ControlST* Software Suite
Installation and Upgrade

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We would appreciate your feedback about our documentation. Please send comments or suggestions to controls.doc@ge.com
## Document Updates

<table>
<thead>
<tr>
<th>Revision</th>
<th>Location</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>U</td>
<td>Downgrade Considerations</td>
<td>Added this section to provide information that should be considered when performing a downgrade of a ControlST system or component software or firmware.</td>
</tr>
<tr>
<td></td>
<td>HMI Compatibility</td>
<td>Added PROFICY Historian V7.0 (only with Windows 10) and Historian 6.0 (only with 2012R2) to V07.0 ControlST. Added the row for ControlST V07.01.</td>
</tr>
<tr>
<td></td>
<td>Upgrade Rules (Version Specific)</td>
<td>Clarified the upgrade rules for YVIBS1B and YAICS1B, YDIAS1B, and YDOAS1B.</td>
</tr>
<tr>
<td>T</td>
<td>Platform Software Upgrade</td>
<td>Added instructions for .ISO files.</td>
</tr>
<tr>
<td></td>
<td>To upgrade to a new version of the ControlST software suite</td>
<td>Added information about the new Configuration Tools Documentation install.</td>
</tr>
<tr>
<td></td>
<td>Known Issues</td>
<td>Added ControlST versions 6.01, 6.02, and 7.00.</td>
</tr>
<tr>
<td></td>
<td>HMI Compatibility</td>
<td>Updates for ControlST versions 7.00 and 5.04. Added PROFICY Historian Compatibility.</td>
</tr>
<tr>
<td></td>
<td>Upgrade Rules (Version Specific)</td>
<td>Added PVIBH1B, YVIBS1B, YAICS1B, YDIAS1B, and YDOAS1B.</td>
</tr>
<tr>
<td></td>
<td>ToolboxST Application, WorkstationST Application, Trender Tool, Localization</td>
<td>These sections moved from GEH-6721_Vol_I into this document.</td>
</tr>
<tr>
<td></td>
<td>Install Additional Options</td>
<td>Added a Note notifying users that if the Proficy Client license installation does not occur during ControlST installation setup automatically, the ProficyClientInstaller.exe can be installed directly from the DVD_files directory.</td>
</tr>
<tr>
<td></td>
<td>Upgrade EX2100e and LS2100e Control Systems with Windows 2012R2 Operating System</td>
<td>Added this section with upgrade instructions for an EX2100e or LS2100e system using Windows 2012R2, which requires that both the new and current (old) version of the runtime be present on the workstation where the upgrade is being performed.</td>
</tr>
<tr>
<td></td>
<td>The section, Multilingual Support</td>
<td>Updated DLL folder names.</td>
</tr>
</tbody>
</table>
## Contents

1 Introduction .................................................................................................................. 5  
2 Benefits of an Integrated Tools Suite ........................................................................ 6  
3 ToolboxST Application ............................................................................................... 9  
4 WorkstationST Application ......................................................................................... 10  
  4.1 Alarm Viewer ........................................................................................................ 10  
  4.2 WorkstationST Server ......................................................................................... 10  
5 Trend Tools for Process Data (Trends) ....................................................................... 11  
6 Localization - Translation to Native Languages ............................................................ 12  
7 HMI Compatibility ...................................................................................................... 13  
8 Installation and Upgrade Prerequisites ..................................................................... 16  
  8.1 Licensing ............................................................................................................... 17  
  8.2 Pre-upgrade System Data Collection .................................................................... 18  
  8.3 Non-CMS System Archive .................................................................................. 21  
  8.4 CMS System Archive .......................................................................................... 22  
  8.5 Shared IONet ........................................................................................................ 22  
9 Platform Software Upgrade ......................................................................................... 23  
  9.1 Configuration Tools (ToolboxST* Application) ................................................... 26  
  9.2 Configuration Tools Documentation Install ....................................................... 28  
  9.3 WorkstationST Application ................................................................................ 28  
  9.4 Install Additional Options ................................................................................... 29  
  9.5 CMS Server ......................................................................................................... 31  
10 System and Component Upgrades .......................................................................... 38  
  10.1 System Upgrade ................................................................................................. 38  
  10.2 Upgrade EX2100e and LS2100e Control Systems with Windows 2012R2 or Windows 10 Operating Systems .......................................................... 40  
  10.3 Library Upgrade ................................................................................................. 41  
  10.4 Controller Upgrade ............................................................................................ 45  
  10.5 I/O Pack Firmware Upgrade ............................................................................. 50  
  10.6 Controller Download .......................................................................................... 50  
  10.7 WorkstationST Device Upgrade ....................................................................... 55  
  10.8 Post Upgrade ...................................................................................................... 58  
  10.9 Remove Previous ControlST Software Suite ................................................... 58  
11 Multilingual Support .................................................................................................. 59  
  11.1 Language Culture Names .................................................................................... 61  
12 Known Issues (Version Specific Upgrade Requirements) .......................................... 64  
13 Upgrade Rules (Version Specific) ............................................................................ 75  
14 Downgrade Considerations ......................................................................................... 75
Safety Symbol Legend

### Warning
![Warning Symbol]
Indicates a procedure or condition that, if not strictly observed, could result in personal injury or death.

### Caution
![Caution Symbol]
Indicates a procedure or condition that, if not strictly observed, could result in damage to or destruction of equipment.

### Attention
![Attention Symbol]
Indicates a procedure or condition that should be strictly followed to improve these applications.
1 Introduction

The ControlST* software suite is applied on GE’s wide range of controls applications. It includes several high-performance tools used by operators and maintenance personnel for communications, monitoring, and asset management, including:

- WorkstationST* HMI and Historian management application
- ToolboxST* configuration and diagnostics application
- Trend tool for display of process data (Trends)

ControlST is an integrated suite of Windows®-based tools and component firmware for the Mark* Controls products. The applications span a wide variety of power generation plants and other industrial equipment. The suite is constantly evolving to improve customer experience, network security, enhance plant operation, and keep pace with advancements in technology. Refer to the following related documents for more information.

<table>
<thead>
<tr>
<th>Number</th>
<th>Title</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>GEZ-S2034</td>
<td>ControlST* Software Suite V05.00, V05.01, V05.02, V05.03, and V05.04 Versions Product Life-cycle Announcement</td>
<td>Older versions of ControlST will be phased out of production</td>
</tr>
<tr>
<td>GEZ-S2033</td>
<td>ControlST Software Suite V04.07 and Earlier Versions Product Life-cycle Announcement</td>
<td>Older versions of ControlST will be phased out of production</td>
</tr>
<tr>
<td>GEH-6700</td>
<td>ToolboxST User Guide for Mark Controls Platform</td>
<td>This application is used to configure the control system hardware, networks, program the controller, and troubleshoot the system</td>
</tr>
<tr>
<td>GEH-6721_Vol_I</td>
<td>Mark Vle and Mark VleS Control Systems Volume I System Guide</td>
<td>Technical details about all aspects of the Mark Vle and Mark VleS control system can be found in these three volumes.</td>
</tr>
<tr>
<td>GEH-6721_Vol_II</td>
<td>Mark Vle and Mark VleS Control Systems Volume II: For General-purpose Applications</td>
<td>Technical details about all aspects of the Mark Vle and Mark VleS control system can be found in these three volumes.</td>
</tr>
<tr>
<td>GEH-6721_Vol_II</td>
<td>Mark Vle and Mark VleS Control Systems Volume III: For GE Industrial Applications</td>
<td>Technical details about all aspects of the Mark Vle and Mark VleS control system can be found in these three volumes.</td>
</tr>
<tr>
<td>GEH-6839</td>
<td>Mark Vle Control Systems Secure Deployment Guide</td>
<td>Provides information to improve the cyber security of Mark Vle Control Systems.</td>
</tr>
</tbody>
</table>
2 Benefits of an Integrated Tools Suite

Users feel the productivity of the ControlST suite in three design tenets:

• Right mouse button contextual links between the tools (refer to the following figure)
• Common variable database
• Designed, built, tested, and documented as a system

Examples of Contextual Links Between ControlST Tools
The following table lists the most frequently used ControlST applications and supported contextual links.

