system start-up

**Considerations:**

Do not run dspprime on the Experion-TPS Console Station or backup ESVT.

Run dspprime using an account that is a member of the Honeywell Administrators group (for example, mngr account)

**To use Dspprime at initial system start-up:**

<table>
<thead>
<tr>
<th>Step</th>
<th>Action</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Ensure nodes are running and synched:</td>
</tr>
<tr>
<td></td>
<td>• Ensure the primary ESVT is running and connected to the device specific server (that is, TPN Server).</td>
</tr>
<tr>
<td></td>
<td>• Ensure all Experion-TPS Console Stations are running and synched with the ESVT.</td>
</tr>
<tr>
<td>2</td>
<td>Run dspprime on the primary ESVT with the option chosen (see above).</td>
</tr>
<tr>
<td>3</td>
<td>Check the output for errors such as invalid points and parameters.</td>
</tr>
<tr>
<td></td>
<td>Fix these errors and repeat step 2. Any errors you see here will also be seen when the display is called up or the data is accessed through OPC or other means. It is important that errors are identified and fixed here to increase performance at runtime.</td>
</tr>
<tr>
<td>4</td>
<td>If you have primed some TPS points, do the following:</td>
</tr>
<tr>
<td></td>
<td>• Open the System Management Display (Choose Start &gt; Programs &gt; Honeywell Experion PKS &gt; System Management &gt; System Management Display).</td>
</tr>
<tr>
<td></td>
<td>• Expand the tree through the Server that ran dspprime.</td>
</tr>
<tr>
<td></td>
<td>• Right-click on the TPN Server component under this node.</td>
</tr>
<tr>
<td></td>
<td>• Select All Tasks &gt; Checkpoint. This will save a checkpoint file (.HCI file) in the C:\HWIAC\Checkpoints directory. The name of this file will be the same name as the TPN Server component name in the System Management display appended with an .HCI extension.</td>
</tr>
<tr>
<td></td>
<td>• Save a backup copy of the TPN Server checkpoint file (.HCI file) from C:\HWIAC\Checkpoints to some other directory.</td>
</tr>
</tbody>
</table>
### 6. Authoring Custom Displays

**6.10. Improving initial display invocation using Dspprime**

<table>
<thead>
<tr>
<th>Step</th>
<th>Action</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>ATTENTION</strong></td>
<td>The previous step is very important because if the TPN server is restarted before you checkpoint, it will lose the priming information and display call up will be slow. There may be more than one .HCI file in this directory. Do not move or delete any of the other checkpoint (.HCI) files.</td>
</tr>
<tr>
<td>5</td>
<td>If you have primed some TPS points, repeat the following steps on the backup ESVT and on each Experion-TPS Console Station:&lt;br&gt;• Stop the TPN Server that is running on this computer from the System Management Display. Note that for an Experion-TPS Console Station you will lose view to TPS points on this Experion-TPS Console Station while the TPN Server is stopped.&lt;br&gt;• Move the existing TPN Server checkpoint file (.HCI file) in C:\HWIAC\Checkpoints on this computer to some other directory. This creates a backup in case you need this file again.&lt;br&gt;• Note the name of this file as you will need it in a following step.&lt;br&gt;• Copy the TPN Server checkpoint file (.HCI file) from C:\HWIAC\Checkpoints on the primary ESVT to the same location on this computer.&lt;br&gt;• Rename the TPN Server checkpoint file (.HCI file) to the original name that it had before, as noted in the previous step.&lt;br&gt;• Start the TPN Server using the System Management Display.</td>
</tr>
</tbody>
</table>
6. Authoring Custom Displays

6.10. Improving initial display invocation using Dspprime

Using dspprime if a display is added or changed

Considerations:

Do not run dspprime on the backup ESVT.

Run dspprime using an account that is a member of the Honeywell Administrators group (for example, mng account)

To use Dspprime if a display is added or changed:

If you have only added a few points or parameters to a display, you can prime the display by calling it up on the ESVT and each Experion-TPS Console Station. If you have added a significant amount of points or parameters to a display or have modified lots of displays, you should use the following procedure to prime the displays.

<table>
<thead>
<tr>
<th>Step</th>
<th>Action</th>
</tr>
</thead>
</table>
| 1    | Ensure nodes are running and synched:  
  - Ensure the primary ESVT is running and connected to the device specific server (that is, TPN Server).  
  - Ensure all Experion-TPS Console Stations are running and synched with the ESVT. |
# 6. Authoring Custom Displays

## 6.10. Improving initial display invocation using Dspprime

<table>
<thead>
<tr>
<th>Step</th>
<th>Action</th>
</tr>
</thead>
</table>
| 2    | Repeat the following steps on the primary ESVT and each Experion-TPS Console Station:  
Run dspprime with the option chosen (see argument syntax table).  
Check the output for errors such as invalid points and parameters.  
Fix these errors and repeat the above step. Any errors you see here will also be seen when the display is called up or the data is accessed through OPC or other means. It is important that errors are identified and fixed here to increase performance at runtime.  
If you have primed some TPS points,  
Open the System Management Display (Start > Programs > Honeywell Experion PKS > System Management > System Management Display).  
Expand the tree out to the computer that you just ran dspprime on.  
Right click on the TPN Server component under this machine.  
Select All Tasks > Checkpoint. This will save a checkpoint file (.HCI file) in the C:\HWIAC\Checkpoints directory. The name of this file will be the same name as the TPN Server component name in the System Management display with an .HCI extension. This step is very important because if the TPN server is restarted before you checkpoint it, it will lose the priming information and display call up will be slow. There may be more than one .HCI file in this directory. Do not move or delete any of the other checkpoint (.HCI) files.  
Save a backup copy of the TPN Server checkpoint file (.HCI file) from C:\HWIAC\Checkpoints to some other directory.  
3    | Stop the TPN Server that is running on the backup ESVT from the System Management Display. |
| 4    | Move the existing TPN Server checkpoint file (.HCI file) in C:\HWIAC\Checkpoints on the backup ESVT computer to some other directory.  
This creates a backup in case you need this file again. Note the name of this file as you will need it in the next step.  
5    | Copy the TPN Server checkpoint file (.HCI file) from C:\HWIAC\Checkpoints on the primary ESVT to the same location on the backup ESVT.  
Rename the TPN Server checkpoint file (.HCI file) to the original name that it had before, as noted in the previous step. |
6. Authoring Custom Displays
6.10. Improving initial display invocation using Dspprime

<table>
<thead>
<tr>
<th>Step</th>
<th>Action</th>
</tr>
</thead>
<tbody>
<tr>
<td>6</td>
<td>Start the TPN server on the backup ESVT from the System Management Display.</td>
</tr>
</tbody>
</table>

Dspprime performance

<table>
<thead>
<tr>
<th>Priming a display with 432 points with 1 parameter each</th>
</tr>
</thead>
<tbody>
<tr>
<td>Point structures exist</td>
</tr>
<tr>
<td>-------------------------</td>
</tr>
<tr>
<td>No</td>
</tr>
<tr>
<td>Yes</td>
</tr>
<tr>
<td>No</td>
</tr>
<tr>
<td>Yes</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Priming based on a file (not a display) with 1000 points with 7 parameter each</th>
</tr>
</thead>
<tbody>
<tr>
<td>Point structures exist</td>
</tr>
<tr>
<td>-------------------------</td>
</tr>
<tr>
<td>No</td>
</tr>
<tr>
<td>Yes</td>
</tr>
<tr>
<td>No</td>
</tr>
<tr>
<td>Yes</td>
</tr>
</tbody>
</table>
## Dspprime error conditions and recovery

TIP

You can find out more about the error if you type "display <ErrorNumber>" in a command prompt on the server.

<table>
<thead>
<tr>
<th>Error</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>could not bind to point &lt;PointName&gt;, error &lt;ErrorNumber&gt;</td>
<td>The point was not found in the point database and could not be discovered. Check that the point is valid. Check that the connection to TPS is OK.</td>
</tr>
<tr>
<td>could not bind to point &lt;PointName&gt; param &lt;ParamName&gt;, error &lt;ErrorNumber&gt;</td>
<td>The point was found in the points database but the parameter was not found and could not be discovered. Check that the point parameter is valid. Check that the connection to TPS is OK.</td>
</tr>
<tr>
<td>could not get range for point &lt;PointName&gt; param &lt;ParamName&gt;, error &lt;ErrorNumber&gt;</td>
<td>An error occurred when retrieving the range for the point parameter. Check that the connection to TPS is OK.</td>
</tr>
<tr>
<td>could not get limits for point &lt;PointName&gt; param &lt;ParamName&gt;, error &lt;ErrorNumber&gt;</td>
<td>An error occurred when retrieving the limits for the point parameter. Check that the connection to TPS is OK.</td>
</tr>
<tr>
<td>could not read value of point &lt;PointName&gt; param &lt;ParamName&gt;, error &lt;ErrorNumber&gt;</td>
<td>An error occurred when reading the value of the point parameter. Check that the connection to TPS is OK.</td>
</tr>
<tr>
<td>Unable to access DisplayPath in registry, error &lt;ErrorNumber&gt;</td>
<td>Type: &quot;display &lt;ErrorNumber&gt;&quot; to see a text description of the error.</td>
</tr>
<tr>
<td>Parse Error At line &lt;LineNum&gt; &lt;ParseErrorReason&gt;</td>
<td>An error occurred when loading the display file. The line number and text describing the error are shown.</td>
</tr>
</tbody>
</table>
### 6. Authoring Custom Displays
#### 6.10. Improving initial display invocation using Dspprime

<table>
<thead>
<tr>
<th>Error</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Code = &lt;ErrorCode&gt;</td>
<td>A general error occurred. Details of the error are included in the output.</td>
</tr>
<tr>
<td>Code meaning = &lt;CodeMeaning&gt;</td>
<td></td>
</tr>
<tr>
<td>Source = &lt;Source&gt;</td>
<td></td>
</tr>
<tr>
<td>Description = &lt;Description&gt;</td>
<td></td>
</tr>
</tbody>
</table>

**Unable to connect to TPN server, error <ErrorNumber>**
If the server has a TPS connection configured, dspprime forms a direct connection to the TPN server on the machine that it is run on. Make sure the local TPN server is running and that you are logged into an account that has access to the TPN server (such as the MNGR account).

**failed to prime TPN server cache, error <ErrorNumber>**
A call to the TPN Server failed. Check that TPN Server is running.

**unable to prime <Point.Parameter> from TPS, error <ErrorNumber>**
A call to the TPN Server failed. Check that TPN Server is running. Check that the point parameter that it was trying to prime is valid.

**Unable to open file <Filename>**
Check that the file exists.

**Ignoring '<PrimeFileLine>' as it is not in correct format**
Check that the line in the prime file is in the “point.parameter” format or “point param1 param2 param3 …” format.

**Unable to process <Filename>, error <ErrorNumber>**
Check that the file exists. Check that you have access to read the file.

**Unable to process all files, error <ErrorNumber>**
Some files were processed and some were not.
Shapes with scripts on custom properties not supported

The dspprime utility is currently not able to prime shapes that have custom properties that have been set inside a script. For example, shape001 has the following custom property: Name: TestProperty, Type: Point, Description: My test shape. An alphanumeric in the shape uses <TestProperty> as the Point with a PV parameter. A pushbutton on the display has the following script code: shape001.SetCustomProperty "Point", "TestProperty", "TIC0001". If you run dspprime on the display, it won’t prime TIC0001.PV; when you click the pushbutton there may be some delay while the point and parameter are created.

Dspprime usage samples

C:\TPS Displays>dir
Volume in drive C has no label.
Volume Serial Number is 5853-317B

Directory of C:\TPS Displays

16/05/2007  10:47 AM    <DIR>          .
16/05/2007  10:47 AM    <DIR>          ..
16/05/2007  10:46 AM             8,131 Boiler1.htm
16/05/2007  10:44 AM    <DIR>          Boiler1_files
16/05/2007  10:47 AM             7,223 Tank1.htm
16/05/2007  10:47 AM    <DIR>          Tank1_files
2 File(s)         15,354 bytes
4 Dir(s)  92,571,103,232 bytes free

C:\TPS Displays>cd \n
C:\>dspprime -pd -fp -p "c:\TPS Displays" > results.txt 2>&1

C:\>type results.txt
Validating points that were created due to alarms...done
C:\TPS Displays\Boiler1_files\DS_datasource1.dsd
could not bind to point POINT123, error 0x8231
could not bind to point BRNCO_TPS_ALM001 param ABCD, error 0x8232
processed 16 files (0 errors) in 3 directories.
processed 1297 point.parameters (2 errors) 8 ranges 0 limits.

The c:\TPS Displays\Boiler1.htm display contains a reference to an invalid point called POINT123 and an invalid parameter on point BRNCO_TPS_ALM001 called ABCD.
These 2 errors should be fixed by either editing the display to remove the invalid references or building the missing points and parameters.

C:\> type pnts.txt
BRNCO_TPS_ALM001 PointDetailDisplay PV SP OP
BRNCO_TPS_ALM002 PointDetailDisplay PV SP OP
BRNCO_TPS_ALM003 PointDetailDisplay PV SP OP ABCD
Point123 PointDetailDisplay PV SP OP

C:\> dspprime -f pnts.txt > results.txt 2>&1

C:\> type result.txt
Validating points that were created due to alarms....done
could not bind to point Point123, error 0x8231
could not bind to point BRNCO_TPS_ALM003 param ABCD, error 0x8232
processed 17 point.parameters (2 errors) 0 ranges 0 limits.

The pnts.txt file contains a reference to an invalid point called POINT123 and an invalid parameter on point BRNCO_TPS_ALM003 called ABCD. These 2 errors should be fixed by either editing the pnts.txt file and also the client in Experion that is reading these values to remove the invalid references or building the missing points and parameters.
7. GUS Functionality on ES-T

7.1 GUS Functionality Summary

Operating System Support
GUS components -- Native Window, GUS Display Builder, and Runtime components perform on the operating systems supported on the Experion nodes. This includes the base TPS components for all operating systems supported on the Experion Server, ACE-T and Console and Console – Extension nodes. GUS functionality in Experion is described in the following section.

GUS Display Builder
Functionality of the GUS Display Builder is unchanged in Experion. GUS Display Builder can be installed on any node as long as the hardware and operating system requirements are met; however, the on-line GUS display validation capability is only available on the ES-T and Experion-TPS Console-Extension (CE) nodes.

GUS Display Runtime
Functionality of the GUS Display Runtime is generally unchanged in the ES-T. GUS display runtime only operates on Experion Station and Experion-TPS Console–Extension nodes with TPS options. Operation on the Console–Extension nodes with TPS options (and the hosting ES-T) nodes is equivalent to the operation of the GUS Remote Displays cluster, with its limitations (e.g. lower limit on maximum number of concurrent GUS displays). The following exceptions apply:

- GUS displays are intended to support current TPS applications, referencing local TPN data. They may also access any remote data that is available via HCI/OPC, using the current HCI data client. However, this capability does not support integrated control applications involving data from Experion controllers. Such applications require the use of HMIWeb displays.

- The GUS Alarm Window ActiveX control is not supported on Experion nodes with TPS options. Existing GUS displays that are embedding this control will present the standard “control not installed” error. Instead, these displays can be user updated to invoke the Experion Alarm Summary as a separate display. The Alarm Summary requests will invoke the Experion Alarm Summary display in the Experion Station. The GUS Alarm Window ActiveX control is not included in the installation packages; the supporting TPN load modules (GUSALA, GUSALAG) should not be configured for ES-C nodes.
7. GUS Functionality on ES-T
7.1. GUS Functionality Summary

- The GUS Button Service is not available on Experion nodes with TPS options. In GUS, pressing a focus independent key (e.g. SCHEM) while a GUS display is in focus results in a dialog requesting operator input. On Experion nodes, the Experion Station command prompt window will process operator’s input. Generally, the IKB/OEP focus independent keys will be serviced by the Experion Station or by the Native Window. The Native Window will also service by the Experion Station or the engineering keyboard function keys, when a GUS display is in focus. Note: per ES-T convention, the Experion Station processes the focus independent keys first; if Experion does not define action for the key, this key will be transferred to the Native Window. The focus dependent keys (ACK etc.; in some cases DETAIL) will operate unchanged when GUS display is in focus.

- Display interactions with Native Window are supported on the ES-T node, even if the node is hosting Console–Extension nodes with TPS options. Native Window can be re-assigned to the ES-T if it is currently active on another node. In TPS, the GUS Remote Displays Client that is running on the GUS Remote Displays Server disables such interactions.

GUS Remote Displays

The functionality of GUS Remote Display servers is included with the GUS Display Runtime on an ES-T. Configuration options enable the remote displays service (servers), which then can service GUS Remote Display Clients running on ES-CE stations connected to this ES-T.

Cross-Environment Display Invocation

Invocation of displays among the Experion Station, GUS and Native Window environments is possible and will follow the rules where it requests Experion first:

- The “Invoke Display” (and similar) requests from GUS displays attempt to invoke an Experion display first; if a display is not found then Experion Station will be asked to invoke a GUS display. If this fails on a node, it will result in a request to show the schematic in the Native Window.

- The “Invoke Display” (and similar) requests from Experion Station will attempt to invoke an Experion display first; if such display is not found then GUS runtime will attempt to show the display. If a GUS display is not found then, on the ES-T node, the request will be presented to the Native Window.

- On ES-T, invocation of displays from Native Window will attempt to invoke an Experion display first; if such display is not found then GUS runtime will attempt to show the display. If a GUS display is not found then, the request will be presented to the Native Window.
Invocation of displays using keyboard keys follows the route of the display invocation from the Experion Station, with the exception for the case where the Native Window is servicing a programmable key that contains an invocation of a standard display. On an ES-T, display invocations resulting from the SCHEM and GP_PRO actors in Native Window will first consult Experion Station.

GUS HCI Client

Access to HCI/OPC data (for example, a third party OPC server) from GUS displays continues to be possible using the GUS HCI Client. Note: GUS collectors (for example, ACKSTAT) operate unchanged in GUS displays and are applicable to the HOPC Server/TPN data only.

Although data from Experion controllers would also be available through this mechanism, it is strongly recommended that HMIWeb displays be used for integrated control involving Experion controllers.

Local TPN Server

The TPN Server that is running on an ES-T node is private and is used mainly by the Experion system direct data access components. GUS displays and GUSPro Trend can access this local TPN Server. Custom applications wishing to access TPN may do so by connecting to the Experion OPC Server that is running on the Server.
7.2 Handling of F1-F17 keys when GUS application is in focus

About this section

This section explains how the keyboard function keys respond in different application environments.

TIP

GUS is an optional package.

Function key behavior

In the regular TPS GUS, the function keys F1 – F17 (PF1 – PF17) are serviced by the GUS button service, which processes the keys according to the definition in the LCN area button file.

On an ES-T, the F1-F17 keys are processed by the application that has input focus.

When a GUS application (GUS display, GUS Group Display or GUS Faceplate) has input focus, the F1-F17 keys will be directed to:

1. GUS application if the key action has been configured in the registry.
2. Experion station if NULL action has been defined.
3. Regular Windows processing if there is no registry definition for this key.

By default, installation of the GUS Display Runtime configures the following key actions in the registry:

<table>
<thead>
<tr>
<th>Key</th>
<th>Action</th>
</tr>
</thead>
<tbody>
<tr>
<td>F1</td>
<td>HELP</td>
</tr>
<tr>
<td>F2</td>
<td>PRIOR DISP</td>
</tr>
<tr>
<td>F9</td>
<td>ACK</td>
</tr>
<tr>
<td>F15 (PrintScreen)</td>
<td>MAN</td>
</tr>
<tr>
<td>F16 (Scroll)</td>
<td>AUTO</td>
</tr>
</tbody>
</table>
7.2. Handling of F1-F17 keys when GUS application is in focus

<table>
<thead>
<tr>
<th>Key</th>
<th>Action</th>
</tr>
</thead>
<tbody>
<tr>
<td>F17 (Pause)</td>
<td>NORM</td>
</tr>
<tr>
<td>Ctrl/F9</td>
<td>FAST</td>
</tr>
<tr>
<td>Ctrl/F12</td>
<td>MSG CLEAR</td>
</tr>
<tr>
<td>Ctrl/F17</td>
<td>RAISE</td>
</tr>
<tr>
<td>Shift/F2</td>
<td>ASSOC DISP</td>
</tr>
<tr>
<td>Shift/F12</td>
<td>MSG CONFIRM</td>
</tr>
<tr>
<td>Shift/F15</td>
<td>OUT</td>
</tr>
<tr>
<td>Shift/F16</td>
<td>SP</td>
</tr>
<tr>
<td>Shift/F17</td>
<td>LOWER</td>
</tr>
</tbody>
</table>

The remaining Fn/Ctrl/Shift key combinations have NULL assignment and will be redirected to the Experion station.

Other applications will process F1-F17 keys according to this application configuration. In order to achieve consistency of the F1-F17 key actions across applications, each application’s key configuration data may have to be modified.

For example, Native Window will follow key actions as defined in the current LCN area button file; Experion station and displays will process keys according to the definition in the station keyboard configuration (.stb) file.

**TIP**

GUS and Native Window applications do not recognize ALT key as key modifier.

**TIP**

The assignment of the F1-F17 keys for the GUS applications is stored under the following registry key: HKLM/Software/Honeywell/ESTGusKey. The registry editing tool REGEDIT must be used to change this configuration; then replicated on each ES-T and Experion-TPS Console-Extension node (e.g. with help of exported .reg file).
7. GUS Functionality on ES-T
7.2. Handling of F1-F17 keys when GUS application is in focus
8. Managing Operations, Alarms, and Events

8.1 Managing Scope of Responsibility

About Scope of Responsibility

Scope of Responsibility (SOR) represents the set of the entities for which an operator is responsible. The Scope of Responsibility consists of the currently assigned TPN/LCN Area (assigned using Native Window facilities), the Experion Asset (assigned using Experion Enterprise Model Builder and/or System Interface Unit Mapping), and the operator’s SOR. For an ES-F connecting through a Server, the SOR is defined using Experion Enterprise Model Builder and/or System Interface Unit Mapping with TPN/LCN Units mapped to Experion Assets.

About Enterprise Model

The Enterprise Model provides a means of organizing the core operational environment around a hierarchical asset model; typically configured to represent the physical assets of the plant or mill. The Enterprise Model is fully integrated with the TPN. One Experion Server in your system must include the Enterprise Model database (EMDB).
8. Managing Operations, Alarms, and Events
8.1. Managing Scope of Responsibility

Use Enterprise Model Builder to create Assets

The Enterprise Model Builder is an application that allows you to configure the Experion scope of responsibility. Enterprise Model Builder is a standard tool in the Configuration Studio. EMB supports the configuration of the Asset Model and Alarm Groups.
Unit to Experion Asset relationship

TPN Units (and the points that they contain) can be associated with Enterprise Model Assets in the same way they were previously associated with Areas. TPN units are mapped to Experion assets either through configuration or direct mapping.

The following figure shows a direct mapping relationship of TPN Units and Experion Assets. In this example, the Experion Assets have been configured with the same names as the TPN Unit names in order to support direct mapping of units to assets.
The following figure shows a hierarchical asset configuration where Experion Assets have several levels, in other words an Experion Asset is a child of another Experion Asset. In this example, TPN Units T1 and T2 are mapped to Assets Tank1 and Tank2 respectively. TPN Unit A2 is mapped to the Experion Asset Mixer1. Because Experion Assets Tank1 and Tank2 are children of Mixer1, TPN Units T1 and T2 are also in effect mapped to Experion Asset Mixer1.
A TPN Unit can only be mapped to one Experion Asset. More than one TPN Unit can be mapped to an Asset, but the Unit itself can only be assigned to one Asset. Assets can be structured in a hierarchy as shown in the figure.

Map TPS Units as follows:

<table>
<thead>
<tr>
<th>TPS Unit</th>
<th>Assignable Asset</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 A1</td>
<td>/Assets/Precipitation</td>
</tr>
<tr>
<td>2 A2</td>
<td>/Assets/Precipitation/Mixer1</td>
</tr>
<tr>
<td>3 A3</td>
<td>/Assets/Precipitation/Mixer1/Reactor</td>
</tr>
</tbody>
</table>
Assignment of assets

Mapping units to assets also means that you can manage TPS data and notifications in an appropriate manner. For example, you can configure particular Stations, Consoles, or Operators so that they can only receive notifications from certain TPS units (mapped to assets) through alarm and event management configuration.

ATTENTION

The Scope of Responsibility (SOR) of the Operator includes Experion Controller Assets and assets that contain LCN Units. On integrated Experion-TPS ES-T nodes, this is also qualified by the current LCN area.

If the LCN Unit is not in the current LCN area, the Operator will not have access to this Unit.
8. Managing Operations, Alarms, and Events
8.1. Managing Scope of Responsibility

Operator Assignment Page

Mapping of TPN/LCN Units to Experion Assets

A display supports the configuration of TPN/LCN unit names to the Experion Assets of interest. For details, refer to Section 4.5, Map TPS Units to Experion Assets. Note that depending on the option you select, System Unit SY unit also must be properly mapped.
8. Managing Operations, Alarms, and Events

8.1. Managing Scope of Responsibility

Mapping when more than one LCN is connected to Experion using DSA

If you are connecting more than one LCN to an Experion system that has DSA between its ESVTs, then:

- You must select the mapping option “Map TPS Units as follows”
- For each LCN, you must map each TPS system reserved unit, SY, to its own Experion Asset. You should give that Asset that’s meaningful to your personnel.
- If duplicate TPN point names occur in same named units on multiple LCNs, each unit must be mapped to its own Experion Asset. For example, LCN1 has Unit AA with point A100. LCN2 also has a Unit AA with point A100. In this case, each unit should be mapped to its own Experion Asset.

![Diagram showing TPS Unit to Asset Mapping on LCN1 and LCN2 with examples of point names and ASets]

<table>
<thead>
<tr>
<th>Unit</th>
<th>Asset</th>
</tr>
</thead>
<tbody>
<tr>
<td>AA</td>
<td>//Asset/LCN1_Boiler</td>
</tr>
<tr>
<td>BB</td>
<td>//Asset/LCN1_Level</td>
</tr>
<tr>
<td>CC</td>
<td>//Asset/LCN1_Drum</td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td>SY</td>
<td>//Asset/LCN1_System</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Unit</th>
<th>Asset</th>
</tr>
</thead>
<tbody>
<tr>
<td>AA</td>
<td>//Asset/LCN2_Boiler</td>
</tr>
<tr>
<td>XX</td>
<td>//Asset/LCN2_Level</td>
</tr>
<tr>
<td>YY</td>
<td>//Asset/LCN2_Drum</td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td>SY</td>
<td>//Asset/LCN2_System</td>
</tr>
</tbody>
</table>
Enabling alarming for Experion Assets with mapped TPS Units

- Operators will not be able to access TPN/LCN units that are not mapped to Assets.
- If the Experion SOR is not “Full Access” and if the Experion SOR excludes particular TPN/LCN units, then this operator will not be able to see alarms from these units, even though they may be in the current TPN/LCN SOR (TPN/LCN Area).
- If the Experion SOR has TPN/LCN units that are not in the current TPN/LCN SOR (TPN/LCN Area), then this operator will not be able to see alarms from these units.

<table>
<thead>
<tr>
<th>Step</th>
<th>Action</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Enable or disable alarms for the assets from Configuration Studio. Select Alarms and Event Management.</td>
</tr>
</tbody>
</table>

![Configuration Explorer]

![InfoDev_LabD > Servers]

![Profiles]

![Alarms and Event Management]

![History]
### 8. Managing Operations, Alarms, and Events

#### 8.1. Managing Scope of Responsibility

<table>
<thead>
<tr>
<th>Step</th>
<th>Action</th>
</tr>
</thead>
</table>
| 2    | Select Configure alarm and point processing.  

**Alarm and Event Management**

- Configure alarm and point processing
- Configure alarm and alert notification settings
- Configure event archiving
- Server wide alarm colors
- Server wide alarm and event options

From the resultant display, enable or disable alarms for your assets.

**Full access**  
- View and acknowledge
- View only
- No access

- Controllers
- Printers
- Stations
- System Interfaces

| 3    | From the System Interfaces screen, click the link to the **Asset Assignment** display.  

Using links from this display, assign Experion Assets (TPN/LCN Units) to Consoles, Console Stations, Flex stations, and Operators to define the Scope of Responsibility (SOR).  


TPN/LCN Area Change

A TPN/LCN Area Change is accomplished using the Native Window Console Status display. When the TPN/LCN Area is changed, the Experion Alarm display refreshes to show the current alarms in the new TPN/LCN Area.

TPN/LCN integrity checking

TPN/LCN integrity checking remains unchanged. Specifically, users working at any permission level lower than Engineer are prevented from writing to any parameter of a point unless the point is a member of a TPN/LCN Unit in the underlying TPN/LCN Area Database.

Super area

One of the styles of TPN/LCN Scope of Responsibility (SOR) management is the super area. With this style, up to 36 TPN/LCN Units are put in a single TPN/LCN Area and the Area is assigned to an Asset for the stations in the console.

Operators manage the units in their SOR by individually enabling and disabling units through the Console Disable/Enable function presented on the TPN/LCN Unit Assignment display.

An ES-T allows the super area style of SOR management.
8. Managing Operations, Alarms, and Events
8.1. Managing Scope of Responsibility

KEYLEVEL.KL File Access Overview

As of Experion release R310.1, the TPN Server will implement the functionality of the Configurable Access Levels contained in the KEYLEVEL.KL file.

ATTENTION

Only the KEYLEVEL.KL method of configurable access levels is supported. The following access levels are NOT supported.

- Detail/Group Display
- $AUXUNIT
- ALENBST
- Box Variables
- Parameter Groups

The KEYLEVEL.KL will be read in from the History Module by the TPN Server during start-up of the TPN Server. If the file exists on the HM, the KEYLEVEL.KL file will be read and a new file created in the C:\HWIAC\Databases for use by the TPN Server.

Since no syntax checking is performed by the TPN Server, the user will have to correct syntax errors in the KEYLEVEL.KL file using the LCN Text Editor.

Syntax errors can be viewed using the native Window Auxiliary Status Display.

If the KEYLEVEL.KL file does NOT exist on the HM, then no key level changes will be applied at write time. If, however, the file cannot be read, the system HM is down or unavailable, then the TPN Server will use its locally created PC-side file, if one already exists.

Upon a successful read of the HM’s KEYLEVEL.KL file, the TPN Server will create an internal mapping of LCN parameter number. This number is obtained by converting the LCN parameter name in the file to access level obtained from the file.

The KEYLEVEL functionality will be available on the Console Station irrespective of the availability of the Cluster Server.
8. Managing Operations, Alarms, and Events
8.1. Managing Scope of Responsibility

HMIWeb display stores

For writes from HMIWeb displays, the Experion data access client uses the logged-in level of the Experion Station, either operator-based or station-based security, to determine the level to be passed to the TPN Server. This will not change.

However, the TPN Server will use this access level passed on each write request from Experion to determine the actual store access level passed down to the LCN based on the KEYLEVEL.KL rules as shown in the following table.

<table>
<thead>
<tr>
<th>Experion Station Access Level</th>
<th>Equivalent LCN KeyLevel</th>
<th>Access Level for parameter in KEYFILE.KL</th>
<th>Resultant Access Level passed to LCN by TPN Server</th>
</tr>
</thead>
<tbody>
<tr>
<td>MNGR ENGR</td>
<td>P</td>
<td>Store Rejected</td>
<td></td>
</tr>
<tr>
<td>MNGR ENGR</td>
<td>E</td>
<td>Engineer</td>
<td></td>
</tr>
<tr>
<td>MNGR ENGR</td>
<td>S</td>
<td>Engineer</td>
<td></td>
</tr>
<tr>
<td>MNGR ENGR</td>
<td>O</td>
<td>Engineer</td>
<td></td>
</tr>
<tr>
<td>ENGR ENGR</td>
<td>P</td>
<td>Store Rejected</td>
<td></td>
</tr>
<tr>
<td>ENGR ENGR</td>
<td>E</td>
<td>Engineer</td>
<td></td>
</tr>
<tr>
<td>ENGR ENGR</td>
<td>S</td>
<td>Engineer</td>
<td></td>
</tr>
<tr>
<td>ENGR ENGR</td>
<td>O</td>
<td>Engineer</td>
<td></td>
</tr>
<tr>
<td>SUPR SUPR</td>
<td>P</td>
<td>Store Rejected</td>
<td></td>
</tr>
<tr>
<td>SUPR SUPR</td>
<td>E</td>
<td>Store Rejected</td>
<td></td>
</tr>
<tr>
<td>SUPR SUPR</td>
<td>S</td>
<td>Engineer</td>
<td></td>
</tr>
<tr>
<td>SUPR SUPR</td>
<td>O</td>
<td>Engineer</td>
<td></td>
</tr>
<tr>
<td>OPER OPER</td>
<td>P</td>
<td>Store Rejected</td>
<td></td>
</tr>
<tr>
<td>OPER OPER</td>
<td>E</td>
<td>Store Rejected</td>
<td></td>
</tr>
<tr>
<td>OPER OPER</td>
<td>S</td>
<td>Store Rejected</td>
<td></td>
</tr>
</tbody>
</table>

ATTENTION

VIEW level keylock cannot be directly set on the Native Window unless configured to do so in the Native Window Console Status settings.
8. Managing Operations, Alarms, and Events

8.1. Managing Scope of Responsibility

<table>
<thead>
<tr>
<th>Experion Station Access Level</th>
<th>Equivalent LCN</th>
<th>Access Level for parameter in KEYFILE.KL</th>
<th>Resultant Access Level passed to LCN by TPN Server</th>
</tr>
</thead>
<tbody>
<tr>
<td>OPER</td>
<td>OPER</td>
<td>O</td>
<td>Engineer</td>
</tr>
<tr>
<td>ACKONLY</td>
<td>VIEW</td>
<td>P</td>
<td>Store Rejected</td>
</tr>
<tr>
<td>ACKONLY</td>
<td>VIEW</td>
<td>E</td>
<td>Store Rejected</td>
</tr>
<tr>
<td>ACKONLY</td>
<td>VIEW</td>
<td>S</td>
<td>Store Rejected</td>
</tr>
<tr>
<td>ACKONLY</td>
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<td>VIEW</td>
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<td>VIEW</td>
<td>E</td>
<td>Store Rejected</td>
</tr>
<tr>
<td>VIEW</td>
<td>VIEW</td>
<td>S</td>
<td>Store Rejected</td>
</tr>
<tr>
<td>VIEW</td>
<td>VIEW</td>
<td>O</td>
<td>Store Rejected</td>
</tr>
</tbody>
</table>

TPN Server Auxiliary Display Indicator

On the main tab of the TPN Server Auxiliary Display, at the bottom, there will be an indication that shows the time that the KEYLEVEL.KL file was most recently read in from the HM along with how many parameters were read in.

**TIP**

This will only show for ES-T and ESVT nodes (as opposed to APP and ACE-T nodes).

<table>
<thead>
<tr>
<th>Usage Data</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of Active Clients: 2</td>
</tr>
<tr>
<td>Number of Queued Requests:</td>
</tr>
<tr>
<td>High Priority: 0</td>
</tr>
<tr>
<td>Low Priority: 0</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Keylevels Entries From TPN</th>
<th>(TPN Server checkpoint triggers refresh)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Time Most Recently Read</td>
<td>5/16/2007 - 12:59:29:44</td>
</tr>
<tr>
<td>Items Read</td>
<td>218</td>
</tr>
</tbody>
</table>
Refresh the KEYLEVEL.KL file from the TPN Server Auxiliary Display

Use the demand checkpoint feature from the System Management Display, All Tasks- >Checkpoint to refresh the contents of the KEYLEVEL.KL file from the History Module.

This will avoid having to stop and restart the TPN Server if all you want to do is refresh the contents of the KEYLEVEL.KL file. In other words, when a checkpoint is demanded or occurs on the auto-checkpoint frequency, then the KEYLEVEL.KL will also be refreshed. Managing Process Alarms

Experion Alarm Summary Displays

An ES-T uses the Experion Alarm Summary Displays, which provide an integrated display of alarm notifications from the local TPN/LCN, from Experion, and from other OPC-compliant event servers including Honeywell applications and third party OPC event servers.

Alarms known to the local TPN/LCN are represented in both the Native Window TPN/LCN Alarm Summaries and the Experion Alarm Summaries, with the same statuses (for example, acknowledgement status). This consistency is maintained on a console wide basis. The Experion Alarm Summary display consists of Alarm Groups, Assets, and System Components.

Customizing the Experion Alarm Summary Display

You can customize the alarm summary to filter, sort, and view alarms.

REFERENCE - INTERNAL

For more information about customizing the alarm summary, refer to Server and Client Configuration Guide.
Enable/Disable/Inhibit

Experion follows the same convention as OPC for alarm enable and disable, where disable corresponds to the TPN/LCN inhibit. Experion-TPS nodes support the Experion/OPC convention as follows:

- TPN/LCN System Disable and Inhibit and Console Disable will be reflected as an OPC Disable to Experion. Pseudo disable/inhibit conditions such as box idle and contact cutout will also be reflected to Experion as Disables.

- The user may perform any Enable/Disable/Inhibit using existing Native Window functions and the disable is reflected on all appropriate Experion displays.

Generally, in the Experion alarm approach, alarms are not removed from the Experion Alarm Summary without the operator’s knowledge. The TPN/LCN Console Disable (shown in the following figure) is an exception, where alarms are automatically removed from the selected TPN/LCN Unit on the Native Window Alarm Summary and on the Experion Alarm Summary.
8. Managing Operations, Alarms, and Events

8.1. Managing Scope of Responsibility
Correctly manage disabled alarms on ESVT

Before R680, the ESVT received ALENBST=DISABLED alarms. As of LCN 680, there is an NCF option, that if set, will allow Experion to not display ALENBST=DISABLED alarms on an ESVT, but rather journal them.

This indication is applicable for process alarms generated by AM, NIM and HG and SOE alarms for HG.

In the NCF, an option (YES/NO) is provided for the optional selection of this functionality. The option is to be specified in the System Wide Values/Console Data portion of the NCF.

If “ALENBST Indication in journal for disabled alarms” is set to NO, and ALENBST=DISABLED, then ALENBST=DISABLED alarms do NOT show on the ESVT’s Alarm Summary, but are journaled.

If “ALENBST Indication in journal for disabled alarms” is set to YES, and ALENBST=DISABLED, then ALENBST=DISABLED alarms DO show on the ESVT’s Alarm Summary and are journaled.

ATTENTION

You must have at least R680 LCN software to correctly manage disabled alarms on an ESVT.

Older LCN versions will continue to function as before but without this new functionality.

Alarm presentation

HMIWeb displays

Alarm presentation and acknowledgement in user-authored HMIWeb displays offer the functionality found in Experion. Acknowledgement of a TPN/LCN alarm from an HMIWeb display is reflected at all ES-T’s, GUS’s and US’s in the Console.
**Alarm Group equivalence to PRIMMOD**

ES-T Alarm Group functionality, for both standard alarm displays and HMIWeb displays, is the equivalent to the PRIMMOD alarming functionality found in TPN/LCN. To import your existing Primmod groups, refer to Section 13, TPS PRIMMOD and Experion Aggregate Alarming.

**Sequence of Events**

TPN/LCN sequence of events (SOE) notifications are archived on the Server and can be viewed from an ES-T through the Experion SOE Summary Display.

**Alarm List Overflow**

An alarm list overflow on the underlying US results in a system status event notification being sent to from the LCNP to the Windows resident Experion software. The display associated with the notification of a TPN/LCN alarm list overflow is the TPN/LCN Alarm Summary Display, allowing the operator to use the TPN/LCN Alarm Summary Display to take corrective action.

Since the Experion alarm list accommodates 2000 notifications, it is likely that the Experion Alarm Summary display will have the notifications that were lost from the TPN/LCN Alarm list due to overflow. An operator may wish to take no corrective action (that is, to resynchronize with the Alarm Summary Display), because it could result in the loss of alarms, and because the alarm summaries will eventually resynchronize after the overflow condition is resolved.

Alarm list overflow conditions on the Experion alarm list is not reflected in any TPN/LCN Native Window displays.

**TPN/LCN Lost Events Notification and Recovery**

When an ES-T detects a lost TPN/LCN event condition, a System Event Notification is generated and the LED on the SYS STATS key indicates the presence of an unacknowledged system alarm.

Pressing the SYS STATS key results in presenting the Experion System Status display, and the display contains a notification of the lost events. Invocation of the associated display for the Lost Event notification results in the invocation of the TPN/LCN Area Alarm Summary in the Native Window, allowing the operator to initiate the event recovery process and observe its progress.
Considerations when changing Alarm Priority to NOACTION or PRINTER

Changing Alarm Priority on ESVT

On the Server node, ensure that the alarm condition is returned to normal (RTN) before changing the alarm priority to NOACTION or PRINTER. On an ES-T node, the user may change the alarm priority parameters to any value regardless of whether the alarm is active or not.

On a Server node, if you change an alarm priority parameter from a value of LOW, HIGH, or EMERGNCY to a value of PRINTER or NOACTION while the alarm is active (still in ALM), then the Experion Alarm Summary on a Server node will give the appearance of a “stuck” alarm.

To remedy a “stuck” alarm on the ESVT that is due to the above condition, perform the following steps:

1. Change the alarm priority parameter (for example, PVHIPR or PVROCPR) back to LOW, HIGH, or EMERGNCY. This should cause the alarm to re-alarm.
2. Ensure that the alarm condition is returned to normal (RTN).
3. Change the value of the alarm priority parameter to PRINTER or NOACTION.

TIP

Because the Server is an alarm journaling mechanism (similar to the History Module), the TPN/LCN alarm queue that it “hears” does not receive PRINTER or NOACTION alarms.

Changing Alarm Priority on ES-T

On an ES-T node, if you change the alarm priority parameter from LOW, HIGH, or EMERGNCY to JOURNAL, JNLPRINT, PRINTER, or NOACTION, then an intentional inconsistency will exist between the Native Window Alarm Summary and the Experion Alarm Summary.

The Native Window Alarm Summary automatically removes unacknowledged and acknowledged active (ALM) alarms when the alarm priority changes to JOURNAL, JNLPRINT, PRINTER, or NOACTION.

The Experion Alarm Summary does not remove unacknowledged alarms, but marks their state as Disabled (grayed out) and Inactive (RTN). When the state becomes Acknowledged, they are removed. This is consistent with other Experion Alarm Summary alarm sources, such as C200 controller alarms.
ATTENTION

If the ES-T receives a TPN/LCN event (such as an Area change) that forces a re-read of the Native Window Alarm Summary, then the Experion Alarm Summary re-synchs with the Native Window Alarm Summary (through the TPN Server).

The re-synch removes those alarms from the Experion Alarm Summary that were shown as unacknowledged or disabled, and that had been removed already from the Native Window Alarm Summary.

Considerations when changing ALMFMFT and DIGALFMT

Honeywell recommends that you change the values of the ALMFMFT and DIGALFMT parameters only when their point is NOT in alarm.

If you change ALMFMFT or DIGALFMT while the point is in alarm, depending on what alarm format you choose, a “stuck” alarm may result on the Server’s Experion Alarm Summary. The only known remedy for this “stuck” alarm condition is to stop and restart the TPN Server component on the Server (see “Stuck alarms on ESVT” for the procedure).

The ES-T’s Experion Alarm Summary may be more tolerant of changes to the ALMFMFT or DIGALFMT parameters while the point is in alarm.

ATTENTION

Always ensure that the point is not in alarm before attempting to change the ALMFMFT and DIGALFMT parameters.

It is NEVER advisable to change these parameters while the point is in alarm.
Considerations when deleting points that are in alarm

**ATTENTION**

In order to avoid confusing or inconsistent alarm reporting, do not delete:
- Points that are in alarm
- Connections to points that are in alarm
- Points that are connected to points that are in alarm

**Stuck alarms on ESVT**

Two situations described above (see “Changing Alarm Priority on” and “Considerations when changing ALMFM and DIGALFM”) can cause ESVT alarms to appear to be “stuck” in the alarm summary. There are other scenarios where alarms may appear to be stuck in the alarm summary. For example, this may occur when an ESVT receives a Box Idle, Node Failure, Hiway Slot Failure, or Hiway Box Failure event from the LCN. When one of these LCN events causes a “stuck” alarm condition, stop and start the TPN Server by performing the following steps:

1. From the System Management Display, select the TPN Server component on the ESVT. Right-click and select **All Tasks > Stop**.
2. After the TPN Server shows a status of “Stopped,” right-click on the component and select **All Tasks > Start**.

**Considerations when managing sequence program (PROCMOD) alarms**

Honeywell recommends that you operate a PROCMOD point (sequence program) from its Native Window Detail display.

The sequence program alarm state (ALM/RTN) shown on the Experion Alarm Summary may not be consistent with the alarm state shown on the Native Window Alarm Summary. You should use the Experion Alarm Summary as an indication that there is an outstanding sequence program alarm, and as a pointer to the Native Window Detail Display for that PROCMOD point. Prior to acknowledging the sequence alarm, you should always invoke the Native Window Detail Display to learn the exact status of the sequence program.

The Experion Alarm Summary shows only one sequence alarm per source name. The condition name of the sequence alarm is always $SEQALM. For example, there may be four sequence alarms shown on the Native Window Alarm Summary (one in ALM, the other three in RTN); however, only the latest sequence alarm will be shown on the Experion Alarm Summary.
If you acknowledge the one sequence alarm from the Experion Alarm Summary, it acknowledges all of the outstanding sequence alarms (from that source name) down to the LCN/TPN.

**Considerations when disabling PROCMOD (sequence) point alarms**

The PROCMOD point does not have an ALENBST (alarm enable status) parameter.

If you perform a **System Inhibit** or a **System Disable** for a TPN/LCN Unit from the Native Window Unit Assignment display, the ALENBST parameter of all the points in that unit will be set to either INHIBIT or DISABLE, respectively. Points (like PROCMOD), that do not have the ALENBST parameter, are not affected.

The TPN Server has no knowledge of the ALENBST parameter, but the System Inhibit or System Disable event triggers the ES-T's TPN Server to “disable” (Experion paradigm) alarms for all points in the TPN/LCN Unit – including the PROCMOD (sequence) points that are in alarm.

When you perform a **System Enable** for the TPN/LCN Unit, the data owners (AM, NIM, and HG) re-alarm the points that are still in alarm. This may cause the sequence alarms on the Native Window Alarm Summary and Experion Alarm Summary to be out of synch.

The TPN Server relies on the data owners to re-send their alarms to populate the Experion Alarm Summary; however, this does not happen for PROCMOD (sequence) alarms, so the TPN Server cannot re-send the outstanding PROCMOD alarms to the Experion Alarm Summary.
Sequence Alarm Example 1

The PROCMOD point named PRCMD01 in TPN/LCN Unit 01 has an **acknowledged**, active sequence alarm.

<table>
<thead>
<tr>
<th>Action</th>
<th>Behavior on Native Window Alarm Summary</th>
<th>Behavior on Experion Alarm Summary</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. The user performs a System Inhibit or System Disable on TPN/LCN Unit 01.</td>
<td>No change for PRCMD01, as there is no ALENBST parameter for a PROCMOD point. The alarm is left on the screen, as acknowledged.</td>
<td>Alarm for PRCMD01 disappears, because it is already ACKd. The TPN Server marks it (and every other source in TPN Unit 01) as &quot;disabled,&quot; which is a condition for removal.</td>
</tr>
<tr>
<td>2. The user performs a System Enable on TPN Unit 01.</td>
<td>The data owner (NIM or HG) does not re-alarm this alarm. There is no change for PRCMD01. The alarm is left on the screen.</td>
<td>The data owner (NIM or HG) does not re-alarm this alarm. The alarm is not re-alarmed on the Experion Alarm Summary.</td>
</tr>
</tbody>
</table>
Sequence Alarm Example 2

The PROCMOD point named PRCMD01 in TPN/LCN Unit 01 has an **unacknowledged**, active sequence alarm.

<table>
<thead>
<tr>
<th>Action</th>
<th>Behavior on Native Window Alarm Summary</th>
<th>Behavior on Experion Alarm Summary</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. The user performs a System Inhibit or System Disable on TPN Unit 01.</td>
<td>No change for PRCMD01, as there is no ALENBST parameter for a PROCMOD point. The alarm is left on the screen, as unacknowledged.</td>
<td>Alarm for PRCMD01 changes to the disable state (grayed out), because the TPN Server marks it (and every other source in TPN Unit 01) as “disabled.”</td>
</tr>
<tr>
<td>2. The user performs a System Enable on TPN Unit 01.</td>
<td>The data owner (NIM or HG) does not re-alarm this alarm. There is no change for PRCMD01. The alarm is left on the screen.</td>
<td>The data owner (NIM or HG) does not re-alarm this alarm. The alarm is not re-alarmed on the Experion Alarm Summary. The alarm remains disabled.</td>
</tr>
</tbody>
</table>

**ATTENTION**

If the ES-T receives a TPN/LCN event (such as an Area Change) that forces a re-read of the Native Window Alarm Summary, then the Experion Alarm Summary re-synchs with the Native Window Alarm Summary (through the TPN Server) and the outstanding sequence alarms will be shown on the Experion Alarm Summary.

**Considerations when using SOE points**

The sequence of Events (SOE) alarm for the Hiway Gateway’s (HG) HLPIU SOE point is supported in the R301 Experion Alarm Summary on the ES-T or ESVT. The ES-T load module required version is 67.1 and the ESVT load module required version is 67.0.

The alarm can be seen on the Native Window's Alarm Summary and in the Experion SOE Journal.
8. Managing Operations, Alarms, and Events

8.2 Managing Operator Messages

About operator messages

The Experion Message Summary display provides an integrated display of messages from the local TPN/LCN, Experion, and from other OPC-compliant event servers including Honeywell applications and third party OPC event servers.

This section describes the differences in system response when an operator acknowledges or confirms a message from the Experion Message Summary or from the TPN/LCN Message Summary. This section describes message behavior for two types of messages: Informational (non-confirmable) and Confirmable.