<table>
<thead>
<tr>
<th>ControlST Component</th>
<th>Description</th>
<th>Contextual Integration With</th>
</tr>
</thead>
</table>
| ControlST Variable Browser | The variable browser is common across the ControlST suite of tools. Examples include: • Assigning a variable to a function block in ToolboxST
  • Adding a variable to a trend in Trender
  • Creating a variable list in Watch Window
  • Animating an object in Advanced CimEdit | ToolboxST
  Trender
  Watch Window
  Advanced CimEdit |
| ToolboxST | ToolboxST application features include: • Configuration, modification, and monitoring of Mark VI and Mark VIeS controllers
  • Configuration and monitoring WorkstationST applications and services
  • Ethernet Global Data (EGD) editor | ControlST variable browser
  Trender
  Watch Window
  Advanced CimEdit |
| Trender | Watch Window displays live values for a collection of variables in a tabular stand-alone window. Features include:
  • Live data from Mark VI and WorkstationST
  • Historical data from Mark VI capture buffer
  • Live data from OPC® DA server
  • Historical data from Mark VI Dynamic Data Recorder (DDR)
  • Historical data from Proficy® or PI historian
  • Historical data from Mark VI trip log
  • Alarm and event data from Alarm Server | ControlST variable browser
  ToolboxST
  Advanced CimView
  Alarm View |
| Watch Window | Displays live values for a collection of variables in tabular stand-alone window, features:
  • Drag-and-drop variables from ToolboxST
  • Column configuration across all variable properties
  • Variable forcing | ControlST variable browser
  ToolboxST
  Trender |
| Alarm Viewer | The Alarm Viewer application manages live/historical alarms. Alarm information is displayed in tabular form with advanced filtering and sorting capabilities. Common functions include:
  • Acknowledging Alarms
  • Locking Alarms
  • Silencing Alarms
  • Sequence of Events (SOE)
  • Component Diagnostic Alarms | ToolboxST
  CimView
  Trender |
| Advanced CimEdit / CimView | Advanced CIMPLICITY® EditView provides a full-featured graphic editor with WorkstationST OPC DA interface and tight integration with the ControlST suite, including:
  • ControlST variable browser
  • Embedded trender option
  • Embedded alarm management option
  • Contextual links to other ControlST applications | ControlST variable browser
  ToolboxST
  Trender
  Alarm Viewer
  Embedded Integration
  Trending
  Alarm Management |
<table>
<thead>
<tr>
<th>ControlST Component</th>
<th>Description</th>
<th>Contextual Integration With</th>
</tr>
</thead>
<tbody>
<tr>
<td>Configuration Management System (CMS)</td>
<td>The CMS provides configuration revision control and tracking across the system. It consists of three components: • CMS Server • Stand-alone Client (from Start menu) • Integrated Client (from ToolboxST)</td>
<td>ToolboxST</td>
</tr>
<tr>
<td>LiveView</td>
<td>Live View is the graphical editor for commissioning and maintenance views of control functions and equipment.</td>
<td>ControlST variable browser ToolboxST</td>
</tr>
<tr>
<td>Control System Health (CSH)</td>
<td>CSH provides component health status (controllers, I/O modules, PC Workstations) across the system in an intuitive, animated tree structure.</td>
<td>ToolboxST Alarm Viewer</td>
</tr>
<tr>
<td>Network Monitor</td>
<td>Network Monitor displays the status of devices (controllers, computers, network switches) that are connected to Ethernet networks (excluding IONet), including network switches and their ports.</td>
<td>ToolboxST Alarm Viewer</td>
</tr>
<tr>
<td>WorkstationST Status Monitor</td>
<td>The WorkstationST Status Monitor provides status and control of the WorkstationST features on the local computer, including: • Alarm server • EGD configuration server • OPC DA server</td>
<td>ToolboxST</td>
</tr>
<tr>
<td>Mark VIe Controller Firmware</td>
<td>Mark controller firmware includes: • Mark VIe • Mark VIeS • EX2100e • LS2100e</td>
<td>N/A</td>
</tr>
<tr>
<td>Mark VIe I/O Module Firmware</td>
<td>Mark VIe I/O module firmware includes: • Discrete I/O modules • Analog I/O modules • Turbine protective I/O modules • Safety I/O modules</td>
<td>N/A</td>
</tr>
</tbody>
</table>
3 ToolboxST Application

The ToolboxST application is Windows-based software for configuring, programming, and maintaining the Mark VIe and Mark VIeS control systems, and related product lines. Some of the ToolboxST features include:

- System component layout
- Configure, edit, and view real-time Mark VIe control application code
- EGD editor
- Hardware diagnostic alarm annunciation
- Password protection
- Trending

**Note** Refer to the ToolboxST User Guide for Mark Controls Platform (GEH-6700).
4 WorkstationST Application

The WorkstationST application is used to managing the HMI, Historian, and Alarm Viewer, as well as provides an interface to third-party devices. It provides the following functions:

- Alarm displays
- Process variable trending
- Point control panel right-click menu add-on for CIMPLICITY GUI is normally used during troubleshooting to access variables for trends and watch windows.
- HMI access security
- Server to provide data to OPC, Modbus, and other clients

4.1 Alarm Viewer

This is a valuable tool to aid in the analysis of the system, especially after an upset. It displays and manages live and historical alarm and event information from a computer configured with the WorkstationST application and running the Alarm Server. Alarm and event information is displayed using advanced filtering and sorting capabilities, and functions are available including Acknowledging, Locking, and Silencing alarms and events. The following information can be generated:

- Alarms
- Events
- Holds
- SOE
- Diagnostics

The Alarm Viewer provides alarm management functions, such as sorting and filtering by priority, by unit, by time, or by source device. Also supported are configurable alarm field displays, and embedding dynamically updated objects into the CIMPLICITY CimView screens.

4.2 WorkstationST Server

The WorkstationST server provides an interface for Modbus (Serial or Ethernet), GE Standard Messaging (GSM), or OPC UA, DA, AE communications. These third-party interfaces allow the HMI to exchange data with DCS systems, PLCs, I/O devices, and other computers.

The WorkstationST OPC server provides a standards-based interface to the runtime database or third-party interfaces. The OPC server conforms to the 2.0 data access standards. Fundamentally, the OPC standard defines two software roles, OPC clients and OPC servers. In general, clients are consumers of automation information and servers are producers of the same information. OPC is a technology standard initially developed by a group of automation industry companies and now managed by the not-for-profit organization called the OPC Foundation. The standard was developed to provide a common de-coupling mechanism for automation system software components. OPC provides for simpler integration of automation software components from multiple vendors.
5  **Trender Tools for Process Data (Trends)**

This is the graphical interface for trending analog or digital points. It is fully configurable and can auto-range the scales or set fixed indexes. For accurate readout, the trend cursor displays the exact value of all points trended at a given point in time. It can be set up to mimic strip chart recorders, analyze the performance of particular parameters over time, or help troubleshoot root causes of issues. The Trender tool can be launched from the ToolboxST application or from the right-click menu on the CIMPPLICITY screen with the WorkstationST application.

Trender is based on ActiveX® technology to give users data analysis capabilities. Trender uses data collected by the HMI, or data from other third-party software packages or interfaces. Trending includes multiple trending charts per graphic screen with unlimited pens per chart, and the operator can resize or move trend windows to convenient locations on the display.
6 Localization - Translation to Native Languages

ControlST software tools provide several ways to support requirements for local languages. For both diagnostic and process alarm descriptions, the ToolboxST application provides a way to export text strings to and import from a .csv file. The resource translation manager tool enables Windows-based applications to have embedded text displayed in a native language (for example, menu bars). The Alarm Viewer and CIMPLICITY also support second language options. Refer to the following user documents for more information on how to configure the HMI and tools for local languages.

<table>
<thead>
<tr>
<th>Document Number</th>
<th>Title</th>
<th>Section(s) within Document</th>
</tr>
</thead>
<tbody>
<tr>
<td>GEH-6808</td>
<td>ControlST* Software Suite How-to Guides</td>
<td>How to Configure a Second Language for ControlST HMI Applications</td>
</tr>
<tr>
<td>GEH-6700</td>
<td>ToolboxST User Guide for Mark Vle Control</td>
<td>System Editor, Diagnostic Translations</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Component Editor, Second Language Report</td>
</tr>
<tr>
<td>GEI-100793</td>
<td>Resource Translation Manager User Guide</td>
<td></td>
</tr>
<tr>
<td>GEI-100620</td>
<td>WorkstationST Alarm Viewer</td>
<td>Multi-language Support</td>
</tr>
</tbody>
</table>
### 7 HMI Compatibility

**ControlST HMI Compatibility — Active Releases**

<table>
<thead>
<tr>
<th>Version</th>
<th>Release Date</th>
<th>Microsoft® Windows</th>
<th>CIMPLICITY</th>
<th>PROFICY Historian</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>Project</td>
<td>Adv. Viewer</td>
</tr>
<tr>
<td>V07.01</td>
<td>June 2017</td>
<td>Windows 10 Pro 64-bit version 1607 (Anniversary Edition) 64-bit Windows 7 64-bit Windows Server 2008R2, single-user configuration, Service Pack 1 and the latest Microsoft updates 64-bit Windows Server 2012R2, single-user configuration</td>
<td>V8.2 (only with Windows 7), V9.0 (only with Windows Server 2012R), and V9.5 (only with Windows 10)</td>
<td>V8.2 (only with Windows 7), V9.0 (only with Windows Server 2012R), and V9.5 (only with Windows 10)</td>
</tr>
<tr>
<td>V07.00</td>
<td>Dec 2016</td>
<td>Windows 10 Pro 64-bit version 1607 (Anniversary Edition) 64-bit Windows 7 64-bit Windows Server 2008R2, single-user configuration, Service Pack 1 and the latest Microsoft updates 64-bit Windows Server 2012R2, single-user configuration</td>
<td>V8.2 (only with Windows 7), V9.0 (only with Windows Server 2012R), and V9.5 (only with Windows 10)</td>
<td>V8.2 (only with Windows 7), V9.0 (only with Windows Server 2012R), and V9.5 (only with Windows 10)</td>
</tr>
<tr>
<td>V06.02</td>
<td>Sept 2016</td>
<td>32-bit Windows 7 64-bit Windows 7 64-bit Windows Server 2008R2, single-user configuration, Service Pack 1 and the latest Microsoft updates 64-bit Windows Server 2012R2, single-user configuration</td>
<td>V8.2 (only with Windows 7), and V9.0 (only with Windows Server 2012R)</td>
<td>V8.2 (only with Windows 7), and V9.0 (only with Windows Server 2012R)</td>
</tr>
</tbody>
</table>

**Note** For more details related to the computer hardware of the HMI, refer to the *ToolboxST User Guide for Mark Controls (GEH-6700)*.
## ControlST HMI Compatibility — Legacy Releases