The following message scenarios are described:

- Experion acknowledgment
- TPN/LCN acknowledgment
- Mixed acknowledgment
- Confirmed from other areas or consoles
- TPN/LCN Area Change

**ATTENTION**

Honeywell recommends that messages be acted upon, whenever possible, from the Experion Message Summary.

**REFERENCE - INTERNAL**

Refer to the *Server and Client Configuration Guide* for information on customizing the Experion Message Summary.
8. Managing Operations, Alarms, and Events

8.2. Managing Operator Messages

Informational (non-confirmable) messages

Unacknowledged messages

Experion: blinking letter “I” icon
TPN/LCN: blinking red asterisk (*)
Acknowledgement from Experion

**ATTENTION**

Acknowledging messages from the Experion Message Summary *acknowledges and clears* the message from both message summaries. This approach provides the most effective way to keep your message summaries consistent.

Action: Right-click/Acknowledge Message, or Acknowledge Page of messages (as shown in the following figures).

Result: Acknowledges and Clears the message(s) in both message summaries. That is, there is no need for an additional step to clear the acknowledged message(s) from the TPN/LCN Message Summary.

Acknowledgment from TPN/LCN

**ATTENTION**

This approach requires additional operator intervention to keep your message summaries consistent. An operator working from the TPN/LCN Message Summary must take an additional step of clearing the message from the TPN/LCN Message Summary.
Action: Acknowledge from any TPN/LCN Message Summary in the console.

Result:

Experion: Acknowledged and cleared (acknowledged messages are always cleared on Experion).

TPN/LCN: Acknowledged but not cleared (as shown in the following figure).

Messages acknowledged from the TPN Message Summary results in acknowledging and clearing the messages from the Experion Message Summary. The message does not clear from the TPN Message Summary.
An operator using the TPN/LCN Message Summary must take an additional step to clear the message. The following figure illustrates one method of clearing a message.
8. Managing Operations, Alarms, and Events

8.2. Managing Operator Messages

**TPN/LCN area change**

When a TPN/LCN Area change occurs, the operator should expect to see a system alarm in the Experion System Status, indicating that an area change is in progress. The alarm automatically returns to normal upon Area Change completion.
As a result of an Area Change, informational messages re-appear as acknowledged messages in the TPN/LCN Message Summary. The messages do not appear in the Experion Message Summary, because acknowledged messages are also cleared in Experion. The operator must clear the messages from the TPN/LCN Message Summary.

As a result of an Area change from the TPN, messages re-appear as acknowledged in the TPN Message Summary. Messages do not re-appear in the Experion Message Summary.
Confirmable message behavior

**ATTENTION**

- If using a station with no IKB then ACK twice to confirm a message on the Experion Message Summary. If you are using a station with an IKB, then use the Confirm Message menu item or the MSG CONFM key.

- Confirming messages from Experion confirms *and clears* the message from both message summaries and the TPN/LCN Process Module display, if applicable. This approach provides an effective way to keep your message summaries consistent.

- To keep message summaries and process module displays consistent, operators should acknowledge previously confirmed messages from the Experion Message Summary.

- To keep message summaries and process module displays consistent as a result of a TPN/LCN area change, operators should clear previously acknowledged and confirmed messages from the TPN/LCN Message Summary.

- Confirmable and non-confirmable messages do not appear on the Server only if the “Maintain unacknowledged alarms for Experion – TPS” is unchecked.

- Honeywell requires the following NCF configuration setting, meaning that message confirmation will be allowed only after Acknowledgment occurs:
  
  CL Message Confirmation—After—Acknowledgement YES

- To keep message summaries and process module displays consistent, the Experion setting “Perform Auto Acknowledge when Confirm Message key is pressed (IKB only)” should be unchecked.

**Unacknowledged confirmable messages**

- Experion: blinking letter “C” icon
- TPN/LCN: blinking red letter “c”.

(see examples in the following figure)

**Confirm from Experion**

- **Action:** Confirm an already acknowledged confirmable message.
- **Result:** Confirms and clears the selected message in both message summaries.
8. Managing Operations, Alarms, and Events
8.2. Managing Operator Messages

**Confirm from TPN/LCN**

**Action:** Confirm an already acknowledged confirmable message.

**Result:** The message is cleared from the Experion Message Summary, but not from the TPN/LCN Message Summary.

---

**Messages**

<table>
<thead>
<tr>
<th>Location:</th>
<th>View: (all messages)</th>
</tr>
</thead>
</table>
| Date & Time: 11/12/2003 16:23:46 | Local Source: C3 | Message: C153PM08 Please confirm this message!

**Blinking** and **icons in message summaries or icons in TPN process module displays indicate unacknowledged confirmable messages.**
**8. Managing Operations, Alarms, and Events**

**8.2. Managing Operator Messages**

---

**Acknowledge from TPN/LCN then confirm from Experion**

If a confirmable message is first acknowledged from a TPN/LCN display and then confirmed at the Experion Message Summary, the message is confirmed and cleared at both the Experion Message Summary and the TPN/LCN related displays that support confirmable messages.

**Confirm from other TPN/LCN areas or consoles**

Example scenario:

- Two ES-Ts: Station A and Station B
- Same TPN/LCN Console
- Different TPN/LCN Areas containing the same TPN/LCN unit

**Action:** Station A acknowledges a confirmable message from TPN/LCN display.

**Result:** Acknowledgement occurs at Station A only. At Station B the message appears as unacknowledged in both Experion and TPN/LCN message summaries.

**Action:** Station A confirms the message from Experion.

**Result:** Confirms and clears in both of Station A’s summaries. At Station B, the message summaries provide indications that the message is already confirmed, as shown in the following figure. Note: Messages that appear already confirmed are regarded as informational messages in Experion.
8. Managing Operations, Alarms, and Events
8.2. Managing Operator Messages

Checkmarked or backlit icons indicate messages confirmed from another console or different area within the same console.

<table>
<thead>
<tr>
<th>Date &amp; Time</th>
<th>Location</th>
<th>Source</th>
<th>Message</th>
</tr>
</thead>
<tbody>
<tr>
<td>11/12/2003 16:32:01</td>
<td>03</td>
<td></td>
<td>Thank You!</td>
</tr>
<tr>
<td>11/12/2003 16:31:14</td>
<td>03</td>
<td></td>
<td>Please confirm this message!</td>
</tr>
</tbody>
</table>
Action: Operator acknowledges previously confirmed messages from Experion (as shown in the following figure)

Result: Messages clear from the both message summaries.

Previously confirmed message then TPN/LCN acknowledgment

Action: Operator acknowledges an already confirmed message from a TPN/LCN display.

Result: Message is acknowledged and cleared on Experion. On the TPN/LCN display, the message appears acknowledged, but not cleared. The operator must clear the message from the TPN/LCN display.

TPN area change

An Area Change flushes alarms and messages from the TPN Server. When an Area Change completes, alarms and messages are re-read from the Native Window alarm and message lists. Messages reappear in the TPN/LCN Message Summary as acknowledged and/or confirmed, but not cleared. Experion regards the messages as already acknowledged, confirmed, and cleared, so those messages do not appear in the Experion Message Summary. In this situation, it will be important for the operator to clear the messages resulting from an Area Change from the TPN/LCN Message Summary.
8. Managing Operations, Alarms, and Events
8.2. Managing Operator Messages

Message list overflow

A message list overflow on the ES-T’s underlying Universal Station personality results in a system status event notification being sent from the LCNP to the Windows resident Experion software. Since the Experion message list is capable of accommodating 1000 notifications, it is likely that the Experion Message Summary display will have the notifications that were lost from the TPN/LCN Message list due to overflow.

An operator may wish to take no corrective action (that is, not to resynchronize with the Message Summary Display) because that action could result in the loss of messages, and the message summaries will eventually resynchronize after the overflow condition is resolved. Message list overflow conditions on the Experion message list are not reflected in any TPN/LCN Native Window displays.
8.3 Managing System Alarms

TPN system alarm functionality

When using an ES-T, you will be able see a TPN system alarm-related event presented as an Experion system alarm. When the alarm occurs, a Windows event occurs which, in turn, is captured by the System Event Server (SES) and converted into an Experion system alarm or update to the state of an existing alarm.

When a TPN system alarm occurs, it is annunciated to the operator via an LED associated with the SYST STATS membrane-key on the IKB/OEP keyboard. The LED has four states -- OFF, SLOW-BLINK, FAST-BLINK, and STEADY-ON. The states are used to represent whether the TPN has one or more system-related problems and whether those alarms have each been acknowledged and/or have returned to normal.

System Status LED behavior of TPN versus Experion

<table>
<thead>
<tr>
<th>Alarm and ack state</th>
<th>Experion behavior</th>
<th>TPN behavior</th>
</tr>
</thead>
<tbody>
<tr>
<td>System alarm active – unacknowledged</td>
<td>led is blinking</td>
<td>led is blinking</td>
</tr>
<tr>
<td>System alarm active – acknowledged</td>
<td>led is steady</td>
<td>led is steady</td>
</tr>
<tr>
<td>System alarm return to normal – unacknowledged</td>
<td>led is blinking</td>
<td>led is off</td>
</tr>
<tr>
<td>System alarm return to normal – acknowledged</td>
<td>led is off</td>
<td>led is off</td>
</tr>
</tbody>
</table>
8. Managing Operations, Alarms, and Events
8.3. Managing System Alarms

Note in the listing that TPN differs from Experion in that an unacknowledged system alarm, when returned to normal, results in the LED going OFF. However, in an ES-T, given that Experion still holds the light to blinking, the IKB/OEP LED will remain blinking until acknowledged in Experion.

Note also, importantly, that system status alarm acknowledgement is not explicitly coordinated between Experion and the TPN system. That is, acknowledging a solitary TPN system alarm on Experion will not likewise acknowledge the alarm on the TPN. Therefore, given that the LED is shared between the two systems and that the highest level of LED “wins”, since the TPN considers the alarm unacknowledged, the LED will remain blinking.

**ATTENTION**

While the TPN System Alarm tracks the IKB/OEP keyboard’s SYST STATS LED, a physical IKB/OEP is not required. However, at least one ES-T on a given LCN is required.

**TIP**

SES is required for the TPS System Alarms to function.
Combined Experion/TPN System Alarm LED Behavior

The following table describes the behavior of the SYST STATS led with respect to the combined system. Note that additional Experion system alarms would follow existing LED behavior, i.e., additional Experion system alarm(s) result in LED remaining blinking/steady per the highest alarm state. Also note that if either TPN or (more likely) Experion specifies “Fast blink” vs. “Slow blink”, then “Blinking” means the highest (fastest) state. Therefore, if Experion is configured to blink System Status LED as “fast” then, when both TPN and Experion are unacked, the LED will “fast-blink”. When Experion is acked and TPN is unacked, the LED will “slow-blink”.

<table>
<thead>
<tr>
<th>TPN System Alarm State</th>
<th>TPN and Experion ACK State (for TPN System Alarm)</th>
<th>LED State</th>
</tr>
</thead>
<tbody>
<tr>
<td>Active</td>
<td>TPN unacked, Experion unacked</td>
<td>Blinking</td>
</tr>
<tr>
<td>Active</td>
<td>TPN acked, Experion unacked</td>
<td>Blinking (per Experion)</td>
</tr>
<tr>
<td>Active</td>
<td>TPN unacked, Experion acked</td>
<td>Blinking (per TPN)</td>
</tr>
<tr>
<td>Active</td>
<td>TPN acked, Experion acked</td>
<td>Steady</td>
</tr>
<tr>
<td>Return to Normal</td>
<td>TPN unack, Experion unack</td>
<td>Blinking (per Experion)</td>
</tr>
<tr>
<td>Return to Normal</td>
<td>TPN unack, Experion acked</td>
<td>OFF</td>
</tr>
<tr>
<td>Return to Normal</td>
<td>TPN acknowledged, Experion unack</td>
<td>Blinking (per Experion)</td>
</tr>
<tr>
<td>Return to Normal</td>
<td>TPN acknowledged, Experion acknowledged</td>
<td>OFF</td>
</tr>
</tbody>
</table>

No ACK Integration between TPN and Experion

There is no explicit acknowledgement integration between TPN and Experion with respect to the TPN SYST STATS LED state and the associated TPN System Alarm on the Experion System Alarm Summary. When TPN transitions the SYST STATS LED from blinking to steady, therefore, it has no effect on the Experion TPN System Alarm status. Similarly, acknowledging the Experion TPN System Alarm will stop blinking for this alarm’s icon in Experion, but this has no effect on the TPN system. That is, each is managed separately. Note that, per normal Experion behavior, when an acked alarm returns-to-normal, it is removed from the summary.
Multiple TPN System Alarms Consolidated

When multiple ES-T’s are present within the same cluster (i.e., on the same LCN) they will each individually log Windows events on their respective nodes as their IKB SYST STATS LED (request) changes between “active” and “RTN” (off) states. As these multiple events actually represent the single state of the TPN, they are consolidated (by SES) into a single alarm on the Experion System Alarm Summary display. Therefore, there are never multiple TPN System Alarms replicating the same information. SES updates the “timestamp” of the event/alarm to that of the most recent Windows event, across all of the nodes which SES determines to have a common TPN System Alarm event. Therefore, when the Experion system alarm summary is time-sorted, an existing TPN System Alarm may “jump up to the top” when a new TPN System Alarm event is logged on a given node.

Note: if different ES-T nodes specify different string values in their respective LCNP board configuration “LCN Name” fields, then the single TPN System Alarm description text will be updated per the most recently reporting node LCN Name string value. So the description (such as “TPN System Alarm EST4”) could change to “TPN System Alarm EST5” if these nodes have “EST4” and “EST5” specified as their “LCN Name” fields.

Clearing a ‘stuck’ TPN System Alarm

TPN System Alarms are triggered and cleared from EIVT nodes. It is possible for you to get a “stuck” TPN System Alarm on your Experion System Alarm Summary if all of your ES-T nodes are down when all active TPN System Alarms return-to-normal. In this case, you can clear the alarm, once acknowledged in your Experion summary, using the System Management Display.
To clear alarm:

<table>
<thead>
<tr>
<th>Step</th>
<th>Action</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Start the System Management Display (Start&gt;Program Files&gt;Honeywell Experion PKS).</td>
</tr>
<tr>
<td>2</td>
<td>Right click the ESVT node and select Display Events.</td>
</tr>
<tr>
<td>3</td>
<td>Select the TPN System Alarm event and acknowledge the event.</td>
</tr>
<tr>
<td>4</td>
<td>With the event acknowledged, select the “trash can” icon to clear the event.</td>
</tr>
</tbody>
</table>

### 8.4 TPN Console Acknowledgement

**Console Functionality**

Experion retains the console-wide acknowledgement capabilities found in TPN/LCN and TPS systems.

ES-T, GUS, and US can be members of a TPN console. The ES-T members of a TPN console will also form an Experion console. Experion Station-TPS Console Extension is a member of the same TPN and Experion consoles as their host ES-T.

**ATTENTION**

An Experion console cannot span more than one TPN console, nor can a TPN console include more than one Experion console.
Configuration

**LCN**

A console may include zero or more US nodes, zero or more Global User Station (GUS) nodes, and one or more ES-T nodes. Consoles are configured using the NCF configuration functions as summarized in the following figure.

*Experion*

To configure a console for Experion, see Configuring a Console in the *Server and Client Configuration Guide*. 

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*Honeywell 11/2007*
8.5 Process History and Event Storage

Storage

The ESVT provides process data historization and archiving, and event data archiving. The Server obtains TPN/LCN data and event notifications through its local TPN Server.

**ATTENTION**

The inadvertent specification of array parameters for Experion history collection can cause significant performance impacts to the system.

As an example, HPM device-control-point parameter PVFL is not a single parameter, but is actually an array of the following three parameters: PVFL(0), PVFL(1), and PVFL(2). You should type in the parameters individually during Experion history configuration as shown in the following example:

A100.PVFL(0), A100.PVFL(1), and A100.PVFL(2).

Event database

The event database maintained by the Server is kept consistent with the event journal on the TPN/LCN History Module node. Events known to the local TPN/LCN are represented in both locations, although event attributes may differ between local TPN/LCN events and those from other sources.

The Server event database can be viewed using Experion displays.

Events are collected and then periodically copied from the Experion system database to the ESVT’s SQL Server event database for queries and reporting.

Events are archived from the online event database according to a schedule you specify. You can set up automatic archiving or you can set an alarm to alert an operator to archive events.
Operator events

Operator events, including changes made through Native Window displays are stored in the event database on the Server and can be viewed using Experion displays.

You use the Station application’s Configuration Display to define settings for a particular Station. You can assign a printer to Print Operator changes, which enables printing of all changes to points an operator has made from the ES-T.

Viewing process history

Process history is available through various mechanisms, including standard Trend Displays, a custom display with a trend object, Microsoft Excel Data Exchange, and relational databases using the Experion ODBC driver.

Process history continues to be collected on the TPN/LCN History Module for use by Native Window facilities.
8.6 Importing TPS History Configuration

About importing history configuration

The TPS History Configuration Import Tool lets you retrieve existing point history configuration data from the TPN History Module and move that configuration to Experion and be used as an Experion history collection configuration. Only the history configuration is imported (that is, what point parameters are being collected). The collected history data is not imported. You should be familiar with both the TPN History Module and its history collection configuration and the Experion history collection functionality in order to make the best use of this tool.

Example imported history display

When you run the tool, it presents its discovered Units and History Groups in the left pane. The right pane presents Data Points that you choose to export to Experion. Additionally you can optionally use a comma separated file for further editing.
8. Managing Operations, Alarms, and Events
8.6. Importing TPS History Configuration

Changing history rates before export

When you save the collected history configuration into a comma-separated .csv file, you then have the option of editing the file. You can change default collection rates of items and delete or add new items. To complete the import, you open the .csv file with the History Import Tool and then export the file into Experion history configuration.

History import requirements and recommendations

The import tool runs on an ESVT. If a the ESVT is redundant, export into Experion succeeds only on the primary server.

TPN Server must be running and connected to the underlying TPN. The alias name of the connection to the TPS system in Experion must be set to “TPS”. On the TPN, the History Module that contains the target history configuration must be running in the on-line personality.

As a user you must belong to the local Honeywell Administrators group. Operation of the tool is not supported for users that do not belong to the Honeywell Administrators group.

A File Transfer installation on the ESVT is highly recommended. With File Transfer the process of gathering history configuration from the TPN is more efficient.

TIP

If TPS File Transfer is installed on the ESVT, the process of gathering history configuration from the TPN is much more efficient. The tool uses File Transfer to obtain data about configured history groups, their collection rates and configured parameter slots within the groups (information about the slots used within the groups is only available beginning with TPN Release 660; on previous releases of TPN the tool will check all slots in the group). Having the configuration data read from the NCF enables the tool to ask for items directly, without exacting a time consuming probe for all possible configurations.
8. Managing Operations, Alarms, and Events
8.6. Importing TPS History Configuration

Import History configuration

To import history configuration from TPN:

<table>
<thead>
<tr>
<th>Step</th>
<th>Action</th>
</tr>
</thead>
</table>
| 1    | Click Start->Programs->Honeywell Experion PKS->TPS Applications->TPN History Import Tool.  
      Result: The TPN History Configuration Import display appears. |
| 2    | Click Get HM Groups.  
      Result: For the next several minutes, the tool collects configuration data from the TPN. Discovered units and groups begin to appear in the TPN Units/History Groups pane.  
      Note: If TPS File Transfer is not installed, a prompt to confirm the Get HM Groups operation appears. The import can take hours if TPS File Transfer is not installed. |
| 3    | Click OK to close the message box when data collection completes. |

To interpret imported history configuration:

You expand the unit names to view the history group number in the left TPN Units/History Groups pane. The TPN Units/History Groups pane displays the configuration information for the Unit name and History Group number, and if File transfer is installed, displays the group collection rate and Unit descriptor.

When you check the Unit in the right pane, the tool automatically checks all the groups under that unit.
When a group is checked, all of its associated point dot parameters are shown in the right Data Points pane, displaying its mapped collection rate.

The tool automatically maps TPN history collection rates to the Experion history rates as shown in the following table. If TPS File Transfer is not installed on the node, all parameters are assigned to Experion’s Standard history collection group.

<table>
<thead>
<tr>
<th>TPN rate</th>
<th>Experion rate</th>
</tr>
</thead>
<tbody>
<tr>
<td>5 secs</td>
<td>Fast</td>
</tr>
<tr>
<td>10 secs</td>
<td>Standard</td>
</tr>
<tr>
<td>20 secs</td>
<td>Standard</td>
</tr>
<tr>
<td>60 secs</td>
<td>Standard</td>
</tr>
</tbody>
</table>

You can check or un-check the desired groups until your list of points in the right pane is as desired. When the export list is ready, you then select Export to send the configuration to the Experion history collection configuration.

**Export History configuration**

**Considerations**

- The export operation will prime all parameters in the Experion and TPN Server internal datafiles. The priming operations are time consuming, so the export may last several minutes (or hours, depending on total number of parameters).

- The export operation will fail immediately with an error message if you do not run the tool on a primary server.
To export history configuration to Experion

<table>
<thead>
<tr>
<th>Step</th>
<th>Action</th>
</tr>
</thead>
</table>
| 1    | Click **Export** from the TPN History Configuration Import display.  
Result: All items from the Data Points pane are written to the Experion history database. For longer export operations, a progress bar indicates the progress of the export process |
| 2    | Click **OK** when the message **Update of Experion Server history configuration completed** appears. |
| 3    | Confirm the dialog requesting a checkpoint of the local TPN Server. |

Honeywell recommends that after performing the Export operation that you checkpoint the local TPN Server.

| 4    | Confirm the dialog requesting that the checkpoint file on a backup server be updated. |

Honeywell recommends that after performing a successful checkpoint of the local TPN Server that you update the checkpoint file on a backup server.

| 5    | As an optional step, you can review the files created during the export operation and decide if you want to archive them. These files are described in the following section. |
Files created in export operation

The export process creates two sets of files, tphinhistoryiN.pnt (i for ‘in’) and tphinhistoryoN.pnt (o for ‘out’), ten (N = 0 .. 9) files each. Because these files are text files, you can view them with a text editor. Each time you click the Export button the files are reused and their previous content is lost. If the content of these files are of interest to you, then you should copy them to an archive location. The input and output files are created in C:\HWIAC\databases\TPNServer. Note that the local Windows Group "Honeywell Administrators" needs "Modify" permissions on this folder.

When the Export button is selected, the tool builds the tphinhistoryiN.pnt as an input to the Experion history configuration.

```plaintext
&
DEL HG150201
ADD HG150201 PSA00000
PNTSRVT P N G150201 TPS TPS
AREA HG150201 02
CTRLLLVL HG150201 42
HISTEXTD HG150201 OP
CCONFIRM HG150201 N
&
DEL HG150201
ADD HG150201 PSA00000
PNTSRVT P N G150201 TPS TPS
AREA HG150201 02
CTRLLLVL HG150201 42
HISTFAST HG150201 OP
CCONFIRM HG150201 N
```
The tool then calls a method in Experion to do the actual history configuration. The results of that operation are reported in the tpnhistimportoN.pnt file.

The line format in the .csv file is as follows:

Point.parameter,TPNUnitname,ExperionRate
Example file results

The following shows an example of text read from a .csv file read into the tool.

<table>
<thead>
<tr>
<th>Data in .csv file</th>
<th>Data read into tool</th>
</tr>
</thead>
<tbody>
<tr>
<td>HG150201.OP,02,STANDARD</td>
<td>HG150201.OP</td>
</tr>
<tr>
<td>HG150201.OP,02,FAST</td>
<td>HG150201.OP</td>
</tr>
<tr>
<td>HG150201.OP,02,EXTENDED</td>
<td>HG150201.OP</td>
</tr>
<tr>
<td>HG150203.OP,02,EXTENDED</td>
<td>HG150203.OP</td>
</tr>
<tr>
<td>TSP_1AMDA02.PV,02,FAST</td>
<td>TSP_1AMDA02.PV</td>
</tr>
<tr>
<td>TSP_2AMDA02.PV,02,FAST</td>
<td>TSP_2AMDA02.PV</td>
</tr>
</tbody>
</table>

8.7 ES-T Keyboard Behavior

ATTENTION

When using the ES-T keyboard for Native Window functions such as entering Picture Editor commands, use the Ctrl key with the Enter key to perform Return-key functions because the keyboard does not have a Return key.

IKB and OEP “hot keys”

The table below describes the functionality of the available hot keys on the Integrated Keyboard (IKB) or Operator Entry Panel (OEP). Hot keys are fixed-function keys that are focus-independent, meaning they are independent of the application that is in focus (active/in foreground) at the time the key is pressed.
### 8. Managing Operations, Alarms, and Events
#### 8.7. ES-T Keyboard Behavior

<table>
<thead>
<tr>
<th>Key</th>
<th>ES-T Behavior</th>
</tr>
</thead>
<tbody>
<tr>
<td>User Configured Keys</td>
<td>Through configuration, you have three options for the set of the user-configured keys of an IKB/OEP, as described below.</td>
</tr>
<tr>
<td></td>
<td><strong>Keys are controlled by Experion:</strong></td>
</tr>
<tr>
<td></td>
<td>• Use the Experion configuration functions to configure LEDs and key actions.</td>
</tr>
<tr>
<td></td>
<td>• Key configuration is on a per-station basis.</td>
</tr>
<tr>
<td></td>
<td>• Key configuration is not affected by TPN/LCN Area change.</td>
</tr>
<tr>
<td></td>
<td><strong>Keys are controlled by the TPN/LCN:</strong></td>
</tr>
<tr>
<td></td>
<td>• Use the existing TPN/LCN Button Configuration files to configure LEDs and key actions.</td>
</tr>
<tr>
<td></td>
<td>• Key configuration is on a per TPN/LCN Area basis.</td>
</tr>
<tr>
<td></td>
<td>• Each key is controlled by either Experion or the TPN/LCN</td>
</tr>
<tr>
<td></td>
<td><strong>You determine the key behavior on a key-by-key basis:</strong></td>
</tr>
<tr>
<td></td>
<td>• Keys controlled by the TPN/LCN behave according to the TPN/LCN Button Configuration (.KS and .KO) files for the selected TPN/LCN Area.</td>
</tr>
<tr>
<td></td>
<td>• Keys controlled by Experion behave according to the Experion Station Toolbar definition (.stb) files.</td>
</tr>
<tr>
<td></td>
<td>• Key configuration remains constant over TPN/LCN Area changes.</td>
</tr>
<tr>
<td>ALM SUMM</td>
<td>Invokes the Experion Alarm Summary display.</td>
</tr>
<tr>
<td>ALM ANNC</td>
<td>Invokes the TPN/LCN Alarm Annunciator display in the Native Window.</td>
</tr>
</tbody>
</table>
### 8. Managing Operations, Alarms, and Events
#### 8.7. ES-T Keyboard Behavior

<table>
<thead>
<tr>
<th>Key</th>
<th>ES-T Behavior</th>
</tr>
</thead>
<tbody>
<tr>
<td>CONS STATS</td>
<td>Invokes either the Experion Console Status Display or the TPN/LCN Console Status display, or both.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>If LED state is…</th>
<th>Then CONS STATS key invokes…</th>
</tr>
</thead>
<tbody>
<tr>
<td>OFF due to no alarm from either subsystem</td>
<td>The TPN/LCN Console Status Display in the Native Window</td>
</tr>
<tr>
<td>ON due to alarm from TPN/LCN</td>
<td>The TPN/LCN Console Status Display in the Native Window</td>
</tr>
<tr>
<td>ON due to alarm from Experion</td>
<td>The Experion Console Status Display</td>
</tr>
<tr>
<td>ON due to alarm from TPN/LCN and Experion</td>
<td>Both displays</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>UNIT ALM SUMM</th>
<th>Invokes the Experion Alarm Summary display.</th>
</tr>
</thead>
<tbody>
<tr>
<td>GROUP</td>
<td>Selects the Message Zone in the Station application, allowing a user to specify the Group display to be invoked. Groups are identified with integer identifiers. Either a TPN/LCN Group display in the Native Window or an Experion Group display is invoked, depending on the specified Group number. Experion Group displays are assigned a range of integer id’s separate from the integer ids for TPN/LCN Group displays. The range is configurable.</td>
</tr>
<tr>
<td>PRIOR DISP</td>
<td>Calls back the previously displayed page.</td>
</tr>
<tr>
<td>MSG SUMM</td>
<td>Invokes the Experion Message Summary.</td>
</tr>
<tr>
<td>SCHEM</td>
<td>Selects the Message Zone in the Station application, allowing a user to select a particular user-authored display. If an HMWeb display with the requested name exists, it is invoked. If no HMWeb display with the requested name exists, then the TPN/LCN schematic with the requested name is invoked.</td>
</tr>
</tbody>
</table>
### 8. Managing Operations, Alarms, and Events

#### 8.7. ES-T Keyboard Behavior

<table>
<thead>
<tr>
<th>Key</th>
<th>ES-T Behavior</th>
</tr>
</thead>
</table>
| SIL | Silence handling is based on NCF and Experion System-Wide Settings, tab Alarm/Event Options.  
The NCF recommended value is: "Console-wide silence Button? NO"  
The Experion System-Wide Settings recommended value is: "Silence action applies to: Single Station or single console (all stations in console)".  
Silencing alarms on other stations in the Experion cluster is based on the Experion System-Wide Settings only. The recommended value is "Silence action applies to: Single Station or single console (all stations in console)". |
| SYST MENU | Invokes the Experion System Menu. |
| SYST STATS | Invokes either the Experion System Alarm Summary or the TPN/LCN System Status display, or both.  
**If LED state is...** | **Then SYST STATS key invokes...** |
| OFF due to no alarm from either subsystem | The TPN/LCN System Status Display in the Native Window |
| ON due to alarm from TPN/LCN | The TPN/LCN System Status Display in the Native Window |
| ON due to alarm from Experion | The Experion System Alarm Summary |
| ON due to alarm from TPN/LCN and Experion | Both displays |
| UNIT ALM SUMM | Invokes the Experion Alarm Summary display. |
| UNIT TREND | Invokes the TPN/LCN Unit Trend display in the Native Window. |
**LED annunciation**

The following table describes the LED annunciation through the IKB/OEP in terms of the subsystem that drives the annunciation.

<table>
<thead>
<tr>
<th>Key</th>
<th>Annunciated by…</th>
</tr>
</thead>
<tbody>
<tr>
<td>User Configured Keys</td>
<td>Either Experion or TPN/LCN, depending on user configuration</td>
</tr>
<tr>
<td>ALM SUMM</td>
<td>Experion</td>
</tr>
<tr>
<td>Alpha Shift</td>
<td>IKB/OEP hardware</td>
</tr>
<tr>
<td>CONS STATS</td>
<td>Either Experion or TPN/LCN, as the annunciation is shared</td>
</tr>
<tr>
<td>FAST</td>
<td>Experion. This LED reflects the status of the Experion system update rate regardless of whether Experion or Native Window has focus. For Native Window status, refer to the “F” button on the Native Window display. On (red) indicates Fast.</td>
</tr>
<tr>
<td>MSG SUMM</td>
<td>Experion</td>
</tr>
<tr>
<td>RECRD</td>
<td>Experion</td>
</tr>
<tr>
<td>SYST STATS</td>
<td>Either Experion or TPN/LCN, as the annunciation is shared</td>
</tr>
</tbody>
</table>
Focus-dependent (context specific) keys

**ATTENTION**

When using the ES-T keyboard for Native Window functions such as entering Picture Editor commands, use the Ctrl key with the Enter key to perform Return-key functions because the keyboard does not have a Return key.

The action of focus-dependent keys is context-sensitive (unlike the IKB and OEP “hot keys”), meaning that the action of the key depends on the application window in focus (active/in the foreground) at the time the key is pressed.

For descriptions of the key actions performed when the Native Window has focus, refer to the *Keyboards* manual.

For descriptions of the key actions performed when Experion has focus, refer to the *Operator’s Guide.*
IKB Keyswitch

EPKS has been updated to store the following two new values:

- The software determined Security Level and
- The IKB KeySwitch determined security level

These values will be kept separate from the existing security level. They will be stored in CRTCNT, a word in CRTTBL that includes details of control level, security level and other security related data.

This location is used to store the combined value as defined in the following table.

<table>
<thead>
<tr>
<th>IKB Key Switch Value</th>
<th>No IKB</th>
<th>VIEW ONLY</th>
<th>OPER</th>
<th>SUPV</th>
<th>ENGR</th>
</tr>
</thead>
<tbody>
<tr>
<td>VIEW ONLY</td>
<td>VIEW ONLY</td>
<td>VIEW ONLY</td>
<td>VIEW ONLY</td>
<td>SUPV</td>
<td>ENGR</td>
</tr>
<tr>
<td>ACK ONLY</td>
<td>ACK ONLY</td>
<td>ACK ONLY</td>
<td>ACK ONLY</td>
<td>SUPV</td>
<td>ENGR</td>
</tr>
<tr>
<td>OPER</td>
<td>OPER</td>
<td>OPER</td>
<td>OPER</td>
<td>SUPV</td>
<td>ENGR</td>
</tr>
<tr>
<td>SUPV</td>
<td>SUPV</td>
<td>SUPV</td>
<td>SUPV</td>
<td>SUPV</td>
<td>ENGR</td>
</tr>
<tr>
<td>ENGR</td>
<td>ENGR</td>
<td>ENGR</td>
<td>ENGR</td>
<td>ENGR</td>
<td>ENGR</td>
</tr>
<tr>
<td>MNGR</td>
<td>MNGR</td>
<td>MNGR</td>
<td>MNGR</td>
<td>MNGR</td>
<td>MNGR</td>
</tr>
</tbody>
</table>

1. IKB KeySwitch can optionally be configured in SOM such that when in “Oper” position this actually means “View Only”. This column represents the resulting value when the IKB is in this mode.

2. When IKB Key Switch is in OPER position it is considered to be not in use, so EPKS calculated value is used.

3. Only applicable when using Operator Based security.
4. Only two cases where the lower of the two security levels is used. The EPKS value is used even though IKB has a higher value. This is a result of note 2, and allows for note 3 operation when Operators are configured with these security levels and an IKB is in use.

**ATTENTION**

When using an IKB on a Console Station or Console Station Extension and the Server is unavailable, this functionality will continue to work. All data required for this functionality is available on the Console Station, so it will not be impacted by the Server being offline.
8. Managing Operations, Alarms, and Events
8.8. Implementing Remote Native Window

8.8  Implementing Remote Native Window

About Remote Native Window
Remote Native Window runs on Experion Station nodes. Both GUS and ES-T are qualified as servers.

Using Remote Native Window you can operate remote TPS systems that are interconnected by DSA. It will also aid in the implementation of centralized control rooms. The major benefit is to provide the capability to invoke key TPN engineering functions remotely, since most of these functions are available only in the Native Window.

Operations
Remote Native Window is not integrated into Experion, as is the “local” Native Window on an ES-T. Some specific constraints are as follows:

- If an IKB is present on a station using Remote Native Window, then the IKB will only work if the Remote Native Window has focus (that is, the Remote Native Window application is user-selected).
- Cross-environment display invocations are not supported for Remote Native Window, as they are for the ESVT. Specifically, Experion and GUS displays cannot invoke Remote Native Window displays, and vice versa.
- For an ES-T or an ES-T Console Extension node with TPS Extension, the user must be aware that the Remote Native Window will likely show a different TPN Area/Console than that of his/her station.
8.9 Remote TPN Operations using Flex Stations

Flex Station and remote operation functionality using DSA

When you optionally use DSA, the remote TPN operations using ES-F and remote operator stations connected via DSA are supported. Remote Native Window can be invoked on these stations to provide Native Window only functionality as described in the previous section.

Considerations

Because these platforms are clients of the ESVT, operations are limited in the following areas:

- These stations cannot participate in a TPN Console. Therefore, acknowledgements from these stations are not visible to any members of any TPN Console. However, they are visible to other ES-Fs.

- Although the Remote Native Window can be invoked on these stations, it is not integrated as is the Native Window on an ES-T because an LCNP board is not present on remote client stations.

- If you are using DSA for remote operations with an ES-T and Console Station Extension, then you must use HMIWeb displays. Native Window and GUS displays on these stations function with the local TPN only, with the exception that these stations can invoke a Remote Native Window as described earlier.

- Operator messages cannot be confirmed to the data owner from these stations.

- There are minor changes in alarm behavior resulting from the fact that acknowledgements are handled solely by Experion software on the Server. For example, any alarm status change (e.g., from a box idle) following Return to Normal will not be reflected in unacknowledged alarms.
9. Administering Experion-TPS Nodes

9.1 Managing Security

Experion-TPS Security Overview

Experion-TPS nodes have several security mechanisms and tools available for managing the secure operations of your system. They include the following:

- High Security Policy model:

  The High Security Policy leverages the Microsoft Windows Group Policy security model to enable you to control how programs, network resources, and the operating system behave for users and computers in your organization. Implementing the High Security Policy in a domain environment allows you to implement security settings at the group level. The security settings then apply to every user in the group regardless of the computer they are logged on to.

  ATTENTION

  In a domain, you must run "linkdomaingroups.vbs" after installation.

- Signon Manager:

  Signon Manager is an application that provides a point of single sign on, allowing users to log on to multiple participating applications, such as Station and Native Window, by providing their credentials to Signon Manager.

- Experion Operator-based security

  ES-T uses operator-based security and integrated accounts. Windows accounts are used to authenticate a user, and an operator definition in Experion is used to authorize the user. In general, operator-based security with traditional operator accounts works as follows:

  - You assign a specific security level to each user.
  - Users cannot access any Station functions unless they enter a valid ID and password.
  - To access a higher security level than the one they are currently using, users need to sign on to Signon Manager as a different operator who has the higher security level.
Assets are assigned to the operator, regardless of which Station they are currently signed on to.

- Server password utility
- Pre-configured console with Microsoft’s Security Editor

**High Security Policy model**

The High Security Policy model provides a user environment for each of the operational user types such as Supervisors, Engineers, and Administrators. Each user type is granted the privileges and system access required to perform their required functions while at the same time protecting the system resources. The security model is installable for domain controllers and workstations.

The following figure shows the local groups created for a workstation.

---

**REFERENCE - INTERNAL**

Signon Manager

Signon Manager is the mechanism for operator authentication on an ES-C and Server node. Signon Manager allows client applications to base security operations on the current user of the system without requiring a full Windows log off and log on, which would result in a brief loss-of-view at that workstation.

When a node is Signon aware, a small window is available to identify the currently signed on user. A task bar icon also appears.

![SignOn Task Icon](image)

Clicking the task bar icon invokes a Signon Manager dialog to allow you to change the currently signed on user or to temporarily override a currently signed on user.
9. Administering Experion-TPS Nodes
9.1. Managing Security

ATTENTION
Signon will be refused if:

- The user is not a valid windows account,
- The user is not a configured Experion operator,
- An Experion Station signon restriction is in effect for this user (for example, a time or station restriction), or
- The Station application shows a different user (instead of MNGR). “Use windows account” must be checked in the Area Assignment.

REFERENCE - INTERNAL
For more information about Signon Manager, refer to the Server and Client Configuration Guide.

Station/Operator
Operator security settings can be edited from Configuration Studio:

Refer to the section Add and Configure Operators in this guide.
9.2 Configure and Invoke the Signon Manager Window

Configuring the Signon Manager Window

Perform the following steps to enable or change the appearance of the Signon Manager window.

<table>
<thead>
<tr>
<th>Step</th>
<th>Action</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Log on to the node as the local Administrator.</td>
</tr>
</tbody>
</table>
| 2    | Go to the following:  
**Start>Programs> Honeywell Experion PKS > System Management >Configuration Utility** |
| 3    | Select the following in the Configuration Utility:  
**Configure>Signon Manager** |
| 4    | Check the desired settings for the Signon Manager as described in the following table Signon Manager Settings In Configuration Utility. |
| 5    | Click the **OK** button. Do not close the Configuration Utility. |
| 6    | Select the following in the Configuration Utility:  
**Configure>Devices/Services** |
| 7    | The **Signon Manager Service** box is enabled by default for ESVT and ES-T nodes. |
| 8    | Click the **OK** button. |
| 9    | Exit the Configuration Utility. |
| 10   | If you made changes, reboot the node.  
RESULT: The Signon Manager is now ready for use. |
9. Administering Experion-TPS Nodes
9.2. Configure and Invoke the Signon Manager Window

Signon Manager Settings in Configuration Utility

<table>
<thead>
<tr>
<th>Signon Manager Tab</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Keep Signon display on-screen at all times</td>
<td>When this option is on, a small window remains on-screen at all times indicating the user currently signed on, unless covered by a higher priority window. This window provides the simplest way to sign off, and to access the dialog allowing signing on. When this option is off, the window is hidden.</td>
</tr>
<tr>
<td>(Default = on)</td>
<td></td>
</tr>
<tr>
<td>Signon Display Colors</td>
<td>This option allows the user to make the current user window either more or less obvious, depending on site preference.</td>
</tr>
</tbody>
</table>
| (Default = blue text on light blue background)         | To change the colors of the window:
  - Click the **Text** and/or **Background** buttons. Each button displays the standard Windows color selection dialog box.                                                                                                 |
|                                                        |  - Select the color and click **OK**. The preview window above the buttons shows the selected color combination.                                                                                                       |

Invoking the Signon Manager

Signon Manager starts whenever a user logs on to Windows.

To open the Signon dialog box, click the Signon Manager’s current user window, or click the Signon Manager icon in the taskbar.

If the Signon Manager icon is not present in the taskbar, make the following selections to start the Signon Manager utility: **Start>Programs> Honeywell Experion PKS > System Management > Signon.**

The drop-down list for the user names in the Signon Manager User window is the last five names accepted within a Windows logon session, so it always starts empty and is populated as Signon Manager sign-ons succeed.

For more information about the Signon Manager User interface, refer to in section 9.1 of this guide.
9.3 Password Security and Synchronization

Secure passwords

**ATTENTION**

To avoid having passwords compromised, Honeywell highly recommends that you change the factory-default passwords to be strong passwords (such as passwords that include one or more spaces as characters).

**Windows Services & DCOM Servers Log on tool**

A Honeywell tool (svrpass.exe) can be used to display Windows services and DCOM servers that are registered to run under a selected account. After entering secure passwords for specific Honeywell accounts, use this tool to synchronize the Windows and DCOM services associated with those accounts.
9. Administering Experion-TPS Nodes
9.3. Password Security and Synchronization

When to use the Windows Services & DCOM Servers Log on tool

Use the Honeywell Windows Services & DCOM Servers Log on tool after changing passwords for any of the following accounts:

Domain accounts:

- TPSComServer
- DCSComServer

The DCSComServer account will be listed only if System Events Server and/or System Performance Server are present.

- TPSApp

Local accounts:

- LocalComServer
- TPSLocalServer
- GUS
- Mng

ATTENTION

This password tool needs to be run on every node that is using the changed account.

Installation of the Windows Services & DCOM Servers Log on tool

This Windows Services & DCOM Servers Log on tool is installed by the System Management Runtime package from the Experion Application DVD.

The following Packages on the Experion Application DVD include the System Management Runtime package:

- System Management Display
- FTE
- Redirection Manager
Procedure to use the Windows Services & DCOM Servers Log on tool

After entering secure passwords for the specific accounts named previously, perform the following steps to synchronize the Windows and DCOM services associated with those accounts.

<table>
<thead>
<tr>
<th>Step</th>
<th>Action</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Go to the following: <strong>Start &gt; Programs &gt; Honeywell Experion PKS &gt; System Management &gt; Windows Services &amp; DCOM Servers Log on tool.</strong></td>
</tr>
</tbody>
</table>
| 2    | Select an Account Name from the dropdown list.  
RESULT: Under Associated Servers, the tool lists the Windows services and DCOM servers associated with the selected account name. |
| 3    | Type the password for the account. |
| 4    | Click **Apply New Account.**  
RESULT: If the password you just entered matches the account’s password, and then the tool synchronizes the associated Windows services and DCOM servers with the new account information.  
A message appears indicating that the operation succeeded. |
| 5    | Repeat steps 2-4, as necessary for each changed account. |
| 6    | Run the password tool and repeat this procedure on every node that is using the changed account(s). |

**ATTENTION**

This password tool does not change the password on the account.
Security Editor in MMC

To facilitate editing High Security Policies, Honeywell provides a pre-configured console containing Microsoft’s Security Editor.
9.4 Supporting System and Network Availability

Summary of network availability support

You have the following options for enhancing network availability when using Experion-TPS nodes:

- Redundant Servers
- Fault Tolerant Ethernet (FTE)
- Redirection Manager
- System Event Server (SES)
- System Performance Server (SPS)

About Redundant Servers

You can improve system availability with server redundancy. The Server supports redundant server configurations providing a warm fail over architecture with online database replication.

REFERENCE - INTERNAL

For more information, refer to

About 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 should fail and another route exists, then communication occurs over that route.

REFERENCE - INTERNAL
For more information, refer to
- EP-DSX255, FTE Installation and Service Guide

About Redirection Manager

Redirection Manager (RDM) provides high availability and reliability of OPC client connections to OPC Servers. The Redirection Manager enables OPC clients to transparently redirect requests to an alternate OPC server.

ATTENTION
Redirection Manager should not be configured to use the private TPN servers resident on the Experion-TPS nodes.

REFERENCE - INTERNAL
For more information, refer to EP-DSX215, Redirection Manager User’s Guide.

About System Event Server

System Event Server (SES) integrates Windows system events into the Alarm and Event subsystem. Event examples include HCI Server status changes, Experion or TPS node failures, and Experion or TPS configuration changes.

REFERENCE - INTERNAL
For more information, refer to EP-DSX205, System Management Configuration Guide.
About System Performance Server

The System Performance Server (SPS) provides an interface to performance and configuration information. The availability of this data allows it to be integrated into operator displays and process applications.

REFERENCE - INTERNAL
For more information, refer to EP-DSX205, System Management Configuration Guide

Computer name change

<table>
<thead>
<tr>
<th>Step</th>
<th>Action</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Launch CONFIGURATION UTILITY</td>
</tr>
<tr>
<td>2</td>
<td>Select Configure</td>
</tr>
<tr>
<td>3</td>
<td>Select HCI Component</td>
</tr>
<tr>
<td>4</td>
<td>Select Component Name: and select the OLD computer name. Record the Base PROGID. It will be used later in the procedure</td>
</tr>
<tr>
<td>5</td>
<td>Select Remove Component Configuration</td>
</tr>
<tr>
<td>6</td>
<td>Select Yes (Operation removes the component configuration from the server. Do you want to continue?)</td>
</tr>
<tr>
<td>7</td>
<td>Select OK at the message, “If running, HCI Component &lt;&lt;old computer name&gt;&gt; MUST BE SHUTDOWN before deletion is performed”</td>
</tr>
<tr>
<td>8</td>
<td>Select the drop down arrow for Base PROGID.</td>
</tr>
<tr>
<td>9</td>
<td>Type the new computer name in Component Name.</td>
</tr>
<tr>
<td>10</td>
<td>Select Check Name.</td>
</tr>
<tr>
<td>11</td>
<td>Select Enter/Edit Server Specific Configuration</td>
</tr>
<tr>
<td>12</td>
<td>At the dialog, “Operation removes the component configuration from the server. Do you want to continue?”; select Yes.</td>
</tr>
<tr>
<td>13</td>
<td>Select OK for Component configuration has defined secured method(s) with no capability. This defaults to open access for method(s).</td>
</tr>
</tbody>
</table>
9. Administering Experion-TPS Nodes

9.5 Distributed System Architecture

<table>
<thead>
<tr>
<th>Step</th>
<th>Action</th>
</tr>
</thead>
<tbody>
<tr>
<td>14</td>
<td>Select Default Access and Priority Levels.</td>
</tr>
<tr>
<td>15</td>
<td>Select the down arrow for Access Level.</td>
</tr>
<tr>
<td>16</td>
<td>Change the Access level to the desired level. Select either CONTINUOUS CONTROL or some other access level.</td>
</tr>
<tr>
<td>17</td>
<td>Check all other selections for correct configuration settings.</td>
</tr>
<tr>
<td>18</td>
<td>Select Apply.</td>
</tr>
<tr>
<td>19</td>
<td>Select OK.</td>
</tr>
<tr>
<td>20</td>
<td>Select Apply.</td>
</tr>
<tr>
<td>21</td>
<td>Select OK.</td>
</tr>
<tr>
<td>22</td>
<td>Close all applications and restart the computer.</td>
</tr>
</tbody>
</table>

**TIP**

Once Native Window has completed loading the status should turn to EST rather than GUS.

### 9.5 Distributed System Architecture

Distributed System Architecture (DSA) allows you to integrate up to 10 servers into a single system. DSA is appropriate for:

- Large-scale plant-wide systems
- Geographically-dispersed systems

**REFERENCE - INTERNAL**

For more information, refer to

9.6 Configuring an ES-T Station for Native-Window-Only Operation

It is possible that it may be necessary to use an Experion-ready ES-T for Native-Window-only operations when an ESVT is not available. An ES-T station normally has Experion software and TPS add-on software. In this case, you can disable the Experion components, leaving only the Native Window operations capability.

With this arrangement, you should assign the IKB/OEP to the TPN so that TPN alarms can be annunciated at the IKB/OEP.

When using the Native-Window-only capability of an ES-T, GUS displays are NOT supported at the station. GUS displays cannot be viewed because the Experion GUS Displays runtime requires Experion components.

The Experion components can be re-enabled at a later time when an ESVT node is available so that the ES-T node can operate in the full Experion environment.