<table>
<thead>
<tr>
<th>Version</th>
<th>Release Date</th>
<th>Microsoft® Windows</th>
<th>CIMPlicity Project</th>
<th>Adv. Viewer</th>
</tr>
</thead>
<tbody>
<tr>
<td>V3.01</td>
<td>May-07</td>
<td>Windows 2000</td>
<td>V6.1</td>
<td>—</td>
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<tr>
<td>V3.02</td>
<td>May-08</td>
<td>Windows 2000</td>
<td>V6.1</td>
<td>—</td>
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<tr>
<td>V3.03</td>
<td>Oct-08</td>
<td>Windows 2000</td>
<td>V6.1 and V7.5</td>
<td>V7.5</td>
</tr>
<tr>
<td>V3.04</td>
<td>Dec-08</td>
<td>Windows 2000</td>
<td>V6.1 and V7.5</td>
<td>V7.5</td>
</tr>
<tr>
<td>V3.05</td>
<td>Jun-09</td>
<td>Windows XP Professional</td>
<td>V6.1 and V7.5</td>
<td>V7.5</td>
</tr>
<tr>
<td>V3.06</td>
<td>Mar-10</td>
<td>Windows XP Professional</td>
<td>V6.1 and V7.5</td>
<td>V7.5</td>
</tr>
<tr>
<td>V4.00</td>
<td>Jun-10</td>
<td>Windows XP Professional, Service Pack 3</td>
<td>V6.1 and V7.5</td>
<td>V7.5</td>
</tr>
<tr>
<td>V4.01</td>
<td>Aug-10</td>
<td>Windows XP Professional, Service Pack 3</td>
<td>V6.1 and V7.5</td>
<td>V7.5</td>
</tr>
<tr>
<td>V4.02</td>
<td>Jan-11</td>
<td>32-bit Windows XP Professional, Service Pack 3</td>
<td>V6.1, V7.5, and V8.2</td>
<td>V7.5 and V8.2</td>
</tr>
<tr>
<td>V4.03</td>
<td>Sep-11</td>
<td>32-bit Windows XP Professional, Service Pack 3</td>
<td>V6.1, V7.5, and V8.2</td>
<td>V7.5 and V8.2</td>
</tr>
<tr>
<td>V4.04</td>
<td>May-12</td>
<td>32-bit Windows XP Professional, Service Pack 3</td>
<td>V6.1, V7.5, and V8.2</td>
<td>V7.5 and V8.2</td>
</tr>
<tr>
<td>V4.05</td>
<td>Jun-12</td>
<td>32-bit Windows XP Professional, Service Pack 3</td>
<td>V6.1, V7.5, and V8.2</td>
<td>V7.5 and V8.2</td>
</tr>
<tr>
<td>V4.06</td>
<td>Nov-12</td>
<td>32-bit Windows XP Professional, Service Pack 3</td>
<td>V6.1, V7.5, and V8.2</td>
<td>V7.5 and V8.2</td>
</tr>
<tr>
<td>V4.07</td>
<td>Jun-13</td>
<td>32-bit Windows XP Professional, Service Pack 3</td>
<td>V6.1, V7.5, and V8.2</td>
<td>V7.5 and V8.2</td>
</tr>
<tr>
<td>V5.00</td>
<td>Nov-13</td>
<td>32-bit Windows XP Professional, Service Pack 3</td>
<td>V6.1, V7.5, and V8.2</td>
<td>V7.5 and V8.2</td>
</tr>
<tr>
<td>V5.01</td>
<td>Mar-14</td>
<td>32-bit Windows XP Professional, Service Pack 3</td>
<td>V6.1, V7.5, and V8.2</td>
<td>V7.5 and V8.2</td>
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<tr>
<td>ControlST</td>
<td>Microsoft® Windows</td>
<td>CIMPLICITY</td>
<td></td>
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<tr>
<td>-----------</td>
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</tr>
<tr>
<td>Version</td>
<td>Release Date</td>
<td>Project</td>
<td>Adv. Viewer</td>
<td></td>
</tr>
<tr>
<td>V5.02</td>
<td>Sep-14</td>
<td>V6.1, V7.5, and V8.2</td>
<td>V7.5 and V8.2</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>V5.03</td>
<td>Dec-14</td>
<td>V6.1, V7.5, and V8.2</td>
</tr>
<tr>
<td></td>
<td></td>
<td>V6.00</td>
<td>Nov-15</td>
<td>V8.2</td>
</tr>
<tr>
<td></td>
<td></td>
<td>V6.01</td>
<td>June-16</td>
<td>V8.2</td>
</tr>
</tbody>
</table>
8 Installation and Upgrade Prerequisites

This document provides directions and procedures for upgrading the ControlST software suite and its associated systems and components. They must be completed in the following order.

- Prerequisites must be completed prior to the start of the installation and upgrade.
- Installation of the ControlST software suite from the ControlST DVD or .ISO file.
- Upgrade Systems (non-CMS and CMS)
- Upgrade Libraries
- Upgrade Controllers
- Upgrade Workstations

Refer to the section, Known Issues (Version Specific Upgrade Requirements) for version specific upgrade requirements. Failure to follow these requirements can result in upgrade delays or other plant operability problems.

The requirements and procedures in this document are based upon a complete plant shutdown prior to installing the new ControlST software suite. If a complete plant shutdown is not feasible, it is possible for two versions of ControlST to coexist in a single plant. During a partial shutdown transition period, the plant can be operational with the limitations in the following list:

- Online value changes are not recommended during this period; changes will be temporary and not retained after the upgrade.
- Additional logic forcing is not recommended during this period unless temporary and documented by the site.
- Maintenance limitations for multi-unit workstations and Mark VIe controllers are affected during partial upgrades. The pairing of workstations with controllers is required to prevent other devices from modifying or downloading the inappropriate software to a controller. Refer to the table Sample ControlST Upgrade Pairing as an example of such pairing in a multi-unit plant. This process may prevent a user from performing a download to a controller using a workstation that has not been upgraded.
- An upgrade matrix identifying the scheduled unit availability should be discussed, generated, and approved by the customer. Refer to the table Sample ControlST Upgrade Matrix Checklist as an example for an upgrade matrix checklist used in a multi-unit plant.

If a complete plant shutdown is not planned, contact your GE representative as required for additional requirements and planning.

<table>
<thead>
<tr>
<th>Mark VIe Controller</th>
<th>HMI Workstation Pairings</th>
<th>Non-Paired HMI Workstations</th>
</tr>
</thead>
<tbody>
<tr>
<td>GT1</td>
<td>GT1_SVR / CRM1_SVR</td>
<td>CRM2_SVR / CRM3_SVR</td>
</tr>
<tr>
<td>GT2</td>
<td>GT2_SVR / CRM1_SVR</td>
<td>CRM2_SVR / CRM3_SVR</td>
</tr>
<tr>
<td>ST1</td>
<td>ST1_SVR / CRM1_SVR</td>
<td>CRM2_SVR / CRM3_SVR</td>
</tr>
</tbody>
</table>

In preparation for the upgrade, identify a backup storage device. Select a network drive or server to save the backup information prior to the upgrade. It is recommended the storage device is not a device included in the upgrade process.
### Sample ControlST Upgrade Matrix Checklist

<table>
<thead>
<tr>
<th>Item</th>
<th>Alarms and Reports</th>
<th>Archives</th>
<th>ControlST Upgrade</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Controller / HMI Pairs</td>
<td>No hardware alarms</td>
<td></td>
<td>Install new ControlST</td>
</tr>
<tr>
<td></td>
<td>Diagnostic alarm history for 30 days</td>
<td></td>
<td>Upgrade devices</td>
</tr>
<tr>
<td></td>
<td>Process alarm history for 30 days</td>
<td></td>
<td>Download devices</td>
</tr>
<tr>
<td></td>
<td>Forced points report</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Control Constant report</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Non-volatile RAM report</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Historian archive</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>System archive</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

|           | GT1_SVR / CRM1_SVR       |                   |                   |
|           | GT2_SVR / CRM1_SVR       |                   |                   |
|           | ST1_SVR / CRM1_SVR       |                   |                   |
|           | CRM2_SVR                 |                   |                   |
|           | CRM3_SVR                 |                   |                   |

The user should not make application code changes during the upgrade process. These changes should be made before the start of the upgrade process or after it is complete.

### 8.1 Licensing

ControlST versions 5.04 and above require a new software license. Any ControlST 4.07 or earlier hardware dongle is not compatible with the ControlST V05.04.00C and later versions. The ToolboxST and WorkstationST applications only function if the license key is programmed to allow access. If the customer site has more than one product, then the license key must be programmed to allow access to each product. Refer to the following user documents for more information on ControlST licensing. Some links to URLs are internal GE network only.

<table>
<thead>
<tr>
<th>Document Number</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>GHT-200049</td>
<td>ControlST Software Suite License Key Ordering</td>
</tr>
<tr>
<td>GHT-200060</td>
<td>How to Troubleshoot ControlST Licensing Issues</td>
</tr>
<tr>
<td>GHT-200048</td>
<td>How to Order ControlST Software Media and License Keys</td>
</tr>
<tr>
<td>Link to GE internal portal</td>
<td></td>
</tr>
</tbody>
</table>

For public disclosure
8.2 Pre-upgrade System Data Collection

Verify there is a minimum of 10 GB of system disk space for each version of the ControlST software suite installed, in addition to operating system requirements. System information must be collected from all controllers.

➢ To collect system data

1. Close all programs currently open.

2. From the Component InfoView, select the Status tab and verify the controllers are at an Equal state.

3. Verify no outstanding diagnostic or process alarms, such as defective I/O packs or network hardware, are present that will interfere with the site upgrade.