### Configuring for Native-Window-Only Operation

<table>
<thead>
<tr>
<th>Task</th>
<th>Done?</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Verify that the system prerequisites are met.</td>
<td></td>
<td>System prerequisites are as follows: ES-T has been defined as a Universal Station (US) node on the TPN. GUS Personality package has been installed in the ES-T. ES-T node has been added to the network domain. Experion PKS High Security policies have been implemented.</td>
</tr>
</tbody>
</table>


9. Administering Experion-TPS Nodes
9.6. Configuring an ES-T Station for Native-Window-Only Operation

<table>
<thead>
<tr>
<th>Task</th>
<th>Done?</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Deactivate Experion PKS services on the ES-T node by setting Experion PKS startup services for a manual startup.</td>
<td></td>
<td>1. To deactivate Experion PKS services, go to: <strong>Start &gt; Settings &gt; Control Panel &gt; Administrative Tools &gt; Services</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td>2. Right-click the service name and choose <strong>Properties</strong>.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>3. Click <strong>Manual</strong> in the <strong>Startup type</strong> to set all the following Experion PKS services (if present/applicable) for a manual startup:</td>
</tr>
<tr>
<td></td>
<td></td>
<td><strong>Add Static Route.</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td><strong>Browser Orchestration.</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td><strong>Browser Support Service.</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td><strong>Configuration Studio Information Service (in manual by default).</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td><strong>Console Station Daemon.</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td><strong>Console Station Database.</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td><strong>Console Station Desktop.</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td><strong>Console Station Logger (in Manual by default).</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td><strong>Console Station Operator Management.</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td><strong>Console Station Replication.</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td><strong>Console Station System.</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td><strong>Control Data Access Server.</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td><strong>GCL Name Server.</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td><strong>System Repository.</strong></td>
</tr>
</tbody>
</table>
## 9. Administering Experion-TPS Nodes

### 9.6. Configuring an ES-T Station for Native-Window-Only Operation

<table>
<thead>
<tr>
<th>Task</th>
<th>Done?</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Deactivate the HCI server components on the ES-T node.</td>
<td>To deactivate HCI components, use the following path: &lt;br&gt; <em>Honeywell Experion PKS &gt; System Management &gt; Configuration Utility &gt; HCI components</em> &lt;br&gt; Disable Auto Start on the following local HCI components: &lt;br&gt; Experion PKS Console (HciHsc.SysStatus) &lt;br&gt; TPN Server (Hci.TPNServer)</td>
<td></td>
</tr>
<tr>
<td>Configure startup of applications during operator logon without the Experion station.</td>
<td>1. Start Native Window in the logon script (C:\Program Files\Honeywell\TPS\Emulators\lcnwindow.exe) &lt;br&gt; 2. Ensure that the Experion Station.exe is not in the logon script.</td>
<td></td>
</tr>
<tr>
<td>Configure LCNP4 board</td>
<td>To configure the LCNP4 board, use the following path: &lt;br&gt; <em>Honeywell Experion PKS &gt; System Management &gt; Configuration Utility &gt; Configure&gt;Board0</em></td>
<td></td>
</tr>
<tr>
<td>If IKB or OEP is present, enable annunciation by TPN in absence of Experion services</td>
<td>To allow IKB/OEP annunciation, use the following path: &lt;br&gt; <em>Honeywell Experion PKS &gt; System Management &gt; Configuration Utility &gt; Configure&gt;Board0 &gt; Native Window</em> tab &lt;br&gt; and select <strong>IKB/OEP Annunciation</strong> in absence of Experion services</td>
<td></td>
</tr>
<tr>
<td>Reboot the ES-T node</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
## Returning an ES-T Station to the Experion Environment

<table>
<thead>
<tr>
<th>Task</th>
<th>Done?</th>
</tr>
</thead>
<tbody>
<tr>
<td>Activate Experion PKS services for ES-T node</td>
<td>1. To activate Experion PKS services, go to:</td>
</tr>
<tr>
<td></td>
<td><strong>Start&gt; Settings &gt; Control Panel &gt; Administrative Tools &gt; Services</strong></td>
</tr>
<tr>
<td></td>
<td>2. Right-click the service name and choose <strong>Properties</strong>.</td>
</tr>
<tr>
<td></td>
<td>3. Click <strong>Automatic</strong> in the <strong>Startup type</strong> to set all the following Experion PKS services (if present/applicable) for a manual startup:</td>
</tr>
<tr>
<td></td>
<td>Add Static Route.</td>
</tr>
<tr>
<td></td>
<td>Browser Orchestration.</td>
</tr>
<tr>
<td></td>
<td>Browser Support Service.</td>
</tr>
<tr>
<td></td>
<td>Configuration Studio Information Service (in manual by default).</td>
</tr>
<tr>
<td></td>
<td>Console Station Daemon.</td>
</tr>
<tr>
<td></td>
<td>Console Station Database.</td>
</tr>
<tr>
<td></td>
<td>Console Station Desktop.</td>
</tr>
<tr>
<td></td>
<td>Console Station Logger (in Manual by default).</td>
</tr>
<tr>
<td></td>
<td>Console Station Operator Management. Console Station Replication.</td>
</tr>
<tr>
<td></td>
<td>Console Station System.</td>
</tr>
<tr>
<td></td>
<td>Control Data Access Server.</td>
</tr>
<tr>
<td></td>
<td>GCL Name Server</td>
</tr>
<tr>
<td></td>
<td>System Repository</td>
</tr>
</tbody>
</table>
# 9. Administering Experion-TPS Nodes

## 9.6. Configuring an ES-T Station for Native-Window-Only Operation

<table>
<thead>
<tr>
<th>Task</th>
<th>Done?</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Activate HCI server components on the ES-T node</td>
<td></td>
<td>Use the following path:</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Honeywell Experion PKS &gt; System Management &gt; Configuration Utility &gt;</td>
</tr>
<tr>
<td></td>
<td></td>
<td>HCI components</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Select <strong>Auto Start</strong> for the following local HCI components:</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Experion PKS Console (HciHsc.SysStatus)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>TPN Server (Hci.TPNServer)</td>
</tr>
<tr>
<td>Configure startup of applications at operator logon.</td>
<td></td>
<td>If you still want to startup the Native Window, do not remove the</td>
</tr>
<tr>
<td>Include Experion PKS station.</td>
<td></td>
<td>lcnwindow.exe logon script</td>
</tr>
<tr>
<td>Disable direct control of IKB/OEP annunciation by TPN</td>
<td></td>
<td>Use the following path:</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Honeywell Experion PKS &gt; System Management &gt; Configuration Utility &gt;</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Configure &gt;Board0 &gt; Native Window tab</td>
</tr>
<tr>
<td></td>
<td></td>
<td>and uncheck IKB/OEP Annunciation box <em>in absence of Experion services.</em></td>
</tr>
<tr>
<td>Configure the Experion TPS-specific items at the Experion</td>
<td></td>
<td>Add Experion-TPS console stations, configure TPS interface etc.</td>
</tr>
<tr>
<td>Server</td>
<td></td>
<td>If required, first change the name of the ESVT node following the</td>
</tr>
<tr>
<td></td>
<td></td>
<td>directions in S/IUG section <strong>Changing Experion PKS servers on Console Stations</strong></td>
</tr>
<tr>
<td>Reboot the node</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
10. Integrating TPS using only Server

10.1 Managing an integrated system

This section provides an overview of how Experion manages an integrated TPS system.

Managing TPS points

In general, Experion manages TPS points in the same way as native Experion points. Experion supports flexible points; a value of a flexible point parameter is read directly from the field when required. For example, you can include TPS point data in displays and reports, and can access it through Experion’s interfaces such as ODBC and Microsoft Excel Data Exchange. Experion classifies TPS points as flexible points—that is, the database structure of TPS points is determined by TPS rather than by Experion. (For more information, see the topic “About flexible points” in the Server and Client Configuration Guide.)

Caching discovers TPS points

Experion uses a caching technique to “discover” TPS points when needed, without maintaining a mirrored database. For example, Experion requests the TPS system for point data when an operator calls up a display that references those point(s). Point caching means that you do not have to purchase a license for a larger database size because the TPS points still reside in the TPS system. Point caching also greatly simplifies integration tasks because you do not have to separately reconfigure TPS points in Experion.

Notes

Because TPS points are cached, they do not count against the Experion license for points. However, the total number of points (licensed plus cached TPS) cannot exceed 65000.

TPS points can be viewed in Experion R300 point detail displays, but not in releases prior to R300 where Native Window point detail displays are used for TPS points.

10.2 Managing TPS alarms and events

In general, Experion manages TPS alarms and events in the same way as native Experion alarms and events. For example, they are automatically included in the Alarm Summary, Event Summary and Message Summary displays. Because of differences in classification and terminology, Experion automatically maps conditions/events and alarm priorities to their Experion equivalents, as specified in the following tables.
10. Integrating TPS using only Server
10.2. Managing TPS alarms and events

Notes

- Experion uses a TPN server to access TPS alarms and events. The TPN server converts TPS events from TPN format to Experion format.
- An ESVT auto-acknowledges conditions with journal-level alarms.
- An ESVT server continues to receive alarms from TPS points even if they are TPS disabled. Such alarms are automatically sent to the event log, even though their priority might be higher.

Mapping of TPS conditions and events

<table>
<thead>
<tr>
<th>TPS condition/event</th>
<th>Experion event type</th>
<th>Experion event category</th>
</tr>
</thead>
<tbody>
<tr>
<td>ABORT, ADVDEV, BADINPUT, BADOC, BADPV, BADCTL, BADSV, CHNGOFST, CLEALM, CLFAIL, CLFALM, CLWARN, CMDDIS, CMDFAIL, CNFERR, COMPSHED, COUNTER, DEVHH, DEVHHH, DEVHI, DEVLL, DEVLLL, DEVLO, FFDCEFAILFFDISC, FLAG, HOLD, INVALID, OFFNORM, OFFSET1, OFFSET2, OFFSET3, OPENHER, OPHI, OPL, OVRDI0, OVRDI1, OVRDI2, OVRRUN, PPPRESET, PRESET, PPRRESET, PVHH, PVHHH, PVHI, PVLL, PVLLL, PVLO, PVROC, PVROON, PVROCP, PVSGCH, S4LOGIC, STEPAL, SVHH, SVHI, SWTALM1, SWTALM2, SWTALM3, TIMEOUT, UNCEVT, UNREASBL</td>
<td>Condition-related</td>
<td>Process alarm</td>
</tr>
<tr>
<td>CHNGOFST, OFFNORM</td>
<td></td>
<td>Sequence of events</td>
</tr>
<tr>
<td>SYERROR, NODEERROR, NETERROR, NETREDError, MANCOMPERROR, SYSCOMPERROR</td>
<td></td>
<td>System alarm</td>
</tr>
<tr>
<td>DEVCOMMERROR</td>
<td></td>
<td>OPC server error</td>
</tr>
<tr>
<td>OPERATOR MESSAGE</td>
<td></td>
<td>Message</td>
</tr>
<tr>
<td>CONFIRMABLEMESSAGE</td>
<td></td>
<td>Confirmable message</td>
</tr>
<tr>
<td>DEVICEFAILURE</td>
<td>Simple</td>
<td>Device failure</td>
</tr>
</tbody>
</table>
## 10. Integrating TPS using only Server

### 10.2. Managing TPS alarms and events

<table>
<thead>
<tr>
<th>TPS condition/event</th>
<th>Experion event type</th>
<th>Experion event category</th>
</tr>
</thead>
<tbody>
<tr>
<td>BATCH STATUS</td>
<td></td>
<td>Batch status</td>
</tr>
<tr>
<td>SYSTEM MESSAGE</td>
<td></td>
<td>System message</td>
</tr>
<tr>
<td>PROCESS CHANGE</td>
<td>Tracking</td>
<td>Operator process change</td>
</tr>
<tr>
<td>ACKNOWLEDGEMENT</td>
<td></td>
<td>Acknowledgement</td>
</tr>
<tr>
<td>SYSTEM CONFIGURATION</td>
<td></td>
<td>System configuration</td>
</tr>
<tr>
<td>ADVANCED CONTROL</td>
<td></td>
<td>Advanced control</td>
</tr>
</tbody>
</table>
10. Integrating TPS using only Server
10.2. Managing TPS alarms and events

Mapping of TPS alarm priorities

<table>
<thead>
<tr>
<th>TPS Alarm Priority</th>
<th>Experion Alarm Priority</th>
</tr>
</thead>
<tbody>
<tr>
<td>EMERGENCY</td>
<td>Urgent</td>
</tr>
<tr>
<td>HIGH</td>
<td>High</td>
</tr>
<tr>
<td>JNLPRINT</td>
<td>Journal</td>
</tr>
<tr>
<td>JOURNAL</td>
<td>Journal</td>
</tr>
<tr>
<td>LOW</td>
<td>Low</td>
</tr>
<tr>
<td>NOACTION</td>
<td>Not applicable</td>
</tr>
<tr>
<td>PRINTER</td>
<td>Journal (Only applicable to an Experion-TPS Console Station)</td>
</tr>
</tbody>
</table>

Mapping TPS units

When you integrate your TPS system, you map TPS units to Experion assets, so that you can manage TPS data and alarms/events in an appropriate manner. For example, you can configure a particular Station to only receive notifications from specified TPS units.

Change of alarm priorities

- If a point is in alarm, the data owners will re-alarm the points when transition form EMERGENCY->HIGH->LOW
  - Experion will show new alarms in these transitions.
- Transition from E/H/L to J/JP/P/N will result in INA/DIS alarm.

TIP

This behavior is different than the Native Window when an UNACK alarm is in play.

- Native Window AS removes the alarms even when UNACK.
- Experion does not remove CDA alarms, but does change them to DIS.
11. Managing TPS points

This section describes the following procedures for integrating TPS points into Experion:

- Configuring history collection for TPS points
- Configuring history offsets
- Adding TPS points to a trend
- Adding TPS points to a group
- Including TPS point data in custom displays
- Writing scripts for TPS points
- Attaching algorithms to TPS points
- Removing deleted TPS points from Experion
- Cutting over TPS points to C300 points.
- Moving a TPS point within the LCN

Prerequisites

- You are logged on to Station with ENGR or MNGR security level to perform this task.
- You have installed the ESVT.
- You have followed the procedures for configuring DSA as described in “Configuring Distributed System Architecture” in the chapter “Servers” in the Server and Client Configuration Guide.
- You have configured the TPS connection as described in [??].
- (Optional) You have assigned TPS points to your Experion asset model set up. For guidelines on designing your asset model, see the chapter “Enterprise models” in the Server and Client Planning Guide and for guidance on setting up your asset model, see the Enterprise Model Builder User Guide.
11. Managing TPS points
11.1. Configuring history collection for TPS points

11.1 Configuring history collection for TPS points

When configuring history collection for TPS point data you can assign a TPS point to standard, extended, or fast history collection.

For detailed information about Experion’s history collection capabilities, see the chapter “History collection and archiving” in the Server and Client Configuration Guide.

To set up history collection for a TPS point in Experion, you can either:

- Import data from the TPN History Module using the TPS History Configuration Import tool. For details of how you use this tool, see Section 8.6. Importing TPS History Configuration in this guide.

- Configure TPS points to collect history in the same way as you do for native Experion points.

For individual points you can use Station. For a large number of points, it is recommended that you use pntbld. Both procedures are described below.

To configure individual TPS points for history collection using Station

<table>
<thead>
<tr>
<th>Step</th>
<th>Action</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>On the System Configuration menu display click History Collection. This calls up the History Collection display.</td>
</tr>
</tbody>
</table>
11. Managing TPS points

11.1. Configuring history collection for TPS points

<table>
<thead>
<tr>
<th>Step</th>
<th>Action</th>
</tr>
</thead>
<tbody>
<tr>
<td>2</td>
<td>Click the appropriate tab for the type of history that you want to collect (for example, the Fast History tab as shown below).</td>
</tr>
<tr>
<td>3</td>
<td>Click in the next empty Point ID box and type the point ID, for example, FIC101.</td>
</tr>
<tr>
<td>4</td>
<td>Use the Parameter list to choose the parameter whose history you need to collect (for example, PV).</td>
</tr>
<tr>
<td>5</td>
<td>(Optional) Use the History Gate Point fields if you want to control when history is collected. For example, you may only want to collect history at certain times of the day.</td>
</tr>
</tbody>
</table>
11. Managing TPS points
11.1. Configuring history collection for TPS points

To configure a large number of TPS points for history collection using pntbld

<table>
<thead>
<tr>
<th>Step</th>
<th>Action</th>
</tr>
</thead>
</table>
| 1    | For every TPS point parameter that you wish to collect history for, create a new line in a text file using the following format:  
   For fast history:     HISTFAST point param  
   For standard history: HISTSLOW point param  
   For extended history: HISTEXTD point param  
   Example:  
   HISTFAST FIC101 PV  
   HISTSLOW FIC101 PV  
   HISTEXTD FIC101 PV  
   HISTSLOW FIC101 SP  
   HISTFAST FIC201 PV  
   HISTEXTD FIC201 PV  
   HISTEXTD FIC301 PV  
   HISTEXTD FIC301 SP |
| 2    | Save the text file (File > Save) with the file extension pnt, for example history.pnt. |
| 3    | On an LCN-connected Experion Server open a Command Prompt window (Start > Programs > Accessories > Command Prompt). |
| 4    | At the Command Prompt type:  
   pntbld filename.  
   ![Command Prompt](image) |
11. Managing TPS points
11.2 Configuring history offsets

The above example will result in the following history collection assignments.

<table>
<thead>
<tr>
<th>Point</th>
<th>Parameter</th>
<th>History Assignment</th>
</tr>
</thead>
<tbody>
<tr>
<td>FIC101</td>
<td>PV</td>
<td>Fast/Std/Extd</td>
</tr>
<tr>
<td>FIC101</td>
<td>SP</td>
<td>Std</td>
</tr>
<tr>
<td>FIC201</td>
<td>PV</td>
<td>Fast/Extd</td>
</tr>
<tr>
<td>FIC301</td>
<td>PV</td>
<td>Extd</td>
</tr>
<tr>
<td>FIC301</td>
<td>SP</td>
<td>Extd</td>
</tr>
</tbody>
</table>

11.2 Configuring history offsets

With standard history collection only, you can load balance history collection across controllers by assigning individual point parameters to one of fifteen history offset groups. The history data for each configured group is then collected at a specified time (offset) within the standard history collection cycle. Offset groups in Experion can be compared with offsets in RDIs in PHD.

**ATTENTION**

Although history collection can be staggered across the minute by assigning point parameters to an offset group, the collected data is time-stamped to the minute.

To configure history offsets

<table>
<thead>
<tr>
<th>Step</th>
<th>Action</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>On the System Configuration menu display, click History Collection to call up the History Collection display</td>
</tr>
<tr>
<td>2</td>
<td>Click the History Offsets tab to call up the History Offsets display.</td>
</tr>
<tr>
<td>3</td>
<td>On the History Offset display, create an offset group by typing offset values in the Group Offset boxes as shown in the following example.</td>
</tr>
</tbody>
</table>
11. Managing TPS points

11.2. Configuring history offsets

<table>
<thead>
<tr>
<th>Step</th>
<th>Action</th>
</tr>
</thead>
<tbody>
<tr>
<td>4</td>
<td>Open Notepad (choose Start &gt; Programs &gt; Accessories &gt; Notepad)</td>
</tr>
<tr>
<td>5</td>
<td>For every TPS point parameter that you wish to collect history for, create a new line in a text file using the following format:</td>
</tr>
</tbody>
</table>

HISTSLOW point param [/group=n].

When configuring offset groups make sure that history collection can finish within the standard history collection cycle (typically 1 minute). For example, don’t create a group that has thousands of parameters to collect with an offset of 55 seconds. It is recommended that the largest offset time be 45 seconds.

Example:

HISTSLOW FIC101 PV /group=1
HISTSLOW FIC101 SP /group=1
HISTSLOW FIC201 PV /group=2
HISTSLOW FIC201 SP /group=2
HISTSLOW FIC301 PV /group=3
HISTSLOW FIC301 SP /group=3
11. Managing TPS points
11.3. Adding a TPS point to a trend

<table>
<thead>
<tr>
<th>Step</th>
<th>Action</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>HISTSLOW FIC401 PV /group=4</td>
</tr>
<tr>
<td>2</td>
<td>HISTSLOW FIC401 SP /group=4</td>
</tr>
<tr>
<td>3</td>
<td>HISTSLOW FIC501 PV</td>
</tr>
<tr>
<td>4</td>
<td>HISTSLOW FIC501 SP</td>
</tr>
</tbody>
</table>

TIP
A default offset of 0 seconds is assumed for all point parameters not associated with a group.

6. Save the text file (File > Save) with the file extension pnt, for example history.pnt.

7. On an LCN-connected Experion Server open a Command Prompt window (Start > Programs > Accessories > Command Prompt).

8. At the Command Prompt type:
   pntbld filename.

The above example will result in the following history collection offsets:

<table>
<thead>
<tr>
<th>Point</th>
<th>Parameter</th>
<th>Offset(Secs)</th>
</tr>
</thead>
<tbody>
<tr>
<td>FIC101</td>
<td>PV</td>
<td>10</td>
</tr>
<tr>
<td>FIC101</td>
<td>SP</td>
<td>10</td>
</tr>
<tr>
<td>FIC201</td>
<td>PV</td>
<td>20</td>
</tr>
<tr>
<td>FIC201</td>
<td>SP</td>
<td>20</td>
</tr>
<tr>
<td>FIC301</td>
<td>PV</td>
<td>30</td>
</tr>
<tr>
<td>FIC301</td>
<td>SP</td>
<td>30</td>
</tr>
<tr>
<td>FIC401</td>
<td>PV</td>
<td>40</td>
</tr>
</tbody>
</table>
11. Managing TPS points
11.3. Adding a TPS point to a trend

<p>| | | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>FIC401</td>
<td>SP</td>
<td>40</td>
</tr>
<tr>
<td>FIC501</td>
<td>PV</td>
<td>0</td>
</tr>
<tr>
<td>FIC501</td>
<td>SP</td>
<td>0</td>
</tr>
</tbody>
</table>

11.3 Adding a TPS point to a trend

You add TPS points to trends in the same way as you add native Experion points. The following example summarizes how to add the PV of a point called “HCI_AE_A5APP_P01” to a trend. For detailed information about configuring trends, see the Server and Client Configuration Guide.

Prerequisites

You must be logged on to Station with ENGR or MNGR security level to perform this task.

To add a point to a trend

<table>
<thead>
<tr>
<th>Step</th>
<th>Action</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>In the Configuration Explorer of Configuration Studio, click Trends and Groups.</td>
</tr>
<tr>
<td>2</td>
<td>Click the Configure trends task. Result: The Trend Configuration Summary display opens</td>
</tr>
<tr>
<td>3</td>
<td>Choose a trend to modify or define.</td>
</tr>
<tr>
<td>4</td>
<td>In one of the Point ID fields, type HCI_AE_A5APP_P01.</td>
</tr>
<tr>
<td>5</td>
<td>Select PV from Parameter.</td>
</tr>
<tr>
<td>6</td>
<td>Add other points and configure the other properties as required.</td>
</tr>
</tbody>
</table>
11.4 Adding a TPS point to a group

You add TPS points to groups in the same way as you add native Experion points. The following example summarizes how to add a point called “HCI_AE_A5APP_P01” to a group.

Prerequisites

You must be logged on to Station with ENGR or MNGR security level to perform this task.

To add a point to a group

<table>
<thead>
<tr>
<th>Step</th>
<th>Action</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>In the Configuration Explorer of Configuration Studio, click <strong>Trends and Groups</strong>.</td>
</tr>
<tr>
<td>2</td>
<td>Click the <strong>Configure groups</strong> task. Result: The <strong>Group Configuration Summary</strong> display opens.</td>
</tr>
<tr>
<td>3</td>
<td>Click on “-“ in an empty row to call up the Group display.</td>
</tr>
<tr>
<td>4</td>
<td>In one of the Point ID fields, type <strong>HCI_AE_A5APP_P01</strong>.</td>
</tr>
<tr>
<td>5</td>
<td>From the drop-down list of parameters, select the parameter that you want shown in the group trend and group numeric history for each point.</td>
</tr>
<tr>
<td>6</td>
<td>Add up to seven other points, and configure the other properties as required.</td>
</tr>
</tbody>
</table>

Notes

When using the configuration options of the TPS Connection display, note the following:

- If you want to use Experion displays for TPS groups, ensure that the Use TPS groups checkbox on the Configuration tab of the TPS Connection display is not selected. Note that this option only applies to the first 450 groups.

- If you create Experion groups containing TPS points, it is recommended that you do not select the Use Classic TPS faceplates option, otherwise you may experience display problems.
11.5 Including TPS point data in custom displays

You include TPS point data in custom displays in the same way as you do for native Experion point data. The following example summarizes the main steps involved in adding an alphanumeric to a custom display which shows the PV value of a TPS point called “HCI_AE_A5APP_P01”. For detailed information about creating custom displays, see HMIWeb Display Builder’s help.

Considerations

If you are creating an alphanumeric, when you set the Display as option on the Details tab, use either Numeric or State Descriptor, do not use Text.

To create a custom display and configure an alphanumeric

<table>
<thead>
<tr>
<th>Step</th>
<th>Action</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Start HMIWeb Display Builder.</td>
</tr>
<tr>
<td>2</td>
<td>Choose <strong>File &gt; New &gt; Display</strong>: Result: A blank display appears.</td>
</tr>
<tr>
<td>3</td>
<td>Click the (Alphanumeric) icon on the Toolbox toolbar and then drag the pointer on the display to define the size, shape, and position of an alphanumeric.</td>
</tr>
<tr>
<td>4</td>
<td>Double-click the alphanumeric to open the Properties Window, which shows the alphanumeric’s current properties.</td>
</tr>
<tr>
<td>5</td>
<td>Click the <strong>Data</strong> tab and make sure that <strong>Point/Parameter</strong> is selected in Type of database link.</td>
</tr>
<tr>
<td>6</td>
<td>Type the name of the TPS point in Point, and select <strong>PV</strong> from Parameter.</td>
</tr>
<tr>
<td>7</td>
<td>Configure the alphanumeric’s other properties as appropriate</td>
</tr>
<tr>
<td>8</td>
<td>Repeat steps 3 to 7 for other items you want to include in the display.</td>
</tr>
</tbody>
</table>
11.6 Writing scripts for TPS points

The following instructions describe how to start writing a script. For detailed information about writing scripts, see the Server Scripting Reference.

Prerequisites

- You must be logged on to Station with ENGR or MNGR security level to perform this task.

To write a script for a TPS point

<table>
<thead>
<tr>
<th>Step</th>
<th>Action</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Choose Configure &gt; Server Scripting &gt; Point Scripts to call up the Server Scripting - Point Scripts display</td>
</tr>
<tr>
<td>2</td>
<td>Click the ellipsis [...] to open the Point Browser</td>
</tr>
<tr>
<td>3</td>
<td>Search for and select the point and then click Apply to insert it in the Script Editor’s point field.</td>
</tr>
<tr>
<td>4</td>
<td>If the Script Editor’s Draft tab is not at the front, click it to bring it to the front</td>
</tr>
<tr>
<td>5</td>
<td>Select the event from Event and, if appropriate, the parameter from Parameter</td>
</tr>
<tr>
<td>6</td>
<td>Click inside the editing area and start writing the script. Click Scripting Help to open the Server Scripting Reference</td>
</tr>
<tr>
<td>7</td>
<td>When you have finished, click Commit Draft to Online.</td>
</tr>
</tbody>
</table>

11.7 Security level changes in HMIWeb graphics

In TPS it is possible to configure on a system wide basis the minimum security level required for particular parameters. This affects all points which may have that parameter.

It is common however that there will be a subset of points with this parameter where the extra security level is not required. To work around this GUS and NW graphics have allowed a method where by the security level could be increased by scripts in the graphic, a control performed on the parameter and the security level returned to the original level.

You can use the security level changes in HMIWeb graphics functionality to write to direct connect points i.e. TPS and CDA, in a Console Station when the Server for the Cluster is unavailable to that Console Station. Points from the cluster server will not be available for writing while the cluster server is unavailable.
11. Managing TPS points
11.7. Security level changes in HMIWeb graphics

The “Allow controls with modified security levels from Station scripts” checkbox on the Server-wide Station Settings page, as shown below, enables this functionality. The selection is disabled by default.
11. Managing TPS points
11.7. Security level changes in HMIWeb graphics

Syntax examples

Two methods are supported:

- SetDataValueWithSecurityLevel
- SetDataValueSynchronouslyWithSecurityLevel

The list of access levels with numeric equivalent is defined as follows:

<table>
<thead>
<tr>
<th>Access Level</th>
<th>Numeric Equivalent</th>
</tr>
</thead>
<tbody>
<tr>
<td>MNGR (Not supported by this enhancement)</td>
<td>5</td>
</tr>
<tr>
<td>ENGR</td>
<td>4</td>
</tr>
<tr>
<td>SUPV</td>
<td>3</td>
</tr>
<tr>
<td>OPER</td>
<td>2</td>
</tr>
<tr>
<td>ACK ONLY (not useful, but supported)</td>
<td>1</td>
</tr>
<tr>
<td>VIEW ONLY (not useful, but supported)</td>
<td>0</td>
</tr>
</tbody>
</table>

Using script data on an object called Rect001, the following code will set FIC101.SP to 42 using ENGR level security, for an asynchronous control:

```
Rect001.SetDataValueWithSecurityLevel("FIC101.SP", 42, 4)
```

Using script data on an object called Rect001, the following code will set FIC101.SP to 42 using SUPV level security. The following code will work for a synchronous control:

```
fResult=Rect001.SetDataValueSynchronouslyWithSecurityLevel("FIC101.SP", 42, 3)
```

**TIP**

Where possible, asynchronous calls should be used, as this allows the script to continue.
11. Managing TPS points
11.8. Referencing LCN Boolean parameters as enumerations

Scenarios

Migration from existing solution

While building schematics for the system the Engineer realizes that all the SPs of points on the LCN require ENGR access level. However, a subset of the points the engineer is putting on the schematic need to be changed by an OPER level user.

- The engineer decides that by performing the control to these parameters from a script, he should be able to increase the security level temporarily to allow the write before reverting to the original level.
- The engineer has previously written such scripts on GUS displays and thinks that such functionality should also be available in HMIWeb displays.

Lock down after security audit

Following a security audit of the system developed in the previous scenario, it is determined that all controls of parameters requiring higher than OPER level security need to be performed by that level Operator and not rely on underlying scripts, effective immediately.

- The Engineer can disable this elevated security level option via a flag on the Server.
- This will cause all future elevated controls to have the elevated security level ignored and the control attempted at the security level currently in effect at the Station.
- The Engineer can then gradually go through the affected displays and remove the “insecure” scripts.

11.8 Referencing LCN Boolean parameters as enumerations

Beginning with the R310 release, users can put LCN Boolean parameters in a combo box on HMIWeb displays, and via a drop down list, see the selections “OFF” and “ON”.

The Boolean parameters need to be referenced using the “.External” modifier (eg “A100.Flag.External”), and need to be shown on a display using “StateDescriptor”.

ATTENTION

Pre-R310 HMI Web Displays that reference LCN Boolean parameters in a form "Point.Parameter.External" and that are displaying them as "Text", need to be changed so they shown as "State Descriptor" in the HMIWeb Display Builder.

If this is not done, the values will show as "0" or "1", instead of "OFF" and "ON".

11.9 HMIWeb Display Script Device Read

This feature allows the display developers to get the very latest point parameter value from the controller, bypassing all client and server caches, with a new method called TriggerDataUpdate.

TriggerDataUpdate will take in the point and parameter details and the type of read to be performed (i.e whether the value is to be read from device or from the cache). This will trigger a data update. The user can read the latest modification to the point parameter by attaching a script to the OnUpdate event.

Syntax

TriggerDataUpdate strPointParameter, intDeviceReadFlag

strPointParameter: Point parameter to trigger a data update for.
intDeviceReadFlag: 0 to execute a cache read, 1 to execute a device read.

Example

alpha001.TriggerDataUpdate “FIC123.MODE”, 1

The script device read functionality will be available on a Console Station when the Server for the Cluster is unavailable to that Console Station.
11.10 Attaching algorithms to TPS points

You cannot directly attach an algorithm to a TPS point. However, you can indirectly attach an algorithm through a derived point. (A derived point is a standard point—such as an analog or status point—that is mapped to another point; in this case, a TPS point.)

Attaching an algorithm to a TPS point involves creating the derived point in Quick Builder, mapping it to the appropriate TPS point parameter and then configuring the algorithm on the derived point. The following procedure summarizes the required steps. For detailed instructions, see Quick Builder’s help.

To create and configure a derived point

<table>
<thead>
<tr>
<th>Step</th>
<th>Action</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>In the Configuration Explorer of Configuration Studio, expand the server of interest, then click <strong>Control Strategy</strong>.</td>
</tr>
<tr>
<td>2</td>
<td>Add a user scan task controller and channel and configure them as appropriate.</td>
</tr>
<tr>
<td>3</td>
<td>Add a point of the appropriate type (status, analog or accumulator).</td>
</tr>
<tr>
<td>4</td>
<td>Assign an appropriate <strong>Parent Asset</strong>.</td>
</tr>
<tr>
<td>5</td>
<td>Set the <strong>PV Scan Period</strong> to a suitable value, such as 60 seconds.</td>
</tr>
<tr>
<td>6</td>
<td>Click the button to the right of <strong>PV Source Address</strong> to open the Address Builder and then:</td>
</tr>
<tr>
<td></td>
<td>a) Set <strong>Address Type</strong> to <strong>Point</strong>.</td>
</tr>
<tr>
<td></td>
<td>b) Type the name of the TPS point in <strong>Point Name</strong>.</td>
</tr>
<tr>
<td></td>
<td>c) Type the name of the TPS parameter in <strong>Parameter</strong>.</td>
</tr>
<tr>
<td></td>
<td>d) Select the user scan task controller from <strong>Controller Name</strong>.</td>
</tr>
<tr>
<td></td>
<td>e) Click <strong>OK</strong>.</td>
</tr>
<tr>
<td>7</td>
<td>Select the algorithm from <strong>PV Algo</strong> or <strong>Action Algo</strong>, as appropriate.</td>
</tr>
<tr>
<td></td>
<td>Result: An <strong>Algo tab</strong> appears</td>
</tr>
<tr>
<td>8</td>
<td>Click the tab and configure the algorithm.</td>
</tr>
<tr>
<td>9</td>
<td>Configure the point’s remaining properties as appropriate.</td>
</tr>
<tr>
<td>10</td>
<td>Download the point to the server</td>
</tr>
</tbody>
</table>
11.11 Removing deleted TPS points from Experion

Deleting points in the LCN and in Experion

When an LCN point is deleted, all instances of the TPS point in Experion must also be deleted. To accomplish this, dspprime is used to find and delete Experion points that are no longer on the LCN.

Experion will automatically delete TPS points from the Experion database if they have been deleted in the LCN. This automatic deletion may not occur at the same time the point is deleted in the LCN but at a later time when the point is accessed in Experion (e.g. when a display page referencing the point is called up in Experion or Experion attempts to collect history from the point).

Deleting TPS points from ES-T and ESVT nodes

The following procedures detail how to force Experion to delete LCN points that are in the Experion database but are not in the LCN. You do not need to perform this procedure every time you delete some TPS points from the LCN.

You only need to perform this procedure if you are deleting some points in the LCN.
11. Managing TPS points
11.11. Removing deleted TPS points from Experion

ATTENTION

Before you start deleting points,

- Ensure all data owners on the LCN are running. If a TPS point has been discovered in Experion but then later deleted from the LCN this procedure will remove the point from Experion. However, if the data owner on the LCN that used to own the point is not running then Experion can’t be sure that the point does not exist so the point will remain in Experion.

- Ensure all Experion servers are running and synchronized. Ensure all local and remote console stations are running. When a TPS point is deleted from the ESVT, the deletion will be automatically replicated to all connected Experion servers and console stations.

Deleting points from the primary ESVT

<table>
<thead>
<tr>
<th>Step</th>
<th>Action</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Ensure the ESVT is synchronized with its backup server.</td>
</tr>
<tr>
<td>2</td>
<td>Log in using an account that is a member of the Honeywell Administrators group (e.g. mng).</td>
</tr>
<tr>
<td>3</td>
<td>In a command prompt run: dspprimesd tpsdel_esvt.pnt.</td>
</tr>
<tr>
<td></td>
<td>This will create a tpsdel_esvt.pnt point build file with a list of all TPS points discovered on the ESVT that no longer exist in the LCN.</td>
</tr>
<tr>
<td>4</td>
<td>In a command prompt run: pntbld tpsdel_esvt.pnt -del.</td>
</tr>
<tr>
<td></td>
<td>This will delete all the TPS points found on the ESVT that no longer exist on the LCN.</td>
</tr>
</tbody>
</table>
11. Managing TPS points

11.11. Removing deleted TPS points from Experion

**Deleting points from each ES-T connected to the ESVT**

For each ES-T, perform the following procedure.

<table>
<thead>
<tr>
<th>Step</th>
<th>Action</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Log in using an account that is a member of the Honeywell Administrators group (e.g. mngr).</td>
</tr>
</tbody>
</table>
| 2    | In a command prompt run: dspprime –sd tpsdel.pnt.  
This will create a tpsdel.pnt point build file with a list of all TPS points discovered on the ES-T that no longer exist in the LCN. Each ES-T may discover a different set of TPS points so you must run this command on each ES-T. |
| 3    | In a command prompt run: pntbld tpsdel.pnt -del  
This will delete all the TPS points found on the ES-T that no longer exist on the LCN. |

**Deleting points from a remote server (ESV) and remote console station (ES-C)**

<table>
<thead>
<tr>
<th>Step</th>
<th>Action</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Ensure the remote server is synchronized with its backup server.</td>
</tr>
<tr>
<td>2</td>
<td>Log in using an account that is a member of the Honeywell Administrators group (e.g. mngr).</td>
</tr>
<tr>
<td>3</td>
<td>Copy the tpsdel_esvt.pnt file from step 1c to the remote server or remote console station.</td>
</tr>
<tr>
<td>4</td>
<td>In a command prompt run: pntbld tpsdel_esvt.pnt –del.</td>
</tr>
</tbody>
</table>

**Considerations**

- Now that the point has been removed from Experion, it will no longer show up in Experion History, Trends, Groups, OEP/IKB keyboard LED mappings, and server scripts. These Experion subsystems store a point number (as opposed to a point name) in their configuration. When a point is deleted in Experion the point number is no longer valid so will not be used by these subsystems.

- You must remove the deleted points from custom displays that you have built. You can use the TPS priming procedure to check if any displays are referencing deleted points.
11. Managing TPS points
11.11. Removing deleted TPS points from Experion

- If the deleted points were part of an Alarm Group, they will automatically be removed from the Alarm Group on the Experion server. You must manually remove the points from the Alarm Group in Configuration Studio, or perform an upload in Configuration Studio so the Alarm Groups on the Experion server will match what is shown in Configuration Studio.

- If the deleted point was used in OPC Integrator, you will need to remove the point from the OPC Integrator configuration. If you are using deleted TPS points in OPC Integrator, the OPC Integrator group from which the point is deleted will go into a marginal state indicating that there are read or write errors. The invalid handle error is listed against the deleted item in the item grid on the OPC Integrator status page.

- If the deleted point was used in ACE-T or OPC Gateway, you will need to remove the point from the configuration.
11.12 Cutting over TPS points to C300 points

Experion PKS customers wishing to migrate from TPS-based or SCADA hardware to C300 controller-based hardware need to think about how they wish to cutover existing points, and what this means for their displays, trends, groups, history, scripts, reports, etc. The cutover process is complicated by the fact that the point numbers, parameter numbers, and parameter names of new CDA points and parameters will differ from the old names and numbers, even if the point name is preserved.

This section includes:
- Creating CDA points
- Considerations when deleting TPS points

Topologies

When implementing Experion PKS in an environment containing a TPS LCN, a number of different topologies are possible. Two possible topologies are:
- Local LCN
- LCN via DSA

Local LCN

With a local LCN topology, the ESVT and its EST’s are connected directly to the LCN as shown in the following diagram.
In the local LCN topology, TPS points are considered to be “direct” on both the ESVT and the EST’s. By direct, we mean that each node will access the TPS data directly from the LCN.

TPS points in the local LCN topology are created on both the ESVT and EST’s as PSA points.

**LCN via DSA**

With an LCN via DSA topology, the ESV and its ES-C’s are connected indirectly to the LCN via an ESVT as shown in the following diagram.

In this topology, there are two separate Experion PKS clusters. Cluster 1 is connected to the LCN, and TPS points in this cluster are implemented as PSA points. Cluster 2 is not directly connected to the LCN, but instead provides view to TPS points via DSA subscription to the ESVT in Cluster 1. The TPS points are implemented as RDA points in Cluster 2.
Creating CDA points from TPS points

ATTENTION

Ensure all Experion servers are running and synchronized. Ensure all local and remote console stations are running.

Before you perform the following procedure, check the sections below to see if any information needs to be saved before the TPS point is deleted.

When replacing an existing TPS point with a new CDA point, the following steps should be performed in the following order.

<table>
<thead>
<tr>
<th>Step</th>
<th>Action</th>
</tr>
</thead>
</table>
| 1    | Delete the TPS point from the TPN network.  
|      | a) In Native Window, run Find Names to locate all the places the point is used in the LCN. Save this information for later.  
|      | b) In Native Window, set the TPS point to INACTIVE.  
|      | c) In Native Window alarm summary, acknowledge any alarms on the TPS point.  
|      | **ATTENTION**  
|      | Make sure there are no alarms listed against the point in the Native Window alarm summary.  
|      | d) In Native Window, delete the TPS point.  
|      | e) In Native Window, perform a manual checkpoint of the node that the point is built on.  
| 2    | Delete the point from the point database on the ESVT by using the PNTBLD command with the –del option. Alternatively, you could call up the point in a Flex Station connected to the ESVT. When the TPN Server reports that the tag does not exist, the server will automatically remove the point from its database. The advantage of using a PNTBLD file to delete the point is that it is possible to delete many points using a single file, which may save time when compared to calling up many deleted points on a Flex Station. The point will automatically be deleted from the ES-T’s connected to the ESVT.  
| 3    | On each ES-T, delete the point using the PNTBLD command with the –del option.  

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### 11. Managing TPS points

#### 11.12. Cutting over TPS points to C300 points

<table>
<thead>
<tr>
<th>Step</th>
<th>Action</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>ATTENTION</strong></td>
<td>It is important that the point is removed from all servers and console stations.</td>
</tr>
<tr>
<td>4</td>
<td>Configure and download the new CDA point using Control Builder. The new CDA point will be automatically created on the Console Station as a point of type CDA, regardless of whether the previous TPS point was direct or not.</td>
</tr>
</tbody>
</table>

**ATTENTION**

The physical disconnection of the point from the LCN may be done at any stage prior to step 2. The physical connection of the point to the CDA network should be done after the disconnection of the point from the LCN and before step 3.

### Considerations when cutting over TPS points

**Displays**

Any displays that reference point numbers, parameter numbers, or parameter names need to be updated so that they correctly reference the new point/parameter. If there are a large number of displays, this can potentially be a large task.

Some sites use custom third party controls on their display pages. These controls can reference point numbers, parameter numbers, and parameter names. The HMIWebPowerTool will not work on the point/parameter references that are embedded in these controls. The data bindings in these controls will need to be updated manually.

**Trends and groups**

When an existing TPS point is deleted from the Experion PKS point database, it will be automatically deleted from any group or trend it belongs to. To ensure continuity in trend and group displays, the following data will have to be collected from each configured group and trend before the TPS points are deleted.

- Which point parameters are assigned to each position in a group/trend.
- For a trend, what Trend Range data is configured on each position.
- These pieces of data will be lost as soon as the TPS point is deleted.

After this information is collected, it is necessary to configure the trend and group details in Control Builder to match the existing displays.
The new configuration will be automatically established when the new CDA points are downloaded from Control Builder.

**History and history archiving**

When performing a cutover, it is important to note that any archived history will be lost. Once the old point is deleted, it will no longer be possible to call up any historical data on the point if the data no longer lives in the on-line history files.

Historical data that is still held in the on-line history files will continue to be available after the cutover.

Do the following to preserve on-line history and to ensure continued collection.

<table>
<thead>
<tr>
<th>Step</th>
<th>Action</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Before deleting a TPS point, search for the point in the Fast, Standard, and Extended history assignments. Wherever such an assignment exists, keep a note of the history type (Fast, Standard, or Extended), the point and parameter name, and the history assignment record number. The history assignment record number is the non-editable index number that forms the leftmost column on the history assignment displays. The “bckbld –np –nt –ng” command will list the history assignments for all points, however it will not show the history assignment record number.</td>
</tr>
<tr>
<td>2</td>
<td>After deleting the TPS point, all history assignments on that point will be automatically deleted.</td>
</tr>
<tr>
<td>3</td>
<td>When you first configure the new point in Control Builder, DO NOT assign any parameters to history.</td>
</tr>
<tr>
<td>4</td>
<td>After downloading the new point from Control Builder, use Station to manually add the new point parameters back into the same history assignment record numbers. By adding the new point to the same record number, you will preserve the history collected before the cutover together with the history being collected on the new CDA point.</td>
</tr>
<tr>
<td>5</td>
<td>Once the point parameter has been assigned to the correct history assignment record, you need to upload the assignment to the point configuration in Control Builder. Go to the Monitoring tab in Control Builder and right click on the new CDA point, and select the Upload menu option. Select only the “Upload Server Configuration Information” checkbox, and press the Continue button. Then, right click on the new CDA point in the Monitoring tab once again and select the “Update to Project” menu item, and press the Continue button.</td>
</tr>
</tbody>
</table>
Server scripting

Server scripts can reference both point and parameter names, and hence will be subject to change if point or parameter names are updated during cutover. To prepare for cutover, it is suggested that an inventory is made of these scripts. Server scripts can be broadly categorized into the following types.

- **Point scripts** - For TPS points, point scripts are created and edited in Station. When the TPS point is deleted from the Experion PKS point database, the associated point script will be deleted. When performing a cutover, it will be necessary to take stock of all the scripts that are built on the TPS points that are to be migrated, and to convert these scripts to operate on the new CDA point. The new CDA point scripts are configured in Control Builder as opposed to Station.

- **Server, Library, and Periodic scripts** - These are defined in Station. An inventory should be made of all these scripts before cutover to determine whether a script references a point or parameter that will be renamed. Once the new CDA point is created, these scripts will need to be manually updated.

- **Report scripts** - These are defined in Station. An inventory should be made of all these scripts before cutover to determine whether a script references a point or parameter that will be renamed. Once the new CDA point is created, these scripts will need to be manually updated.

Operator keyboards

Sites using the IKB or OEP keyboards can map points to LED’s such that when the point goes into alarm, the associated operator keyboard LED shows the highest priority alarm. This mapping is done on the basis of the point number, which can change as a result of the cutover. To account for this, the following steps should be followed.

- Before deleting any TPS points, take note of which points are assigned to which LED’s. These mappings can be made on Flex Stations, Console Stations, and Consoles.

- After creating the new CDA points, review all of these mappings. Where there is a discrepancy with the mappings noted in the first step above, correct the new mapping.

Operator Keyboard

Sites using the IKB or OEP keyboards can map points to LED’s such that when the point goes into alarm, the associated operator keyboard LED shows the highest priority alarm. This mapping is done on the basis of the point number, which can change as a result of the cutover. To account for this, the following steps should be followed:
11. Managing TPS points

11.12. Cutting over TPS points to C300 points

- Before deleting any TPS points, take note of which points are assigned to which LED’s. These mappings can be made on the Operator Keyboard tab when configuring Flex Stations, Console Stations, and Consoles.
- After creating the new CDA points, review all of these mappings. Where there is a discrepancy with the mappings noted in the first step above, correct the new mapping.

**OPC Integrator**

If a point being cutover is assigned to an OPC Integrator group, then the following steps should be taken.

<table>
<thead>
<tr>
<th>Step</th>
<th>Action</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Disable the OPCI group to which the point belongs.</td>
</tr>
<tr>
<td>2</td>
<td>Delete the existing TPS point and create the new CDA point as per the previous instructions</td>
</tr>
<tr>
<td>3</td>
<td>Reconfigure the point assignment in the OPCI group such that the new point and parameter are correctly referenced.</td>
</tr>
<tr>
<td>4</td>
<td>Revalidate the OPCI group.</td>
</tr>
<tr>
<td>5</td>
<td>Re-enable the OPCI group.</td>
</tr>
</tbody>
</table>

**Algorithms**

Points that are being cutover may be referenced in other point algorithms. Where this is the case, scanning should be disabled on the point before the referenced point is cutover. Once the point has been cutover, then the algorithm should be reconfigured to use the new point before scanning is re-enabled.

**Alarm groups**

Points that are being cutover may be referenced in Alarm Groups. When the TPS point is deleted, it will also be removed from any Alarm Groups that it belongs to. If the name of the new CDA point has the same name as the original TPS point, after the cutover open Configuration Studio and download the Alarm Groups again. If the name of the new CDA points is different to the original TPS point, you will need to update the Alarm Group configuration in Configuration Studio with the new point name before downloading it.
11.13 Moving a TPS point within the LCN

When a TPS point is moved within the LCN (for example it is moved to a different unit) the internal ID of the point changes in the LCN even though the name of the point has not changed. In most cases Experion will see the moved TPS point as a new point and delete the original point and create a new one with the same name but a new point number. A consequence of this is that there may be a delay when accessing the moved point for the first time after it is moved. In addition, the moved point will be removed from any Experion history, groups or trends that it was assigned to.
The following procedure details how to move TPS points within the LCN and ensure that Experion will not delete and recreate them.