4. Generate a Forced Points report:
   a. Open the project *.tcw file.
   b. From the Tree View, double-click the controller to display the Component Editor.
   c. From the toolbar, click the Go On/Offline to connect the controller online.
   d. From the View menu, click Forced Variables.
   e. From the Forced Variables dialog box File menu, select Print Preview, and click the disk icon to save a pdf of the forced variable list for archiving to the network drive or server previously selected.
   f. Repeat for all controllers.
5. Generate a Control Constants report:
   a. Open the project .tcw file.
   b. From the Tree View, double-click the controller to display the Component Editor.
   c. From the toolbar, click the Go On/Offline to connect the controller online.
   d. From the View menu, click Control Constants.
   e. From the Control Constants dialog box File menu, click Reconcile Differences.
   f. If there are differences between the initial and live values of the control constants, a Difference Report displays. From the Control Constants dialog box File menu, click Export to CSV and save the file to the selected backup storage device. Determine the best course of action to address these discrepancies.
   g. After all the differences are reconciled, from the Control Constants dialog box File menu, click Export to CSV and save the file to the selected backup storage device.
   h. If you require time to address these, click Print Preview and the disk icon to save a pdf of the Control Constants report (this would include the live and initial values of the control constants).
   i. Save the file to the selected backup storage device.
   j. Repeat for all the controllers.

6. Generate a Nonvolatile RAM Report:
   a. Open the project .tcw file.
   b. From the Tree View, double-click the controller to display the Component Editor.
   c. From the toolbar, click the Go On/Offline to connect the controller online.
   d. From the View menu, click Global Variables.
   e. From the Global Variables dialog box, right-click on one of the displayed column names and select Organize Columns.
   f. From the Organize Columns dialog box, verify Nonvolatile displays in the Shown list and not in the Hidden list.
   g. Sort on the Nonvolatile column (click on the column name to sort) until all cells that are True are grouped together.
   h. Capture screen copies of all variables Nonvolatile and their current value and save to a file.
      • Select the window you want to copy and press the Alt + Print Scrn keys to capture the screen.
      • Open WordPad and paste the screen to the page.
      • Save to the selected storage device.
   i. Repeat for all the controllers.

7. Generate an Alarm and Events Report

   Note  The Totalizer data does not change during a controller firmware download or restart.

   a. Beginning with ControlST V04.04, controller configurations must not exceed the following limits:
      i. Configured Process Alarms and Holds limit = 4,096 maximum
      ii. Configured Holds limit = 512 maximum
      iii. Configured Events limit = 2,048 maximum
   b. If these limits are exceeded, reduce the number of configured Process Alarms, Events, and Holds.
Caution

Do not proceed with the upgrade until the limits are met.

8. Capture Totalizer data.
   a. Open the project .tcw file to display the System Editor.
   b. From the Tree View, double-click the controller to display the Component Editor.
   c. From the toolbar, click Go On/Offline to connect the controller online.
   d. From the Device menu, click Administer and Totalizers. Select the designated processor and click OK. The Totalizers dialog box displays.
   e. Record the Totalizer data for each controller by taking a screen copy of the values. (The Save selection from the dialogue box does not capture the actual values. It records the Identifier number only.) The Totalizer data can also be recorded by taking a screen copy of each controller using the HMI screens.
   f. Repeat this procedure for all controllers.
8.3 Non-CMS System Archive

After all other preparations are complete, archive the master .tcw system file that was determined to be equal in the section Pre-upgrade System Data Collection, step 2.

➢➢ To archive the .tcw system file

1. Identify the master workstation where the Mark V1e .tcw system is stored.
2. Open the running software from the master workstation device.
3. Ensure all the system components are saved.
4. From the File menu, select Archive System.

5. From the Archive System dialog box, click All and OK.
6. Save the zipped file to a storage device.
7. From the master workstation, backup the Master folder.
8. From the Historian* workstation device (if a GE-supplied Historian exists), archive the Historian data to the selected backup storage device.
9. If the WorkstationST* Status Monitor, WorkstationST Alarm Viewer, and Trender features are currently configured to display non-English text, then prior to uninstalling or installing the ControlST software suite, create a backup copy of the folders containing translated Resource DLLs. Refer to the section Multilingual Support.
8.4 CMS System Archive

➢ To archive the .tcw system file

1. Identify the Master Server where the .tcw software is installed.
2. Open the running software from the Master Server Workstation where the .tcw system file is stored (E:\Site\local_checkout).
3. Ensure all the system components are saved.
4. Ensure all the system components are checked in to Configuration Management System (CMS).
5. Perform a recursive GET from all Workstations to verify all components are at the Equal state.
   − From the System Editor Tree View, right-click the system icon (the top item in the tree), select CMS, and click Get Latest Version.
6. From the File menu, select Archive System.
7. From the Archive System dialog box, click All and OK.
8. From the Save As dialog box, save the .zip file to a separate storage device, and then save it to an HMI that is not affected by the current upgrade.
9. From the Historian workstation device (if a GE-supplied Historian exists), archive the Historian data to the selected backup storage device.
10. If the WorkstationST Status Monitor, WorkstationST Alarm Viewer, and Trender features are currently configured to display non-English text, then prior to uninstalling or installing the ControlST software suite, create a backup copy of the folders containing translated Resource DLLs. Refer to the section Multi-language Support.

8.5 Shared IONet

Note Refer to the Mark Controllers Shared IONet User Guide (GEH-6812) for more information.

Beginning with ControlST V04.06, Shared IONet allows two controllers to share inputs from I/O modules. If this new feature is desired, the following items must be considered during an upgrade:

• If a Mark VIeS Safety controller is configured, perform an upgrade on this controller first.
• If present, the Mark VIeS Safety controller becomes the new grand master for NTP time synchronization. Verify that the NTP settings are identical for each controller.
• Identify I/O modules that are not supported by this feature.
• Controller IONet IP Addresses (third octet) may need to be modified.
• The I/O may need to be compressed and the controller restarted. Further troubleshooting may be required.
9 **Platform Software Upgrade**

This section describes how to upgrade the ControlST software suite using the ControlST DVD or .ISO file. The upgrade process requires that the procedures be performed in the order listed. These instructions have been prepared to assist a qualified GE Field Engineer implementing a site software upgrade.

Starting with ControlST V05.00, a new GE PROFICY license is required for the ToolboxST and WorkstationST applications. You must have the new license installed to open or create .tcw files.

Install the appropriate options from the GE ControlST DVD or .ISO file on all workstations, HMIs, and computers. Do not install the CMS server application on any other computer except the HMI that is currently used as the CMS server.

**Attention**

**Note** If working in a CMS environment, the upgrade process requires coordination with, and the cooperation of, other clients and users on the system. A system administrator should upgrade the master workstation (master copy) first. This requires that all master system files under CMS control be checked out of the repository for the update and checked back in after the update. Build changes and downloads to devices, libraries, or workstations made by other users while the master system files are checked out will be lost since their access is limited to a read-only copy of the data.

These procedures assume that the user is upgrading their existing ControlST software suite and have in their possession, the GE ControlST DVD, hardware key, the access level privileges, and required system passwords.

**Note** The release and version numbers displayed in the following dialog boxes may vary from those displayed during actual installation. The content of the dialog boxes may also vary based upon the actual version being installed.

➢➢

**To upgrade to a new version of the ControlST software suite**

1. Verify the C:\ hard drive has a minimum of 10 GB available disk space for installing the new ControlST software suite version. Free up adequate space if necessary before proceeding with the installation.

2. If upgrading from a version prior to V05.00, remove the hardware key.

3. If installing from a .ISO file, use one of the following methods to run the installation program:
   - If installing onto a Windows 8 or Server 2012 R2 or newer operating system, this is available directly from the Windows. Just click the .ISO to mount it to a drive letter and then run the setup.exe from there.
   - If installing onto a Windows 7 operating system, first install a freely distributed mounting software, for example Virtual Clone Drive or use 7-zip to extract the contents from the .ISO into a folder or burn the .ISO to a physical DVD. Then, run the setup.exe program.

**Note** Detailed procedures for all of the above methods for installation from .ISO images are available on the internet.

4. If using a DVD, place the new ControlST DVD into the CD/DVD drive. The installation starts automatically. If the installation does not start automatically, use Windows® Explorer to navigate to the CD-ROM drive and double-click on setup.exe. The Read Me First message box displays.
5. Click **Continue** (or **OK**).

6. Select the desired package(s) and click **Install**.
Configuration Tools Package  This is the distribution of the ToolboxST application and its packages for configuration of the various controller types that it supports. The Configuration Tools Package is required on each HMI that will be involved in the site configuration - it is typically installed on all HMIs.

Configuration Tools Documentation  Provides the PDF files for the Mark VIe controls product line.

WorkstationST Application  This is the runtime portion of the HMI or Historian, which communicates with controllers to collect real-time data and alarm information for the HMI. It includes the EGD Configuration Server which is the real-time server of the configuration information. The WorkstationST application must be installed on each HMI and Historian.

CMS Server  This is the Configuration Management Server. This package should only be installed on one HMI, the one designated as the site's CMS Server (if used) [S-CMS = Server].

Hart® Message Server  This is a special package that operates as a Hart Message Server for Emerson® AMS® support. It is typically installed on only one HMI at the site (if used).

Simulink™ Block Lib  This is a special block library used for MATLAB™ configuration and simulation. It is only installed if this HMI requires that support (most don't).