<table>
<thead>
<tr>
<th>Step</th>
<th>Action</th>
</tr>
</thead>
</table>
| 1    | On the primary ESVT:  
|      | a) Ensure the ESVT is synchronized with its backup server.  
|      | b) Log in using an account that is a member of the Honeywell Administrators group (e.g. mngr).  
|      | c) In a command prompt run: `bckbld –np –tag PSA –out ESVTConfig.pnt`.  
|      | d) Save the ESVTConfig.pnt in a safe place. If for some reason you lose the group, trend or history configuration for your TPS points you can restore it with this file. |
| **TIP** | Not all points output will be TPS points. |
| 2    | On each remote server (ESV):  
|      | a) Ensure the remote server is synchronized with its backup server.  
|      | b) Log in using an account that is a member of the Honeywell Administrators group (e.g. mngr)  
|      | c) In a command prompt run (Z is a number): `bckbld –np –tag RDA –out ESVConfigZ.pnt`.  
|      | d) Save the ESVConfigZ.pnt in a safe place. If for some reason you lose the group, trend or history configuration for your TPS points you can restore it with this file. |
| **TIP** | Not all points output will be TPS points. |
| 3    | In Station of the primary ESVT, navigate to **Configure -> System Hardware -> System Interfaces** and select the **TPS system interface**. On the Configuration tab of the TPS system interface, turn on the "Disable automatic
11. Managing TPS points
11.13. Moving a TPS point within the LCN

<table>
<thead>
<tr>
<th>Step</th>
<th>Action</th>
</tr>
</thead>
<tbody>
<tr>
<td>11.13</td>
<td>Moving a TPS point within the LCN</td>
</tr>
</tbody>
</table>

deletion of TPS points’ option (i.e. ensure the checkbox is checked). Turning on this option will ensure that the Experion server and console stations do not delete TPS points from their databases even if the TPN server tells the Experion server that the points no longer exist on the LCN.

**ATTENTION**

If you access points that are being moved their status may show as bad and no value will be available until this option is cleared.

4 Move the points in the LCN.

5 After the move is complete, on the primary ESVT:
   a) Create a text file called TPSMovedPoints.txt with each line containing the name of a TPS point that has been moved followed by .PTDESC. e.g. For points FIC102, FIC115 and FIC150 the file would look like this:
      ```
      FIC102. PTDESC
      FIC115. PTDESC
      FIC150. PTDESC
      ```
   b) In a command prompt run:
      ```
      dspprime -f TPSMovedPoints.txt -tpnsrvonly -r.
      ```
      This will make TPN server read the point parameters in the TPSMovedPoints.txt. Since the points have been moved, the internal ID of the points will have changed so the point will be removed from the TPN Server cache.
   c) In a command prompt run (for the 2nd time):
      ```
      dspprime -f TPSMovedPoints.txt -revalidate.
      ```
      The second run will force Experion to revalidate the points and change the asset they are built in based on the unitname the point has in the LCN and the unit mapping configured on the TPS system interface page in Experion. It will also prime the TPN server cache with the new internal ID.
   d) On the system management display, select the TPN Server, right click and select All Tasks -> Checkpoint.

6 If each ES-T is accessing a different set of TPS points, repeat step 5 on the ES-Ts that use the moved points. If all ES-Ts use the same set of points, follow the steps below:
   a) Use the system management display to stop the TPN Server (All Tasks -> Stop).
11. Managing TPS points
11.13. Moving a TPS point within the LCN

<table>
<thead>
<tr>
<th>Step</th>
<th>Action</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>-&gt;Stop).</td>
</tr>
<tr>
<td>2</td>
<td>b) Copy the checkpoint file from C:\HWIAC\Checkpoints on the ESVT to C:\HWIAC\Checkpoints and rename the file to replace the existing .HCl checkpoint file.</td>
</tr>
<tr>
<td>3</td>
<td>c) Use the system management display to start the TPN Server (All Tasks -&gt; Start).</td>
</tr>
<tr>
<td>7</td>
<td>7 In Station navigate to <strong>Configure -&gt; System Hardware -&gt; System Interfaces</strong> and select the <strong>TPS system interface</strong>. On the Configuration tab of the TPS system interface, turn off the “Disable automatic deletion of TPS points” option (i.e. ensure the checkbox is unchecked). Any TPS points that were moved (in step 4) and were being accessed in Experion Stations and/or other Experion subsystems will now be re-subscribed to.</td>
</tr>
</tbody>
</table>
11. Managing TPS points
11.13. Moving a TPS point within the LCN

If you do not want Experion to automatically delete TPS points from its database when detected, turn off this feature (Disable automatic deletion of TPS points) via the Station TPS Configuration screen shown below.

**ATTENTION**

This option should only be turned on for short periods of time when moving points. If it is permanently enabled the system may get into a state where the point exists and is working fine on the LCN but is showing as bad in Experion.
12. Troubleshooting Experion-TPS nodes

12.1 Troubleshooting Approach

Identify the symptom from the following list

Refer to the following subsections for suggested actions to take when the system exhibits the stated symptom:

Display data access problems:

12.2 Station and Server do not provide TPN data to Experion displays
12.3 TPS faceplate cannot get data, Native Window schematic access from Experion fails
12.4 Cannot change TPN data from Experion or TPN Server will not write to TPN
12.5 HMIWeb display shows TPN/LCN data as “-----“
12.6 HMIWeb display shows TPN/LCN data as “?????“

Node or TPN Server status problems:

12.7 Slow display or faceplate call up with TPS data
12.8 TPN Server will not start
12.9 TPN Server in Warning state
12.10 Experion-TPS Node has Native Window WARNING status
12.11 TPS System Alarm indication out of synch
12.12 ES-T appears as UNVL in Native Window
12.13 ESVT appears as APP in Native Window
12.14 ESVT appears as AM in Native Window
12.15 ES-T or ESVT node will not load its personality
12.16 ES-T or ESVT TDC Emulators Service has been shutdown
12.17 Verifying TPN/LCN Installation and Version
12.18 Verifying Configuration of Board 0 Data Access Configuration and TPN Server Channels

Alarm Summary display problems:

Refer to section 0 Managing Process Alarms.
12. Troubleshooting Experion-TPS nodes
12.1. Troubleshooting Approach

Troubleshooting displays

Techniques for successfully troubleshooting Experion-TPS node problems begin with using the standard displays your system provides. Generally this includes using the following displays in the following manner:

- LCNP Status Display to determine health of the node’s LCNP interface (Refer to the LCNP Status User’s Guide.)
- Native Window node status displays to determine TPN/LCN health.
- TPS System Interface display to view the status of the TPS interface.
- System Management Display to determine the TPN Server component status. (Refer to the TPN Server User’s Guide.)
- Experion System Status Display to view system alarms.
- Displays are available to identify versions and revision of software (see section Verifying TPN/LCN Installation and Version).

REFERENCE - INTERNAL

Refer to the Server and Client Configuration Guide for troubleshooting Server and Station.
Native Window node status displays

On Native Window status displays, the Node Type indications should be EST and ESVT. Status should be OK with no WARNING messages. The following figure shows an example node status.
TPS System Interface display

Six green lights should appear in Experion System Interfaces display for the TPS interface. The following figure shows an example display.

![System Status Display](image_url)
System Management Display

The System Management Display provides a hierarchical view of Windows domains, TPS Domains, Computers, and HCI Component Status, including the TPN Server.

- Go to Start > Programs > Honeywell Experion PKS > System Management > System Management Display
12. Troubleshooting Experion-TPS nodes
12.1. Troubleshooting Approach

Experion System Status Display

The Experion System Alarm Summary (shown in the following figure) shows the Experion system alarms.

To access the display, click the annunciated System button on the Status bar of the Station application.

The alarms in the Experion System Status Display are from Windows-resident components and system alarms from the TPN/LCN.
**Experion Console Station status display**

Determine Console Station status from the Experion System Status display. The following figure shows an example **Console Station status** display. Click Show Details to view additional indicators.
12. Troubleshooting Experion-TPS nodes
12.2. Station and Server do not provide TPN data to Experion displays

12.2 Station and Server do not provide TPN data to Experion displays

Possible cause #1 - TPN Server is not running

Attempt to start the TPN Server from System Management display.

Possible cause #2 - LCNP is not loaded with node’s personality

- Experion-TPS nodes, if LCNP Auto Restart has been enabled for the node, reset its LCNP through the LCNP Status application and the node will automatically reload.
- You can load an ES-T from its Native Window. Select W as source during load.
- You can load an ESVT from the TPN/LCN Node Status display. Select AUTOLOAD NET.

Possible cause #3 - Station has lost connection or is not connected

- View TPS Connection status from System Status > System Interfaces > Status tab.
  - Verify that Notifications is enabled.
  - All status indications should appear green/OK/Running. Statuses not appearing green/OK/Running can be investigated further.
- In the Console Station display, determine if an IP address is displayed. If no IP address appears, examine the HOSTS/LMHOSTS files for correct entries at all nodes, including the Domain Controller.

All Experion-TPS nodes will need to have the hosts file configured correctly and identically. The host’s file is located in the folder C:\WINNT\system32\drivers\etc and is named hosts. Use Notepad to view this file, or access Host Files Verification tool in Configuration Studio’s Analysis Tools.
- Review for other possible IP address conflicts using standard Windows approaches (for example, using ping and ipconfig commands from the command prompt).

Possible cause #4 - Station inadvertently configured as Rotary or Static

From the Station’s Connection Properties dialog, verify that the station is configured as “Console Station,” and not Rotary or Static.
12. Troubleshooting Experion-TPS nodes

12.3. TPS faceplate cannot get data, Native Window schematic access from Experion fails

Possible cause #5 – The Server component residing in ES-T is not running

Go to Start>Programs>Honeywell Experion PKS>Console Station> Start/Stop Experion PKS Console Station

Possible cause #6 – Local LCN Connection Type not enabled

Verify that the Local LCN connection type is enabled for the TPS System Interface from the Experion System Configuration>System Interfaces display.

Possible cause #7 – The TPN Units are not available as Experion Assets

This may occur if a customer skipped the task on creating Assets form TPN units or as a result of a software upgrade. Use Configuration Studio to create/recreate the TPN units as Assets or rebuild with the appropriate .xml file describing the TPN units as Assets. You may also need to configure the specific assets as available to the given operator/login.

Possible cause #8 – SY is not mapped to retrieve PSDP data

You must map the SY system unit to an Asset. You build assets, including an SY Asset if necessary, using Enterprise Model Builder. See SY Unit mapping to Assets in this guide.

12.3. TPS faceplate cannot get data, Native Window schematic access from Experion fails

Possible cause #1 - LCNP board was restarted without restarting the ES-T

Log off of the ES-T and then log back on as a Windows user. Shutdown and restart the computer if the symptom persists,

12.4 Cannot change TPN data from Experion or TPN Server will not write to TPN

Possible cause - Workstation security command file not executed

**ATTENTION**
The following procedure only applies to Experion-TPS nodes in a Windows domain environment.
Perform the following steps on the TPN Server node to execute LinkDomainGroups.vbs:

<table>
<thead>
<tr>
<th>Step</th>
<th>Action</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>From the C:\Program Files\Honeywell\WkStaSecurity directory, double-click the file named LinkDomainGroups.vbs.</td>
</tr>
<tr>
<td>2</td>
<td>Answer Y when the program asks, Do you want to continue?[Y,N]?</td>
</tr>
<tr>
<td>3</td>
<td>Stop and restart the TPN Server.</td>
</tr>
</tbody>
</table>

### 12.5 HMIWeb display shows TPN/LCN data as “-----“

Possible cause – TPN/LCN unit not configured (assigned to Assets)

Configure a TPN/LCN Unit in the Experion Area configuration page (Configuration Studio – Configure Assets).

### 12.6 HMIWeb display shows TPN/LCN data as “??????“

Possible cause – Data format

The default data format may not be appropriate for the object. Check the details for the object in the HMIWeb Display builder.

Possible cause – Exceeds limits on data objects

Use the Display Performance Analysis tool to check a display's performance indicators, which include the number of objects and number of scripts. Refer to the HMIWeb Display Building Guide.

### 12.7 Slow display or faceplate call up with TPS data

Possible cause – Invalid parameters on a custom display

- Run dspprime has been run (as per section 6.10)
- Check for invalid parameters on a custom display as they can increase display call up time.
12.8 TPN Server will not start

Technique

In all cases, right-click the node of interest from the System Management display and click Display Events from the context menu to invoke its Event Summary. Review the summary display for errors reported against the TPN Server to determine possible cause.

Possible cause #1 – User does not have permission to start

If the user does not have necessary permissions to start the TPN Server fails, it fails the user identity and password check. The TPN Server requires an account to run the application. For an Experion-TPS node, the account is TPSLocalServer. The account is added as part of the package installation.

From Computer Management, reset the password of the user account TPSLocalServer, then perform the following steps to use the Honeywell password tool (svrpass.exe) to synchronize the Windows and DCOM services associated with the newly entered password for the TPSLocalServer account.

<table>
<thead>
<tr>
<th>Step</th>
<th>Action</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Go to the following: Start&gt;Programs &gt; Honeywell Experion PKS&gt;System Management &gt; Windows Services &amp; DCOM Servers Log on tool.</td>
</tr>
<tr>
<td>2</td>
<td>Select TPSLocalServer from the drop down list of accounts.</td>
</tr>
<tr>
<td>3</td>
<td>Enter the password of the account, and then click <strong>Apply New Account</strong>. RESULT: A message appears upon successful synchronization.</td>
</tr>
</tbody>
</table>

Possible cause #2 - TPN Server’s checkpoint file is corrupted.

- Delete the checkpoint file from HWIAC>Checkpoints.
- Restart TPN Server and do a demand checkpoint:

<table>
<thead>
<tr>
<th>Step</th>
<th>Action</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Expand node of interest in System Management display.</td>
</tr>
<tr>
<td>2</td>
<td>Select and right-click the TPN Server.</td>
</tr>
</tbody>
</table>
12. Troubleshooting Experion-TPS nodes
12.8. TPN Server will not start

<table>
<thead>
<tr>
<th>Step</th>
<th>Action</th>
</tr>
</thead>
<tbody>
<tr>
<td>3</td>
<td>Choose <strong>Checkpoint</strong> from the menu.</td>
</tr>
</tbody>
</table>

**TIP**
You will have to re-prime your checkpoint if it is deleted.
12.9 TPN Server in Warning state

Technique

Normally, a TPN Server component in the *Warning* state indicates a related status with the LCNP.

Determine if the node’s LCNP is running with WARNING messages:

- View the Experion-TPS node status from the Native Window Console Status display.
- View the ESVT or ACE-T node status from Native Window AM Node Status display.
- View Device Status and Device Information text in the System Management-TPN Server Component.

**Possible cause #1 - Exceeded the allocated event memory buffer**

In the case of extreme LCN alarm and event traffic for an extended period of time, the load module may exceed the internally allocated event memory buffers. In this case, the TPN Server’s component state will be set into *Warning* and a system alarm will be sent to the Experion System Alarm Summary Display notifying the operator.

The LCN alarm and event load should be decreased to a nominal level.

The TPN Server has some auto-recovery capabilities and may return to a *Running* state on its own.

If the TPN Server component remains in a *Warning* state, you may need to stop and restart it from the System Management Display to re-establish communications with the LCN and load module.

**Possible cause #2 – LCNP was reset**

If the TPN Server has lost its connection to the LCNP because the LCNP was reset, reload the node with its personality from the Native Window System Status display.

**Possible cause #3 – LCNP is being loaded**

If the LCNP is being loaded, it may not have yet transitioned to a running state. Verify that the node’s status from Native Window Console Status display or Node Status display is OK and that the node appears as the correct node type.
12. Troubleshooting Experion-TPS nodes
12.10 Experion-TPS Node has Native Window WARNING status

Possible cause #4 – Load Module is not configured in the NCF for the node
Check the node’s NCF LCN Nodes configuration. EST.LO or ESVT.LO should be listed.

Possible cause #5 – LCN cable is in Suspect State
Check the Native Window screen to see if the network cable indicator is indicating a fault.

Possible cause #6 – LCN node in ISOLATED State
If the LCN cables have been disconnected or severed for more than two minutes, the node goes to the ISOLATED state.

The only way to recover from this condition is to;
   a) Re-connect the cables.
   b) Re-start the TDC emulators.
   c) Re-load the LCNP.

WARNING
The steps detailed above are the ONLY way to recover.

The TPN Server, LCN, and Experion will NEVER recover by themselves if the LCN node is ISOLATED.

12.10 Experion-TPS Node has Native Window WARNING status

Technique
   Invoke the node’s Auxiliary Status to view the WARNING message:
   For Server or ACE-T, go to the Native Window System Status or Node Status display, select the node, and then select Status Detail.
   For ES-T, go to the Native Window Console Status display, select the node, and then select Status Detail.

Possible cause #1 - Auxiliary Status message “Linking Errors”
   The Auxiliary Status message of Linking Errors means that the Experion-TPS load module did not load properly.
12. Troubleshooting Experion-TPS nodes
12.10. Experion-TPS Node has Native Window WARNING status

If the ES-T is loaded with the Universal Station personality, it appears, as UNVL in the Native Window’s Console Status display and the node will be in a WARNING state.

If the ESVT is loaded with the Application Module personality, it appears as AM in the Native Window’s Node Status display and the node will be in a WARNING state.

Reset the LCNP and re-load the node with the correct personality.

If manually reloading the ES-T, select W when the LOAD prompt appears.

Possible cause #2 – Auxiliary Status message “Communication Errors”

This Auxiliary Status message appears: “WARNING Communication Errors. May need to Restart TPN Server”.

In this case, the TPN Server’s component state appears as Warning and a system alarm has been sent to the Experion System Alarm Summary Display notifying the operator.

The TPN Server has some auto-recovery capabilities and may return to a Running state on its own. This will cause the Load Module to return to the OK state. However, if the TPN Server component remains in a Warning state, you may need to stop and restart it from the System Management Display to re-establish communications with the LCN and load module.

Possible cause #3 - Auxiliary Status message “Event Memory Full. Possible Lost Events”

This Auxiliary Status message appears: “WARNING Event Memory Full. Possible Lost Events. Restart TPN Server.” In the case of an extreme LCN alarm and event traffic for an extended period of time, the Experion-TPS node’s load module may exceed its internally allocated event memory buffers.

In this case, the TPN Server’s component state will be set into Warning and a System Alarm will be sent to the Experion System Alarm Summary Display notifying the operator.

The LCN alarm and event load should be decreased to a nominal level.

The TPN Server has some auto-recovery capabilities and may return to a Running state on its own. This will cause the Load Module to return to the OK state. However, if the TPN Server component remains in a Warning state, you may need to stop and restart it from the System Management Display to re-establish communications with the LCN and load module.
12. Troubleshooting Experion-TPS nodes
12.11 TPS System Alarm indication out of synch

Possible cause #4 - Auxiliary Status message “Had Extended Comm Errors & Exit

This Auxiliary Status message appears: “WARNING Had Extended Comm
Errors & Exit. Restart TPN Server.”

If the EST.LO or ESVT.LO load module does not hear from either the TPN Server or
any LCN events for over 40 seconds, then it determines that extended communication
errors have occurred and the load module will exit. When the load module exits in this
manner, it sets the node state into WARNING and reports the above auxiliary node
message.

In this case, the TPN Server’s component state will be set into Warning and a system
alarm will be sent to the Experion System Alarm Summary Display notifying the
operator.

The TPN Server should be stopped and restarted from the System Management Display
to re-establish communications with the LCN and load module.

If the TPN Server component stays in the Test state, the LCNP board may have to be
reset and the personality reloaded. In addition, the TDC Emulators service may need to
be stopped and restarted.

12.11 TPS System Alarm indication out of synch

Possible cause – This is the first ES-T being commissioned in your system

TPS System Alarm indication will be out of synch until a new TPS System Alarm arises
on the TPN while the EST is online

12.12 ES-T appears as GUS in Native Window

Possible cause - TPN Server has not been started

Start the TPN Server from the System Management display:

12.13 ES-T appears as UNVL in Native Window

Possible cause - Universal Station personality was loaded

Reset the LCNP and re-load the node with the correct personality.

If manually reloading, select W when the LOAD prompt appears.
12.14  ESVT appears as APP in Native Window

Possible cause - The TPN Server is not running

Start the TPN Server from System Management display:

12.15  ESVT appears as AM in Native Window

Possible cause - The Application Module personality was loaded

Reset the LCNP and re-load the node with the correct personality.

If manually reloading, select AUTOLOAD NET from the Native Window.
## 12.16 ES-T or ESVT node will not load its personality

**Technique**

- If the TPN Server is configured to Autostart, the node will transition directly to the Station or Server node type; however, if the TPN Server is not configured to Autostart, you may see transitory node types, such as APP (for Server) or GUS (for Station) until you start the TPN Server.

- Invoke the node’s LCNP Status display to determine if the node is in a loadable state: **Start > Programs > TPS Applications > LCNP Status**. An example LCNP status appears in the following figure.

![LCNP Status Display](image)

### LED Description

- **Node Address**
  - Slot 2: WSI2 4039 001c 0000 0000 0000 0000 00ad
  - Slot 3: SCSI 47ca 0702 0000 0099 0280 8e00 3f3f 0101
  - Slot 4: EPDG 4742 1002 6857 30a1 0280 8420 0000 0000

### Bar LED Status

- ST, BE, ND, DCE, DAT, SBE, DPE, GT, MBE

### Time Sync

- **Demand Time Sync**
  - TPS Time: 11:15:39
  - TPN Time: 11:11:51
- **Set TPN to TPS time**

### Clock Node Type: Listener

- **Revisions**
  - LCNP4-GPS: 5N/0N
  - LCN_CHIP5: 3K/0C
  - Serial: 2
  - Driver: 3
12. Troubleshooting Experion-TPS nodes

12.17. ES-T or ESVT TDC Emulators Service has been shutdown

- Check the LCNP Status display to see if **001c** appears in the area shown below. The indication must be **001c** in order for the node to load.

```
Slot 2: WSI2
  4039  001c
```

If **0004** appears, the node will NOT load as a GUS, EST, APP, or ESVT

If **0004** appears, you need to stop and restart the TDC Emulators service.

**REFERENCE - INTERNAL**

For more information about the LCNP display, refer to EX24, *LCNP Status User’s Guide*, section Interpreting Extended Mode Indicators.

**Possible cause #1 - Node’s personality files are missing or inaccessible**

Refer to the configuration procedures for copying the personality files to storage media if manually attempting an ES-T load and the load fails with a “W” prompt.

If attempting an ESVT load, determine if system HM is running.

Determine if alternate media are available such as Fast Load cartridges or emulated disks whereby you can load from removable media.

**Possible cause #2 - LCNP is not ready to accept a personality load.**

- From the LCNP Status, reset the LCNP and determine if the LCNP can go to a PWR_ON or QUALIF state. In those states, an LCNP can accept a personality load.

- The LCNP Status LEDs button should indicate the node’s address. Common reasons for the node address not appearing can include that the node’s LCNP board has not been configured from the Configuration Utility; in which case, NOTCONFG appears in the LEDs button.

- NCF revision mismatches can also cause error codes to appear in the LEDs button.

**12.17 ES-T or ESVT TDC Emulators Service has been shutdown**

**Possible cause – Board0 has not been configured correctly.**

A pop-up message indicates that the TDC Emulators Service has been shutdown by the node.
12. Troubleshooting Experion-TPS nodes
12.18. Verifying TPN/LCN Installation and Version

12.18 Verifying TPN/LCN Installation and Version

Background

The Native Window CBREV schematic and SMCC (System Maintenance Control Console) provide installation and software revision information for the TPN/LCN components.

Verification of Load Module installation – CBREV Schematic

Once the node’s NCF configuration has been installed and the proper node personality loaded, from a Native Window or Universal Station, invoke the schematic CBREV.

Select the SELECT & SPECIFY NODE target and enter the TPN/LCN node number for the Experion-TPS node. The resulting display shows the node’s load module configuration.

Verification of TPN/LCN release

The TPN/LCN release loaded into a node can be verified from the Native Window SMCC, accessed from the Engineering Main Menu. The following figure illustrates the steps to access the node information.
ATTENTION

The EST.LO and ESVT.LO load modules require a base TPN/LCN release of R641.2 or higher to operate.

The EST load module should be version 67.1 or higher and the ESVT load module should be version 67.0 or higher.
12. Troubleshooting Experion-TPS nodes
12.19. Verifying Configuration of Board 0 Data Access Configuration and TPN Server Channels

**Verification of TPN/LCN personality files on local drive**

The version of the TPN/LCN personality files that have been placed on the node’s local hard drive can be verified through the following text file:

- Server - C:\Program Files\Honeywell\TPS\Emulators\Personalities\AM\version.txt
  
  Example file content: AXM Personality 64.12

- ES-T - C:\Program Files\Honeywell\TPS\Emulators\Personalities\US\version.txt
  
  Example file content: UXS Personality 64.12

**Verification TPS and Experion software installation**

*Factory configured node*

The following software is preinstalled on a factory-configured node, and can be installed by the user through an Experion Client/Server Initialization DVD (ExpPlus DVD) deployment or through a “clean” installation:

- Windows Operating system, service packs, hot fixes (Use Windows media)
- Experion Server for SCADA Points (Server)
- Experion Station for SCADA Points (ES-T)
- Experion Knowledge Builder (Server and ES-T)
- Signon Manager (Server and ES-T)
- High Security Policy Workstation Package (Server and ES-C)
- Licensed Packages:
  - System Management Display (Server and ES-C)
  - SafeView (ES-T)
  - For FTE installations, FTE Driver (Server and ES-C)
- IKB Service if IKB or OEP (ES-T)
- TPS Knowledge Builder/Experion for TPS books (Server and ES-T)
- ESVT TPS package (ESVT)
- ES-T TPS package (ES-T)

*Site-specific installation*

The user installs the following software:

- LCNP personality (uxs/unpw for ES-T)
- LCNP personality (axm for ESVT or ACE-T)
- (Optional) System Event Server (ESVT)
- (Optional) System Performance Server (ESVT)
12.19 Verifying Configuration of Board 0 Data Access Configuration and TPN Server Channels

Background

To prevent system (performance/reliability) problems caused by incorrect configuration of Board 0 Data Access Configuration and TPN Server Channels on ESVT, ACE-T, and ES-T nodes, follow these instructions to check and verify the configuration settings.