Historian Reports  This is a Historian Reports package that is only installed on site Historians, not on HMIs.
9.1 **Configuration Tools (ToolboxST* Application)**

At this point if Configuration Tools Package was selected, the installation begins. Beginning with V06.00, the ControlST Support Package is installed first (and Product Def interfaces), then the Configuration Tools installation begins.

➢ **To upgrade the configuration tools (ToolboxST application)**

1. From the **Setup** dialog box, click **Install**.
2. The **Welcome** dialog box displays. Click **Next**. The **License Agreement** dialog box displays.
3. To continue the installation you must accept the agreement. Select **Agree**.
4. Click **Next**. The **Destination Folder** dialog box displays.
5. Click **Next**. The **Custom Setup** (or **Select Features**) dialog box displays.

For a complete installation, click **Next** and go to **step 7**.

For a single-feature installation, go to **step 6**.
6. For a single-feature installation, perform the following:

Click the icon next to **GE Configuration Tools Package** and select **Entire feature will be unavailable** (red X) to disable all features.

Click the icon next to the desired feature and select **Entire feature will be installed on local hard drive**.

Click Next and go to step 7.

**Note** This example would be used if only installing the firmware for a BPPC-based PAIC I/O module. Refer to the **BPPC I/O Upgrade V05.01.xx Instruction Guide** (GEI-100847) for more information on upgrading from BPPB to BPPC.

7. From the Ready to Install screen, click **Install**. A progress window displays. When the installation is complete, click **Finish**.
9.2 Configuration Tools Documentation Install

If this installation choice was checked, then the Mark VIe controls product documentation .pdf files are installed onto the HMI computer at the location specified.

9.3 WorkstationST Application

When the Configuration Tools (ToolboxST application) installation is complete, the Setup message box displays.

➢➢ To upgrade the WorkstationST Application

Click Yes to install.

The Welcome dialog box displays.

1. Click Next. The License Agreement dialog box displays.
2. To continue the installation you must accept the agreement. Select Agree.
3. Click Next. The User Information dialog box displays.
4. Enter the Full Name of the computer and the Organization name, and select the allowed user(s).
5. Click Next. The Destination Folder dialog box displays.
6. Click Next. The Custom Setup (or Select Features) dialog box displays.

Note  The Alarm Viewer can be installed by itself for use on a remote computer.
To select a component not to be installed, click the icon next to the component and select the red X.

Click Next.

7. A progress window displays. When the installation is complete, click Finish.

9.4 Install Additional Options

➢➢ To install additional options

1. Click Yes and follow the installation dialog boxes to install selected additional options (CMS Server, Hart Message Server, Simulink Block Lib, or Historian Reports). When complete, the following message box displays. Any updates for the Proficy client licensing are installed after all products installations (and before the Exit Setup dialog box displays).

Note If the Proficy License Client does not automatically install during ControlST installation, the following Security Warning dialog box displays. You must exit setup and manually run ProficyClientInstaller.exe from the DVD_files directory to install it. Without the Proficy License Client installed, you will not be able to open the installed ControlST applications.
2. Click Yes to exit Setup.

Note Before exiting Setup, the installation program also installs Support files, such as those required for the new GEIP licensing. These files only need to be installed one time and will not be re-installed if additional products are selected.

3. After the Support files are installed, install the new GEIP license key. Wait at least one minute before continuing.

4. From the Start menu, select All Programs, Proficy Common, and License Viewer. Verify the correct ControlST software suite options are enabled.
9.5 CMS Server

If you are upgrading to ControlST V06.00 or later, refer to the section Upgrade from CMS to CMS-SVN. All others refer to the section Upgrade the CMS Server.

9.5.1 Upgrade from CMS to CMS-SVN

Beginning with ControlST V06.00, the CMS Server has been updated to improve its responsiveness and reliability. This change is not backwards compatible; systems must be moved into a new CMS-SVN repository. These systems will not include the history from the previous repository; it will use only the latest version from the previous repository.

Perform the following procedures to upgrade:

• Get a copy of the system from the current repository
• Configure the new repository
• Add a system to the new repository

➢➢ To get a copy of the system from the current repository

1. Make sure no files are checked out.
2. Use the current ToolboxST version (prior to V06.00) to get the latest version of files from the CMS repository.

To configure the new repository, add the system to the CMS Server.

➢➢ To add a system to a repository

1. Open the ToolboxST application system .tcw file.
2. Log in to the CMS Client.

Attention

This operation is performed only once for a system, at initial use.
From the CMS menu, select Login.

Enter the Repository URL in the Server URL field, enter your username and password, then click OK.

The Repository URL address is available from the CMS Administrator Tool configuration and can be provided to site users.
3. If the CMS Server was configured with a self-signed certificate, users are prompted to save and accept the certificate.

   ![Connect to Subversion]

   Select **Save certificate** and click **Accept**.

   **Note:** If you do not select **Save certificate**, you will be asked to accept this certificate each time you log on to the CMS server.

4. Add the system to the repository.
To get a Working Copy from the CMS Server to other computers

Attention

This operation only needs to be performed one time for each computer to get a local Working Copy of the system on each computer.

1. From the ToolboxST application, get the system from the CMS Server.

From the CMS menu, select Get System from Repository...

Enter the Repository URL in the Server URL field, enter your **username** and **password**, then click **OK**.
2. If the CMS server has been configured with a self-signed certificate, users are prompted to save and accept the certificate.

Select **Save certificate** and click **Accept**.

**Note**: If you do not select **Save certificate**, you will be asked to accept this certificate each time you log on to the CMS server.

3. Save the Working Copy of the system to a designated location on the computer.

From the drop-down menu, select the system. Enter the folder path or click **Browse** and select a location to save the system folder, then click **OK**.

**Note**: Even if the folder path requires a new folder, the system will automatically create the new folder.
To open a system from the CMS Client

1. From the ToolboxST application, open a system.

   From the **File** menu, select **Open System**...

   ![Open System Menu](image)

2. Log on and connect to the CMS Server.

   **Note** You must connect to the correct CMS Server to log on.

   ![CMS Login](image)

   Verify that the Repository server URL is correct. Enter your **username** and **password** and click **OK**.
9.5.2 Procedure to Upgrade the Legacy CMS Server (If not upgrading to ControlST V06.00 or later)

➢ To upgrade the Legacy CMS Server

1. When the WorkstationST application installation is complete, the Setup message box for the CMS Server displays.

```
Click Yes to install.

The Welcome dialog box displays.
```

2. Click Next. The License Agreement dialog box displays.

3. To continue the installation you must accept the agreement. Select Agree.

4. Click Next. The Destination Folder dialog box displays.

5. Click Next. The Ready to Install dialog box displays.

6. Click Install. A progress window displays. When the installation is complete, click Finish.
10 System and Component Upgrades

The ControlST software suite supports a variety of control equipment. These products include updated firmware for the equipment and configuration tools that are available as component editors inside the ToolboxST application. When a new version is installed, newer versions of some components may be installed as well. To use the new versions, you must upgrade each component.

10.1 System Upgrade

➢➢ To upgrade the .tcw system file in a CMS environment

1. Open the running software from the Master Server Workstation device where the .tcw system file is stored (E:\Site\local_checkout). The following message may display.

![Message dialog box](image)

2. Click No to upgrade the system to the new version. The system displays in the System Editor.
   or
   Click Yes to keep the system in the old version.

Note Once the selection is made to keep the old version, upgrade prompts do not display when opening the system file in the future, unless the Maintain Compatibility property of the system is turned off. This option allows the use of different ToolboxST versions for different devices in the same system. If an attempt is made to use a feature incompatible with the file version the system is in (such as Shared IONet between V04.05 and V04.06), a warning displays and gives the option to cancel.

3. If CMS server is used to manage the .tcw system file, from the Tree View, right-click the system icon (the top item in the tree), select CMS and click Check Out. If a CMS server is not used, go to step 5.
4. If the message box displays, click **OK**.

5. From the **File** menu, click **Save**.

6. Close the **System Information Editor**.

7. From the **System Editor File** menu, click **Save System**.

8. If the message box displays, click **OK**.

9. If a LiveView is included in the system, perform the following, if not, go to step 10.
   a. Using the new version, open the LiveView screen in edit mode.
   b. Save and close the LiveView.
   c. Reopen the LiveView screen to display LiveView in the new version.

10. For CMS systems, from the **Tree View**, right-click the system icon (the top item in the tree), select **CMS** and click **Check In**.
10.2 Upgrade EX2100e and LS2100e Control Systems with Windows 2012R2 or Windows 10 Operating Systems

The upgrade of an EX2100e or LS2100e control system requires that both the new and current (previous) version of the runtime be present on the workstation where the upgrade is performed. However, ControlST versions prior to V06.00.xx (with older runtimes required for upgrade) will not install on workstations with a Windows 2012R2 operating system. Upgrade instructions for this issue are provided in this section.

10.2.1 Upgrade System on Existing Windows 7 Workstation

➢➢ To upgrade the system with Windows 7

1. Verify the current GE Configuration Tools Package version (with the current EX2100e and LS2100e runtime versions) is installed on the workstation.

2. Install the new GE Configuration Tools Package on the workstation. The new ToolboxST and EX2100e/LS2100e runtimes will be installed in parallel with the old versions.

3. Open the ToolboxST system, and upgrade the system including EX2100e and/or LS2100e.

4. Perform a Build and download all components.

5. After successful upgrade, uninstall the previous version of the GE Configuration Tools Package.

10.2.2 Upgrade System on Windows 2012R2 or Windows 10.

Note This procedure involves manually copying the current EX2100e and LS2100e runtime files from a Windows 7 workstation to the Windows 2012R2 workstation.

1. Install the new GE Configuration Tools Package on the Windows 2012R2 workstation.

2. Install the current GE Configuration Tools Package version (with the correct current EX2100e and LS2100e runtime versions) onto a Windows 7 workstation (laptop). Verify that this version matches what is currently being used in the system.

3. Copy the Vxx.xx.xxC folders in each of the following folders on the Windows 7 workstation to the corresponding folder on the Windows 2012R2 workstation:
   - C:\Program Files (x86)\GE Energy\EX2100e Excitation Control\EX2100e
   - C:\Program Files (x86)\GE Energy\EX2100e Excitation Control\EX2100e_Reg
   - C:\Program Files (x86)\GE Energy\EX2100e Excitation Control\EX2100e_TSR
   - C:\Program Files (x86)\GE Energy\Static Starter Control\LS2100e

Note There will be a newer Vxx.xx.xxC folder in each of the folders on the 2012R2 workstation. Do not delete these folders. After the copy is completed there should be both an older and newer Vxx.xx.xxC folders in each of the folders listed here.

4. Open the ToolboxST system, and upgrade the system including EX2100e and LS2100e.

5. Perform a Build and download all components.

6. Leave the older version files in place after the upgrade is completed.
10.3 Library Upgrade

Attention

Libraries must be upgraded before controllers can be upgraded.

➢➢ To upgrade the libraries

1. If CMS server is used to manage the .tcw system file, from the System Editor Tree View, right-click a library container, select CMS and click Check Out. If a CMS server is not used, go to step 2.

2. From the System Editor Tree View, double-click a library container to display the Component Editor. The following message box displays.

   ![Upgrade Component Message Box]

   Click OK.

   A message box explaining the changes displays.

   ![ToolboxST Message Box]

   Click OK.
From the **Component Editor**, select **Libraries**.

From the **File** menu, select **Upgrade**.

The **Library Upgrade Wizard** welcome screen displays.

Click **Next**.

The following Wizard screen displays.
3. From the **Component Editor’s Summary View**, check the **Directory** and verify the **BlockLibs** are upgraded by reviewing their version references.

4. Click **Save**. If the following message box displays, click **OK**.

   ![Message Box]

   **Click OK.**

   From the toolbar, click the **Validate** icon to validate the changes.
5. If errors were corrected, from the toolbar, click **Save** and **Validate**.

**Note** Instance All is not recommended.

6. **Close** the library.

7. For CMS systems, from the **Tree View**, right-click the library container, select **CMS** and click **Check In**.

8. Repeat this procedure for the remaining library containers displayed in the **Tree View**.
10.4 Controller Upgrade

The procedure for upgrading controller components is similar to that for the libraries. Some components have optional libraries referenced that do not automatically get upgraded. The following steps explain how to upgrade a component with or without optional library references.

➢ To upgrade configured controller components

1. If a CMS server is used to manage the .tcw system file, from the System Editor Tree View, right-click a controller component, select CMS and click Check Out. If a CMS server is not used, go to step 2.

2. From the System Editor Tree View, double-click a controller component to display the Component Editor. The following message box displays.

   ![Upgrade Component dialog box](image1)

   Click OK.

   The following message box displays.

   ![Version selection dialog box](image2)

   ![ToolboxST warning dialog box](image3)

   Click OK.

   The following message box displays.

For public disclosure
3. Click OK.
4. When a Watch Window exists in a component, a Watch Window upgrade message box displays, click OK.
5. From the File menu, select Upgrade. If prompted, enter the required password. The following message box displays.
6. Click OK. The LAN modules display as Warnings in the Log tab.
7. When a newer version of a referenced external block library is available in the new installation, an Upgrade External Block Library dialog box displays, select the latest version and click OK.
8. From the **Component Info View**, select the **Log** tab, check for and correct any errors from the upgrade. Also, review all warnings and correct if necessary.

![Component Info View](image)

**Note** Instance All is not recommended.

![Component Editor](image)

For versions 03.06.xx and higher, from the controller **Component Editor**, select **Enable Auto-Reconfiguration** and set to **False**.

The following message box displays.
9. From the toolbar, click the **Build** button.

10. From the **Component Info View**, select the **Log** tab. Check for and correct any errors from the build. Also, review all warnings and correct if necessary.

   When upgrading a Mark VIe controller from V04.05 or lower to V04.06 or higher, there are some configurations that will display the highlighted warning. If this warning displays, perform the following steps to clear the warning before proceeding to step 11.

   **Note** The warning displays because the I/O packs in V04.06 are enabled to use multicast IP addressing on the outputs from the controller. The warning is issued to ensure that during this transition all I/O packs and the associated controller are downloaded and restarted. The download and restart are forced to ensure that communications between the controller and the I/O packs are updated to the new multicast addressing scheme.
When this message box displays, click **Yes**.

11. If errors (or warnings) were corrected, click the **Build** button and click **OK** in the message box that displays.

12. **Save** and **Close** the component.

13. Repeat this procedure for the remaining Mark VIe components.
10.5 I/O Pack Firmware Upgrade

**Note** Refer to *Service with Updated Technology Mark VIe I/O Packs Extended Product Life Cycle Support Notice* (GEZ-S2026) for more detail.

As part of the ongoing support for the Mark VIe controls platform, the processor board in many I/O packs has been migrated from a BPPB to a BPPC. There are two requirements to utilize the new BPPC based I/O packs:

- The Mark VIe system must be at ControlST V04.04.xx or later
- The I/O pack(s) firmware must be upgraded using BPPC I/O Upgrade V05.01.05 or later. Refer to the *BPPC I/O Upgrade V05.01.05 Instruction Guide* (GEI-100847) for a detailed description of this upgrade procedure.

For I/O packs that are not yet part of the migration to BPPC form factor, refer to the *ToolboxST User Guide for Mark Controls Platforms* (GEH-6700), the section Upgrade Component and I/O Modules.

10.6 Controller Download

The controller components must now be downloaded.

➢➢ **To download to the controllers**

1. If using a Shared IONet group, verify that all Component Editors have been saved and closed. It is recommended that controller downloads be performed from the System Editor. Refer to the *Mark Controllers Shared IONet User Guide* (GEH-6812).
2. If not using a Shared IONet group, double-click the controller to display the Component Editor.
3. From the Component InfoView, select the Log tab. Check for and correct any errors. Also, review all warnings and correct if necessary.
4. If errors were corrected, click the Build button and return to step 2 until there are no errors or warnings.
5. Go online with the controller

From the toolbar, click **Download** to download to the controller.

When the Welcome page displays, click **Next**.
**Note** When performing a first-time download for an upgrade or initial power sequence, do not manually check or uncheck any I/O packs or controllers during the download Wizard.

**Attention**

Each controller (R, S, and T) requires a restart with a Base Load, Firmware, or Application Code download. The amount of time required for this varies by site and configuration. Allow adequate time for the controller to restart.

While the controllers are downloading, the following status window displays.

**Note** Do not restart the controllers or I/O packs during the download. The ToolboxST application does this automatically. This could lead to failed I/O packs.
When the controller restart is complete, from the Component InfoView, verify Controller Equality is Equal.
6. From the toolbar, click **Download** to download to the I/O packs.

![Download Mark Vle Controller](image)

Click to select **Scan I/O**.  
Click **Scan** to rescan and include I/O.  
Click **Next**.  
Allow adequate time for downloading to the packs.

**Note**  
Do not restart the controllers or I/O packs during the download. The ToolboxST application does this automatically. This could lead to the failure of I/O packs.

While the I/O packs are downloading, the status window displays.

7. From the **Component InfoView**, select the **Log** tab. Check for and correct any errors from the download. Also, review all warnings and correct if necessary.

**Note**  
Do not restart the controller while fixing errors.
The I/O pack will have a red X mark as shown in the following figure if it is not communicating with the controller.

![Image of I/O pack with red X mark]

If the download is complete and any of the I/O packs is still not communicating, troubleshoot those I/O packs.

When the download is complete, verify the controller and all I/O packs are equal.

From the **Component Infoview Status** tab, the following should display:

**Control State – Controlling**

**Controller Equality – Equal**

**IO Equality - Equal**
For versions .03.06.xx and higher, if the site (customer) wants the Auto-Reconfiguration feature, from the Property Editor, select Enable Auto-Reconfiguration and set to True.

When this step is performed, restart the controller to perform an offline download of the configuration to all I/O packs in the controller.

8. After the controller has restarted, from the toolbar, click Build. Resolve any errors prior to download.

9. From the toolbar, click Download.

10. Refer to the section Post Upgrade and perform the controller related (first four) checks in the list.

11. For CMS systems, from the System Editor Tree View, right-click the controller component, select CMS and click Check In.

12. Repeat this download procedure for all controllers.

10.7 WorkstationST Device Upgrade

After all libraries and controller components have been upgraded, use the following procedure to upgrade the WorkstationST Devices in the ToolboxST system.

➢➢ To upgrade WorkstationST Devices

1. If the WorkstationST Status Monitor, WorkstationST Alarm Viewer, and Trender features are currently configured to display non-English text, refer to the section Multi-language Support. If not, proceed to step 2.

2. If a CMS server is used to manage the .tcw system file, from the System Editor Tree View, right-click the WorkstationST Device, select CMS, and click Check Out.

3. From the ToolboxST System Editor Tree View, double-click the WorkstationST Device to display the Component Editor.

4. From the Component Editor toolbar, click Download. If any modification exists since the last download, a Build starts.
Device DocTeamMachine has changed since the last build. Would you like to build?