**WARNING!**

The default Honeywell installation of the various node types will set the appropriate configuration for TPN Server Channels and Board 0 Data Access Configuration. **DO NOT CHANGE THE DEFAULT CONFIGURATION** unless advised to do so by the appropriate Honeywell support organization.

Improper changes can severely impact node performance.

**ATTENTION**

Honeywell recommends that you check all existing LCN-connected Experion nodes and verify that they have the correct default configuration. The configuration may have been modified improperly, or a different configuration may remain from a previous release.

To verify the configuration of TPN Server Channels

<table>
<thead>
<tr>
<th>Step</th>
<th>Action</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Select <strong>Start &gt; Programs &gt; Honeywell Experion PKS &gt; System Management &gt; Configuration Utility</strong>.</td>
</tr>
<tr>
<td>2</td>
<td>Select <strong>Configure&gt;HCI Component</strong>.</td>
</tr>
<tr>
<td>3</td>
<td>On the HCI Component configuration page, select <strong>TPNServer_&lt;computername&gt;</strong> from the <strong>Component Name</strong> pull-down list.</td>
</tr>
<tr>
<td>4</td>
<td>Click <strong>Enter/Edit Server Specific Configuration</strong>.</td>
</tr>
<tr>
<td>5</td>
<td>Click <strong>Yes</strong> on the dialog box that appears.</td>
</tr>
</tbody>
</table>
12. Troubleshooting Experion-TPS nodes
12.19. Verifying Configuration of Board 0 Data Access Configuration and TPN Server Channels

6. On the **Channels** tab, verify that the values are correct per the following table of default values:

<table>
<thead>
<tr>
<th>TPN Server Channels</th>
<th>ESVT</th>
<th>ACE-T</th>
<th>ES-T</th>
</tr>
</thead>
<tbody>
<tr>
<td>Channels to be Allocated</td>
<td>14</td>
<td>10</td>
<td>10</td>
</tr>
<tr>
<td>High Priority Channels</td>
<td>5</td>
<td>5</td>
<td>1</td>
</tr>
</tbody>
</table>

*Note: Honeywell recommends a value of 100 for Outstanding Requests.*
To verify the configuration of Board 0 Data Access Configuration

<table>
<thead>
<tr>
<th>Step</th>
<th>Action</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Select <strong>Programs &gt; Honeywell Experion PKS &gt; System Management &gt; Configuration Utility</strong></td>
</tr>
</tbody>
</table>
| 2    | Select **Configure > [LCNP board name]**  
|      | Where [LCNP board name] is “Board 0” (the default name) or a customized name. |
| 3    | Select the **Data Access Configuration** tab. |
| 4    | Verify that the values are correct, per the following table of default values: |

<table>
<thead>
<tr>
<th>Board 0 Data Access Configuration</th>
<th>ESVT</th>
<th>ACE-T</th>
<th>ES-T</th>
</tr>
</thead>
<tbody>
<tr>
<td>High Priority Channels</td>
<td>5</td>
<td>5</td>
<td>0</td>
</tr>
<tr>
<td>High Priority Servers</td>
<td>2</td>
<td>4</td>
<td>0</td>
</tr>
</tbody>
</table>

If necessary, modify the values to have the correct configuration, and then click **Apply**, and then click **OK**.

Close the Configuration Utility.

If you changed the values, stop and restart the TPN Server component.
## 12. Troubleshooting Experion-TPS nodes

### 12.19. Verifying Configuration of Board 0 Data Access Configuration and TPN Server Channels

<table>
<thead>
<tr>
<th>Step</th>
<th>Action</th>
</tr>
</thead>
<tbody>
<tr>
<td>5</td>
<td>If necessary, modify the values to have the correct configuration, and then click <strong>OK</strong>.</td>
</tr>
<tr>
<td>6</td>
<td>Close the Configuration Utility.</td>
</tr>
<tr>
<td>7</td>
<td>If you changed the values, reload the LCNP.</td>
</tr>
</tbody>
</table>

**Description:**
Configuration of the DA High Priority Channels and Servers allows the user to decide upon the number of Channels and Servers that DA will reserve for High Priority Requests during initialization.

**Note:** changes only take effect after reloading personality.
This form provides configuration information for the modification of the number of DA High Priority Channels and Servers.

**High Priority Channels:**
Enter a number between zero (0) and twenty (20). **Channels:**

**High Priority Servers:**
Enter a number between zero (0) and six (6). **Servers:**

**Warning:** Setting High Priority Servers to the maximum value (6) will not allow services requiring low priority channels to run.
13. TPS PRIMMOD and Experion Aggregate Alarming

13.1 About aggregate alarming

Operating displays are often organized hierarchically to support the required overview and task oriented displays for the operator. Aggregate alarming provides infrastructure to greatly simplify the configuration and use of the aggregated alarm information required to support the navigation between these hierarchically organized displays.

REFERENCE - INTERNAL

For more information about aggregate alarming, refer to the topics on aggregate alarming located in the Server and Client Configuration Guide>Configuring aggregate alarming.
13.2 Importing TPS PRIMMOD groups

If you use PRIMMOD groups in your TPS system, you can import these groups into Experion as alarm groups. To import PRIMMOD groups, you first use the TPSPrimmodImport tool which creates an XML file which contains information related to your PRIMMOD groups. After you have created the XML file, you import this file into Enterprise Model Builder to create alarm groups.

The TPSPrimmodImport tool runs from a command prompt.
Prerequisites

TPN server is running

To create the XML file:

<table>
<thead>
<tr>
<th>Step</th>
<th>Action</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>On the Experion server computer, open a command prompt and change the directory to C:\Program Files\Honeywell\Experion PKS\Server\Run.</td>
</tr>
<tr>
<td>2</td>
<td>Type TPSPrimmodImport.exe for instructions on how to use the import tool.</td>
</tr>
<tr>
<td>3</td>
<td>Create an XML file according to the instructions obtained in step 2.</td>
</tr>
</tbody>
</table>

To import the XML file into Enterprise Model Builder:

<table>
<thead>
<tr>
<th>Step</th>
<th>Action</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>In Configuration Studio, connect to the system into which you want to import PRIMMOD groups.</td>
</tr>
<tr>
<td>2</td>
<td>In Configuration Explorer, click the name of your system.</td>
</tr>
<tr>
<td>3</td>
<td>Click the Configure Alarm Groups for this system task. Enterprise Model Builder starts.</td>
</tr>
<tr>
<td>4</td>
<td>In Enterprise Model Builder choose File &gt; Import.</td>
</tr>
<tr>
<td>5</td>
<td>Browse to the location of the XML file.</td>
</tr>
<tr>
<td>6</td>
<td>Click Import.</td>
</tr>
</tbody>
</table>
13. TPS PRIMMOD and Experion Aggregate Alarming

13.2. Importing TPS PRIMMOD groups
14. Appendix

14.1 Processing custom defined IKB/OEP keys on an ES-T

A programmable key on an IKB or OEP will be processed by the Experion station, if this key has been assigned an action in the current station .stb file.

If a key does not exist in the .stb file then it will be processed by the Native Window, following its configuration in the current LCN area button file.

The supplementary .stb files that are delivered only with the EST nodes (e.g. ikb-est.stb) are the original versions of the experion .stb files with the programmable keys removed. For example, the ikb-est.stb is the same as the ikb.est, but the programmable keys (RFKP 1-85) have been deleted.

When a programmable key is sent to the Native Window, Native Window will automatically get activated and obtain input focus.

The activation of the Native Window is needed when a particular key is invoked e.g. a schematic inside the Native Window.

System Registry key assignments

This special key behavior is controlled on a global and on a key-by-key basis and can be controlled differently across different areas, i.e. a key-in-area basis.

Control is provided via the System Registry as outlined below.

TIP

These registry values do not assign keys for processing in the Native Window (The assignment is accomplished by the presence or absence of a particular key in the Experion .STB file).

These registry settings are used only to override the activation of the Native Window, for the keys to be processed in the Native Window. The Native Window application must be running, and should have a SafeView placeholder assigned.

<table>
<thead>
<tr>
<th>Registry Key</th>
<th>String Value</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>HKEY_LOCAL_MACHINE\SOFTWARE\Honeywell\TPS ExperionPKS\RFKPKeys\NWActivation</td>
<td>Activate_Default = 0</td>
<td>Default activation of the Native Window is disabled.</td>
</tr>
<tr>
<td></td>
<td>Activate_Default = 1</td>
<td>As default Native Window will</td>
</tr>
<tr>
<td>Registry Key</td>
<td>String Value</td>
<td>Comments</td>
</tr>
<tr>
<td>--------------</td>
<td>--------------</td>
<td>----------</td>
</tr>
<tr>
<td>DWORD RFKP_n (n: 1 - 85)= 0</td>
<td>activate (also, if the value does not exist). Activation of the Native Window is disabled for a key in any area. Native Window will activate for this key.</td>
<td></td>
</tr>
<tr>
<td>DWORD RFKP_n (n: 1 - 85)= 1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>HKEY_LOCAL_MACHINE\SOFTWARE\Honeywell\TPS ExperionPKS\RFKPKeys\NWActivation\Area a_x (x: 1 - 10) DWORD RFKP_n (n: 1 - 85)= 0</td>
<td>Activation of the Native Window is disabled for a key when node is in LCN area x. Native Window will activate for a key when in area x.</td>
<td></td>
</tr>
<tr>
<td>DWORD RFKP_n (n: 1 - 85)= 1</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
**Native Window System Registry key example**

Most of the programmable keys need to be processed without activating the Native Window.

However, the key RFKP_1 has been assigned a native window schematic and should always activate Native Window.

Additionally, the key RFKP_85 has been assigned a special LCN schematic that needs the activation of Native Window as well, but only if the node is in the LCN area 3.

The following table shows how the registry keys should be set for this example.

<table>
<thead>
<tr>
<th>Registry Key</th>
<th>String Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>HKEY_LOCAL_MACHINE\SOFTWARE\Honeywell\TPSExperionPKS\RFKPKeys\NWActivation</td>
<td>Activate_Default=0</td>
</tr>
<tr>
<td></td>
<td>RFKP_1=1</td>
</tr>
<tr>
<td>HKEY_LOCAL_MACHINE\SOFTWARE\Honeywell\TPSExperionPKS\RFKPKeys\NWActivation\Area_3</td>
<td>RFKP_85=1</td>
</tr>
</tbody>
</table>

**ATTENTION**

The numbering scheme used when defining registry overrides follows the Experion convention and not the convention used in the LCN button file editor.

For example, the key RFKP_1 is the key # 7 in the LCN button file editor. The key RFKP_80 is the key # 1 in the button file editor.

It is possible to use the Experion station key editor dialog to determine the Experion index for a particular key (Station/Connection Properties/Toolbars/Customize/Keyboard Shortcuts).
Example OEP
14.2 ACE-T Guidelines

ACE-T capacity and performance

Existing specifications already documented for ACE, OPC Gateway, and TPN Server also apply to the ACE-T node, which includes a direct LCN connection. In addition, the specifications in this section are specific to ACE-T.

**ATTENTION**

Note that it will be possible to comply with all ACE-T specifications and still create capacity or performance problems on the TPS system to which the ACE-T is connected.

Users need to carefully consider the impact of an ACE-T on the underlying LCN, HGs, Hiways, CBs, NIMs, UCNs, xPMs, etc.

ACE-T configuration options

<table>
<thead>
<tr>
<th>Maximum Number of OPC Gateways</th>
<th>3</th>
</tr>
</thead>
<tbody>
<tr>
<td>Recommended Number of OPC Gateways</td>
<td>2</td>
</tr>
</tbody>
</table>

**TIP**

Two OPC Gateways are recommended to minimize the number of clients to the local TPN Server, which will reduce the number of data access transactions through TPN Server as compared to having three OPC Gateways.

The disadvantage of having two OPC Gateways is that only two different OPC Gateway Subscription Periods can be selected, which establish the rates at which data is fetched from TPS components.
ACE-T control processing

The term “LCN Control Cascade” refers to a Regulatory Control (RegCtl) strategy that utilizes a HiwayOut or UcnOut function block in the ACE-T for interfacing an Experion RegCtl block to a TPS RegCtl point. The Level 1 controller RegCtl block is normally in a Data Hiway controller or UCN controller.

<table>
<thead>
<tr>
<th>Fastest LCN Control Cascade (Execution Period of CM)</th>
<th>5 sec 1</th>
</tr>
</thead>
<tbody>
<tr>
<td>Maximum Number of Fast LCN Control Cascades (CM Execution Periods of 5, 10, and 20 sec.)</td>
<td>120</td>
</tr>
<tr>
<td>Maximum Number of Slow LCN Control Cascades (CM Execution Periods of 30 sec and slower)</td>
<td>120</td>
</tr>
<tr>
<td>Minimum Shedtime for Level 1 controller RegCtl point (in Hiway or UCN controller) of LCN Control Cascade.</td>
<td>ACE-T CM Execution Period + 5 sec</td>
</tr>
</tbody>
</table>

| Maximum non-Control Cascade Push/Store Request Rate to the LCN (from CAB, Push, and SCM blocks) | 20 PPS |

**ATTENTION**

An LCN Control Cascade between ACE-T and a Hiway/UCN controller executing any faster than a 5 sec period in ACE-T is not realistic for reliable control, given the multiple communication layers in existence between the ACE-T and the ultimate IO connections to the process.

The following configurations and control capacities have been qualified for ACE-T.

- 120 Fast LCN Control Cascades + 120 Slow LCN Control Cascades + 20 non-Control Cascade LCN stores per second; 2 OPC Gateways configured
  - OPC Gateways configured for Subscription Periods of 1 sec and 15 sec
  - 120 Fast LCN Control Cascades with 5 sec Execution Period via 1 sec OPC Gateway; Level 1 RegCtl points Shedtime of 10 secs
14.2. ACE-T Guidelines

- 60 Slow LCN Control Cascades with 30 sec Execution Period via 15 sec OPC Gateway; Level 1 RegCtl points Shedtime of 35 secs
- 60 Slow LCN Control Cascades with 60 sec Execution Period via 15 sec OPC Gateway; Level 1 RegCtl points Shedtime of 65 secs

- 120 Fast LCN Control Cascades + 120 LCN Slow Control Cascades + 20 non-Control Cascades LCN stores per second; 3 OPC Gateways configure.
  - OPC Gateways configured for Subscription Periods of 1 sec, 5 sec, and 30 sec
  - 120 Fast LCN Control Cascades with 5 sec Execution Period via 1 sec OPC Gateway; Level 1 RegCtl points Shedtime of 10 secs
  - 60 Slow LCN Control Cascades with 30 sec Execution Period via 5 sec OPC Gateway; Level 1 RegCtl points Shedtime of 35 secs
  - 60 Slow LCN Control Cascades with 60 sec Execution Period via 30 sec OPC Gateway; Level 1 RegCtl points Shedtime of 65 secs

ACE-T TPN server group writes

The LCNP card of the ACE-T node has a limited number of LCN data access servers available for the TPN Server to use, which in turn limits the number of group writes to LCN transactions that TPN Server is capable of.

Users can minimize/optimize the number of TPN Server group writes by the phasing of the ACE-T strategies (CMs/SCMs) that store data to the LCN and/or lower level TPS components. ACE-T strategies can be phased across 0…119 half-second execution cycles using the CM/SCM PHASE configuration parameter. The guideline for ACE-T phasing is to consolidate the stores to LCN (via the local OPC Gateways) as much as practical. As a minimum, the default value of PHASE (-1) should be overridden with a specific phase number to avoid the automatic load balancing of CMs/SCMs, which may result in writes executed every half-second, potentially overloading the TPN server. A major consideration for how many stores to group together is the subsequent impact on the underlying LCN, HG, NIM, and ultimate data owners. The ACE-T phasing should be set up to achieve an agreeable compromise between TPN Server capability and the capabilities of the TPS system components.

ACE - TPS CM execution phasing guidelines

TPN Server has a limited throughput to execute LCN data read and write requests (ref to the section TPN server – data access transactions later). In particular, the LCNP card software provides fixed number (6) of data access DA servers to be shared by all clients of the TPN server.
ACET Data Read

A single OPC gateway represents single data collection rate. For practical purposes, it is safe to assume that if the opc gateway collection rate is 1 sec or 2 seconds, this opc gateway will require a dedicated LCNP data access DA server for reading.

ACET Data Write

Usually, the OPC Gateway issues write requests to the TPN server following execution of a CEE phase. CEE phases are scheduled every 0.5 sec.

Depending on the type of the writing CEE block, the operation may execute at one of two access levels: CONTINOUS CONTROL or PROGRAM (e.g. the UCNOUT executes at CONTINOUS CONTROL and the PushBlock executes at PROGRAM). Different access level writes are not combined into the same OPC group, so that if a particular phase writes at both levels, this phase will generate two separate group writes.

Write requests issued by different OPC gateways count separately.

A simple CM - phasing guideline

The table below is illustrates how to assign CEE phases to the CMs/SCMs that issue write commands to the LCN. Use the worksheet below to verify the configuration.

<table>
<thead>
<tr>
<th>CM Execution Period [secs]</th>
<th>Phase(s)</th>
</tr>
</thead>
<tbody>
<tr>
<td>&lt;5</td>
<td>Not supported</td>
</tr>
<tr>
<td>5</td>
<td>0 or 6</td>
</tr>
<tr>
<td>10</td>
<td>2 or 12</td>
</tr>
<tr>
<td>15</td>
<td>2 or 12</td>
</tr>
<tr>
<td>&gt;15</td>
<td>4 or 14</td>
</tr>
</tbody>
</table>
ACE TPN Server worksheet

1. **Establish number of DA servers that are available for write**

Number of DA servers that are available for writing can be approximated based on number and collection rates of the OPC gateways connected to the particular TPN server.

Given:

Number of 1 second OPC gateways that are connected to the TPN server = Nread1

Number of 2 second OPC gateways that are connected to the TPN server = Nread2

Are there OPC gateways 5 sec or slower connected to the TPN server? = 1 if yes, 0 if none

Number of DA servers that are available for write:

\[ \text{DAwrite} = 6 - \text{Nread1} - \text{Nread2} - 1 \] (if slow OPC Gateways are present)

**Example 1:**

Three OPC gateways connect to the TPN server, with rates: 2 secs, 5 secs and 10 secs.

\[ \text{DAwrite} = 4 \quad ( = 6 - 0 - 1 - 1) \]

**Example 2:**

Two local and two remote OPC gateways connect to the TPN server; local OPC gateway rates are 2 sec and 5 sec; remote OPC gateway rates are 2 sec and 10 sec

\[ \text{DAwrite} = 3 \quad ( = 6 - 0 - 2 - 1) \]

2. **Determine total number of (group) writes to LCN during a minute.**

This value can be approximated by the number of executions of the LCN-writing phases in CEE during a minute.

**ATTENTION**

An execution phase may be shared among multiple CMs, that may also be running at different CM rates. All writes issued during this phase are combined together, and result in a single (or two – if at mixed access levels)
group write requests to the TPN server.

Note that an execution phase may be shared among multiple CMs, that may also be running at different CM rates. All writes issued during this phase are combined together, and result in a single (or two – if at mixed access levels) group write requests to the TPN server.

In the examples below, NW60 denotes number of distinct group writes per minute (= 60 seconds). Number of particular items in a group is of lesser importance for TPN Server; in the examples below assumed that a single CM writes to a single parameter.

**Example 1:**

**A:** 100 cascade CMs running at 5 seconds all CMs are in phase 0

NW60 = 12 (60secs/5secs) Phase 0 executes every 5 seconds, writing group of 100 items 12 times every minute

**B:** 100 cascade CMs running at 5 seconds of which 50 CMs are in phase 0, and 50 CMs are in phase 6

NW60 = 24 (60/5 + 60/5, for each writing phase)

Phases 0 and 6 execute once every 5 secs, each writing group of 50 items 12 times per minute.

**C:** 40 cascade CMs running at 5 seconds CMs have default phase assignment of -1

NW60 = 120 (60/0.5)

Since CMs are split evenly among phases (4 CMs per phase, because there are 10 distinct phases in the 5 sec CM), every 0.5 sec phase will generate a write of a group containing 4 items, resulting in total 120 group writes per minute

**Example 2**

**A:** 100 cascade CMs running at 5 seconds of which 50 CMs are in phase 0, and 50 CMs are in phase 6

NW60 = 24 (60/5 + 60/5, for each writing phase)
100 pushblock CMs running at 5 sec of which 50 CMs are in phase 0, and 50 CMs are in phase 6.
NW60 = 24 ( 60/5 + 60/5, for each writing phase) <counted separately because different access level than cascade>

100 cascade CMs running at 15 seconds of which 50 CMs are in phase 2, and 50 CMs are in phase 12
NW60 = 8 ( 60/15 + 60/15, for each writing phase)

100 cascade & pushblock CMs running at 30 seconds of which 50 CMs are in phase 4, and 50 CMs are in phase 14
NW60 = 8 ( 60/30 + 60/30, for each writing phase; *2 access levels)

For A: total # of group writes per minute NW60 = 24+24+8 +8 = 64

B: All CMs as in case A, and additionally: 10 pushblock CMs running at 2 sec (using dedicated 1 sec OPC gateway) CMs have default phase assignment (so that every .5 sec phase will generate a write).
NW60 = 120 ( 60/0.5)
For B: total # of group writes per minute NW60 = 64 (case A) + 120 = 184

3. **Verify TPN server writing throughput**

   Number of group writes per minute must fit into the available DA server capability.

   Given the number of DA servers that are available for write, the following condition must be met:

   Number of writes < number of DA servers * DA server write throughput

   Or, based on the values determined above:

   NW60 < DAwrite * 60/ Tw

   - NW60 is total number of group writes to the TPN per minute (step 2)
   - DAwrite is the number of DA servers available for write (step 1)
- $60/T_w$ is a DA server write throughput per minute. As observed in testing, majority of group writes issued from ACE, on medium size groups, fall between $0.5 - 1.5$ secs. Therefore, will assume $T_w$ secs = 1.5 and the single DA server write throughput is $60/1.5 = 40$.

For the example 2A in step 2:

NW$_{60} = 64$

$D_Awrite = 4$ (assuming 2 OPC gateways are present - 2 sec and 5 sec) and the total TPN server throughput is **OK**

$64 < 160 (= 4 * 40)$

For the example 2B in step 2:

NW$_{60} = 184$

$D_Awrite = 3$ (assuming 3 OPC gateways are present - 1 sec, 2 sec and 5 sec) and the total TPN server throughput is **not OK**

$184 > 120 (= 3 * 40)$

Here TPN server may not be able to maintain required write frequencies. The recommendation would be to decrease # of opc gateways and/or implement phasing for the fast pushblock CMs.
TPN server data access transactions

TPN server reads and writes to LCN using groups of items. The allocation of particular LCN point parameters (items) into groups is controlled by the data access clients of the TPN server and by the HCI periodic collections, for subscribed data.

![Diagram of TPN server data access transactions]

TPN has fixed number (6) of data access DA servers. If total time to execute a single data access transaction (group read or write) through the TPN Server is $T_{rw}$ secs, TPN server will support total $N_{60}$ transactions per minute:

$$N_{60} = 6 \times 60 / T_{da}$$

Assuming $T_{da} = 1.5$ secs, TPN server can service max $N_{60} = 6 \times 60 / 1.5 = 240$ group requests per minute.

In reality, time to perform group read or write will vary, depending on current conditions on the LCN, data owner busy conditions, large groups accessing multiple data owners etc.
The value $T_{da} = 1.5$ second that is given above would represent the high limit of the average data access time. Most of data access requests execute in well under 1.5 seconds. Under certain conditions, some data access times may take longer.

During pending multiple concurrent read/write requests, totaling more than 6, some of the requests will be queued waiting for the next available data access DA server. The time to service such requests may increase significantly by the amount of time needed to empty the queue (i.e. to service earlier requests). To assure predictable behavior of the write requests, care should be taken to limit number of concurrent requests that may be pending. In case of ACE, this can be achieved by scheduling the LCN-writing CMs to execute only on selected CEE phases.

---

**ATTENTION**

- Groups larger than 1000 items are split internally within TPN server into multiple groups of max 1000 items each, serviced in parallel (and consuming multiple DA servers);
- Single item writes are performed fastest ($< 0.5$ sec) due to optimized data access path;
- For small (# of items $> 1$) and medium sized groups, the time to perform a read or write, for practical reasons, can be considered independent on the size of the group;
- On the LCN, writes to a particular data owner (e.g. Hiway gateway) are performed in groups of max 200 items. A single DA server can service multiple requests 200 items each simultaneously.