Click Next.
5. Click **Finish**.

6. When the download is complete, from the toolbar, click **Go Online**.

7. If CIMPLICITY project is used, perform steps 7 and 8. If not, go to step 9. After the HMI Device is online, the HMI importer runs to populate and/or update the CIMPLICITY project. From the **InfoView Status** tab, the **HMI** item displays **HMI Importer is Running**.

8. After the HMI Importer is complete, a time stamp is recorded. From the **InfoView Status** tab, the **HMI** item displays **HMI Importer is Ready to Import**.
9. If a backup copy of the Status Monitor, Alarm Viewer, and Trender translated Resource DLL folders was made in step 1, refer to the section Multi-language Support to restore the folders. If not, go to step 2.

10. For CMS systems, from the System Editor Tree View, right-click the HMI component, select CMS and click Check In.

11. Repeat this procedure for all WorkstationST devices (HMIs and Historians) applicable to the upgrade.

10.8 Post Upgrade

After the installation is complete and the upgrade process has been performed on all libraries, controllers, packs, and HMIs, perform the following checks:

- Forced Variable checks: Generate a forced variable report as performed in the section Pre-upgrade System Data Collection. Compare both reports. Restore any necessary forces that were initially identified if necessary.
- Non-volatile RAM checks: Generate a Non-volatile RAM report as performed in the section Pre-upgrade System Data Collection. Verify the values are retained.
- Control Constant reports: Generate a new control constant report as performed in the section Pre-upgrade System Data Collection. Check for differences with the previous report (before upgrade). Correct any differences if necessary.
- Capture Totalizer Data checks: Generate Totalizer data as performed in the section Pre-upgrade System Data Collection. Check for differences with the data (before upgrade). Correct any differences if necessary.
- If a GE Historian exists, ensure it is collecting data from the upgraded controllers.
- Verify the reference HMI components are exchanging data.
- Verify any third-party communication such as GSM, Modbus, and OPC devices.

10.9 Remove Previous ControlST Software Suite

Note When a system has new EX2100e or LS2100e controllers, you must have the old version runtime software present with the new version runtime software for an upgrade to be performed. Once upgrade is completed then the old software can be removed.

➢➢➢ To remove the previous (older) version of the ControlST software suite

Note Before continuing, refer to section, Known Issues (Version Specific Upgrade Requirements), item D, regarding ARES blocks.

1. From the Start menu select Settings, click Control Panel, and double-click Add or Remove Programs.
2. Select GE Configuration Tools Package (or in older versions, GE ControlST Package) and click Remove.
3. When the removal is complete, close the Add or Remove Programs window.
4. When backups were made of translated Resource DLL folders, after completing the ControlST software suite installation, refer to the section Multi-language Support to restore the translated Resource DLLs prior to continuing with the upgrade process.
5. Repeat the installation and removal for all HMIs that require a ControlST software suite upgrade.

Note Remember to install the Hart Message Server and CMS Server on appropriate computers as you continue the upgrade process.
11 Multilingual Support

Attention

This process must be done on each HMI that uses non-English displays before starting the upgrade process.

Note The folder name containing the translated resource DLLs is based on the Language Culture Name. For example, for resource DLLs translated into French (Luxembourg) the folder name is fr-LU and for resource DLLs translated into Spanish (Peru) the folder name is es-PE.

Note The ControlST software suite features are installed within the C:\Program Files (x86)\GE Energy.

To back up the translated Resource DLL folders for Multi-language display

Each language folder contains several files that end with .resources.dll extension. It may also contain the <application name>Dictionary.txt file, a tab separated value file that contains the string translations used to create the .resource.dll files. It may also contain a translated online help manual that has a .chm extension.

1. For the WorkstationST Status Monitor create a backup of the folder:
   Program Files (x86)\GE Energy\WorkstationST Features\<language culture name>
   or
   Program Files (x86)\GE Energy\WorkstationST Features\<language culture name>

2. For the WorkstationST Alarm Viewer create a backup of the folder:
   Program Files (x86)\GE Energy\WorkstationST Alarm Viewer\<language culture name>
   or
   Program Files\GE Energy (x86)\WorkstationST Alarm Viewer\<language culture name>
3. For the T render create a backup of the folder:

   Note  For ControlST versions prior to V06.02, the T render files were located under Program Files (x86)\GE Energy \ToolboxST\Vxx.xx.xxC\OperatorTools\<language culture name>

   Program Files (x86)\GE Energy\TrenderST\<language culture name>
   or
   Program Files (x86)\GE Energy (x86)\TrenderST\<language culture name>

4. Install the ControlST software suite. Refer to the section Platform Software Upgrade to install the features that you would normally install.

   After the installation of the ControlST software suite is complete, perform the following procedure to restore the translated Resource DLL folders before continuing with the upgrade process.

   This process must be done on each HMI that uses non-English displays.

   **Attention**

   To restore the translated Resource DLL folders from the backup location for Multi-language display

   1. Restore the WorkstationST Status Monitor Resource DLLs from the backup folder to:
      Program Files (x86)\GE Energy\WorkstationST Features\<language culture name>
      or
      Program Files (x86)\GE Energy (x86)\WorkstationST Features\<language culture name>

   2. Restore the WorkstationST Alarm Viewer Resource DLLs from the backup folder to:
      Program Files (x86)\GE Energy\WorkstationST Alarm Viewer\<language culture name>
      or
      Program Files\GE Energy (x86)\WorkstationST Alarm Viewer\<language culture name>

   3. Restore the T render Resource DLLs from the backup folder to:
      Program Files (x86)\GE Energy\TrenderST\<language culture name>
      or
      Program Files (x86)\GE Energy\TrenderST\<language culture name> where Vxx.xx.xxC is the version of the application just installed.

   After restoring the Resource DLLs the user may see non-translated strings in the WorkstationST Status Monitor, WorkstationST Alarm Viewer, or T render if these strings were added or changed in the application in a software release that occurred after the Resource DLLs were created.
### 11.1 Language Culture Names

The following table lists the available cultures and subcultures. The Name column contains names used as the Language component of all file names and used as directory names that contain resource files for that culture.

*Note* Right-to-left languages are not supported.

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<th>Name</th>
<th>Display Name</th>
<th>Name</th>
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# 12 Known Issues (Version Specific Upgrade Requirements)

The following are identified issues for upgrading the ControlST software suite. Use the table for a list of issues to check for the currently installed version.

<table>
<thead>
<tr>
<th>Currently Installed Version</th>
<th>Known Issue(s)</th>
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<tbody>
<tr>
<td>V03.02 or below</td>
<td>A, B, C, D, E, F, G, H, I, J, K, L, M, O, P, Q, R, S</td>
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<td>V03.03 and V03.04</td>
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<td>V03.05</td>
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<td>V04.04 and V04.05</td>
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<td>V04.06, V04.07, V05.00, V05.01, and V05.02</td>
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<td>V05.04, V06.00, V06.01, V06.02, and V07.00</td>
<td>C, I, S</td>
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</table>

**Known issues:**

**A. Issue:** Signed/Unsigned  
**Applies to:** ControlST V02.01 or below, upgrading to any later version  
**Description:** The ToolboxST application allows connections between INTs and UINTs, LINTs and ULINTs, DINTs and UDINTs  
**Action:** Upgrading a configuration that was saved with ToolboxST application V02.01.13C or earlier might give build errors because variables of incompatible data types are connected. The configuration will have to be changed to use variables of the same type, or use MOVE blocks to convert signed variables to unsigned or vice-versa.

**B. Issue:** TRN_Delay block  
**Applies to:** ControlST V03.01 or below, upgrading to V03.02 (fixed in V03.03)  
**Description:** When building an application with a TRN_Delay block where the N_DELAY pin is set to 1 or 0, the validation may fail with the error Required pin does not have connection LIST.  
**Action:** Create a new variable of type REAL and attach it to the TRN_Delay block’s LIST pin.

**C. Issue:** I/O pack corruption  
**Applies to:** Any ControlST software suite version being upgraded  
**Description:** If power is turned off to panel while an I/O pack download is in progress, the pack may become corrupted and require replacement.  
**Action:** Do not turn power off to the panel while performing an I/O pack download. Always check the ToolboxST application screens to verify the download is complete prior to turning power off.

**D. Issue:** MPC ARES Block (when to uninstall old version)  
**Applies to:** ControlST V03.01 or below, upgrading to V03.02 (fixed in V03.03)  
**Description:** When upgrading a system to ControlST V03.02, the upgrade might fail because of referenced ARES and MPC block libraries.  
**Action:** When upgrading a system to ControlST V03.02, leave the old version of the ControlST software suite installed until AFTER the upgrade is complete.
E. Issue: Installing the WorkstationST application without the ToolboxST application
Applies to: Any ControlST software suite version upgrading to V04.03 R2 (fixed in V04.04)
Description: When installing the WorkstationST application without the ToolboxST application from the ControlST DVD V04.03 R2, the OPC DA Server feature does not work correctly with the Alarm Server.
Action: There are two ways to fix this issue. Either install the ToolboxST application, or run the veredit_x86.exe file (provided in the install package). A computer restart is not required.

F. Issue: WorkstationST Web
Applies to: ControlST V04.03 or below, upgrading to V04.04 or later
Description: The WorkstationST Web subsystem uses the Microsoft® ASPX .NET framework to provide web pages containing real time and historical data. The ControlST V04.04 has switched from using .NET version 2.0 to using .NET version 4.0. This means it is necessary to tell the Microsoft Web Server to launch the programs under the .NET 4.0 framework instead of the .NET 2.0 framework. The WorkstationST Web subsystem is primarily used on the OSM to provide information via web pages, it is seldom used on an HMI. If you are not using the WorkstationST Web subsystem you do not need to make this change.
Action: The definition of which .NET version to use is an attribute in the Microsoft Internet Information Server (IIS) settings. The location of this setting is slightly different for different operating systems. For full installation details, refer to GEI-100661, WorkstationST Web View found under START - GE ControlST - Documentation. The following summary shows the setting that needs to be changed when updating from versions prior to V04.04.

Windows XP
• Open the Control Panel, select Administrative Tools and Internet Information Service.
• Select the entry for local computer - Web Sites - Default Web Site - scripts - Wkstn-aspx.
• Right-click on the above entry and select Properties.
• From the ASP.NET tab, set the ASP.NET version to V4.0.30319.
• Click OK and exit the application

Windows Server 2003 R2
• Open the Control Panel, select Administrative Tools and Internet Information Service (IIS) Manager.
• Select the entry for local computer - Web Sites - Default Web Site - scripts - Wkstn-aspx.
• Right-click on the above entry and select Properties.
• From the ASP.NET tab, set the ASP.NET version to V4.0.30319.
• Click OK and exit the application.

Windows 7
• Open the Control Panel, select Administrative Tools and Internet Information Service (IIS) Manager.
• Select the entry for local computer - Web Sites - Application Pools.
• Right-click on the entry for WorkstationST AppPool and select Basic Settings.
• In the .NET Framework Version entry select .NET Framework V4.0.30319, click OK and exit the application.

G. Issue: Windows 2000 operating system obsolescence
Applies to: ControlST V03.06 or below, upgrading to V04.00 or later
Description: The ControlST software suite releases beginning with V04.00.xx will no longer run on the Microsoft Windows 2000 operating system. The Controls CoE NPI team has determined this step is necessary to allow future ControlST software suite releases to take advantage of technological improvements in more recent operating systems. Subsequent attempts to install new releases of the ControlST software suite onto Windows 2000 operating systems will be prevented.

Action: Upgrades to ControlST V04.00 or later require HMI or operating system upgrades on Windows 2000-based HMIs.

H. Issue: Removal of previously installed versions of the WorkstationST application is required prior to installation of a new version.

Applies to: ControlST V03.02 or below, upgrading to a newer release of V03.02 or below (fixed in V03.03)

Description: For currently installed WorkstationST application V03.02 or below, it is required that the existing version of the WorkstationST application be removed prior to installing an upgraded version from the ControlST DVD.

Action: Remove the previously installed version of the WorkstationST application prior to installation of a new version.

➢➢➢ To remove the previous installation of the WorkstationST application

1. From the Start menu select Settings, click Control Panel, and double-click Add or Remove Programs.
2. Select GE WorkstationST Package and click Remove.
3. Close the Add or Remove Programs window after completion.

I. Issue: Installing the MATLAB application and the GE Simulink Block Library.

Applies to: Any ControlST software suite version upgrading to V04.00 or later

Description: When installing ControlST V04.00 or later, the MATLAB application must be installed before installing the GE Simulink Block Library.

Action: Install the MATLAB application before installing the GE Simulink Block Library.

J. Issue: Control watchdog protection

Applies to: Any ControlST software suite version upgrading to V04.04 or later

Description: With ControlST V04.04, the controller watchdog (ContWdog) is now always enabled and must be driven. After upgrading, existing systems that do not drive ContWdog will trip and produce a diagnostic alarm (Alarm 108: Control Watchdog Protection Activated).

Action: Include a DEVICE_HB block in an application blockware task that is scheduled at frame rate. Connect the Out signal on the DEVICE_HB block to a DINT variable. Go to the Hardware tab and select the PPRO module. In the Variables tab, locate the signal ContWdog and connect that signal to that same variable.

K. Issue: SYS_OUTPUTS block build error

Applies to: ControlST V04.02 (or below) upgrading to V04.03 or later

Description: Prior to ControlST V04.03, a controller configuration could have more than one SYS_OUTPUTS block. When you upgrade to V04.03 (or later) if a configuration has more than one SYS_OUTPUTS block, a new build error Only one SYS_OUTPUTS block is allowed in a controller displays.

Action: Remove one of the SYS_OUTPUTS blocks.
L. Issue: Logic not visible in device
   Applies to: ControlST V03.01 (or below) upgrading to V03.02 or later
   Description: When upgrading a library with passwords and then instancing, logic in the device logic is no longer visible without entering a password.
   Action: Contact Controls COE to update library with Inhibit scripts.

M. Issue: Compress EGD pages
   Applies to: ControlST V04.03 or below, upgrading to V04.04 or later
   Description: Starting in ControlST V04.04, the Removed Unused Variables option during instance will possibly remove variables that would not be removed during an instance in V04.03 and earlier. When this Instancing feature is set to True variables will be removed from EGD if they are not used in the Device on Hardware or Software tabs during the instance. This can cause the need for EGD compress if instance is performed after upgrade to V04.04.
   Action: Compress EGD, build and download, if required.

N. Issue: Alarm Server and Network Monitor incompatibility issues during the upgrade phase
   Applies to: ControlST V03.06, V04.00, and V04.01 upgrading to V04.02 or later
   Description: The Alarm Server stops working during the upgrade process. Due to communication protocols established in V03.06, the Network Monitor version installed with V03.06, 04.00, and 04.01 is only compatible with the same version of the Alarm Server (they use the same alarm message protocol). The alarm message protocol was changed in V04.02, which causes the Alarm Server to be unable to decode Network Monitor messages correctly when the Network Monitor and Alarm Server are running different versions.
   Action: When performing a system upgrade temporarily stop the Network Monitor, or disable the Alarm Server connection to the Network Monitor, until both the Network Monitor and Alarm Server workstations have been upgraded.

   Applies to: Any ControlST software suite version upgrading to V04.04 or later
   Description: Prior to ControlST V04.04, the listed variables could be written to. Starting with ControlST V04.04 any attempt to write to the listed variables produces a build error.
   Action: Do not write to the listed variables. If this condition already exists, correct it.

P. Issue: Observe the following warning message after all I/O packs have been upgraded: Warning,1:55:06 PM, The IONet is set to Broadcast. To switch to Multicast, perform a Compress Distributed I/O.
   Applies to: Any ControlST software suite version upgrading to V04.06 or later
   Description: Prior to ControlST V04.06, the controller’s I/O outputs were broadcast on the IONet. Starting with ControlST V04.06, the ToolboxST application is able to configure the controller to send multicast outputs. This can ONLY be done after all I/O packs on the IONet have been upgraded to support multicast, and a compress I/O (restart required) has been performed. This will ensure that all I/O packs are capable, and then downloaded and restarted using the multicast address scheme.

For public disclosure
**Q. Issue:** Any *Rate of Change* analog alarm of data types other than REAL and LREAL will get a build error when upgraded to ControlST V04.06 or later.

**Applies to:** Any ControlST software suite version upgrading to V04.06 or later.

**Description:** Prior to ControlST V04.06, the *Rate of Change* analog alarm was allowed regardless of the data type. Starting with ControlST V04.06, the *Rate of Change* analog alarm is only allowed if the alarm variable type is REAL (single precision floating point) or LREAL (double precision floating point). This is to prevent possible Alarm Chattering caused by the use of other data types.

**Action:** Upon receipt of the build error (or prior to upgrading to ControlST V04.06), locate the *Rate of Change* analog alarm(s) using data types other than REAL or LREAL and delete or make corrections as necessary.

**R. Issue:** N-TRON® 508FX2 IGMP Snooping feature

**Applies to:** Any ControlST software suite version upgrading to V04.06 or later.

**Description:** The IONet is an Ethernet communications network used between controllers and distributed I/O modules. It sends and receives broadcast and/or multicast packets. The N-TRON 508FX2 switch is a managed switch with an IGMP Snooping feature. If this switch is used with this feature enabled, it compromises the transmission of multicast packets on the IONet.

**Action:** Disable the IGMP Snooping feature.

➢➢ To resolve this IONet switch issue

1. Connect a computer to the serial port on the N-TRON 508FX2 switch.

---

GE Part#: 342A4931ABP3 – Straight-through DB9 pin connector

GE Part#: 342A4931ABP2 – Straight-through DB9 socketed connector

Example: Keystrap® by Tripp Lite USA-19HS Hi-Speed USB Serial Adapter

USB connection to computer

Cat 5e cable

Model No. 508FXE2-A-SC-40

Front View

Side View

DB9 socketed connector
2. From the Windows HyperTerminal utility, establish a link to the switch using this configuration:
   - 9600 baud
   - 8 bits
   - no parity
   - 1 stop bit

3. Apply power to the switch.

4. Verify that the HyperTerminal application displays as follows:

```
Self Test & System Initialization Complete.... OK!

N-TRON Industrial Ethernet Switch - Model Number: 508FX2-A.
N-Tron firmware version : 9.53 (03)
Copyright (c) 2003-2007 N-TRON
MAC ADDRESS: 00-07-AF-01-8B-67

N-View is ENABLED.
Trunking (Link Aggregation) is DISABLED.
Mirroring is DISABLED.
Tagged QOS is ENABLED.
Port QOS is DISABLED.
VLAN is DISABLED.
**IGMP Snooping is ENABLED.**
Aging is ENABLED.

Managing IGMP Snooping....................
Exit to return to Management Console Function.

Press [ESC] to Exit >
```

5. Press **Esc** to enter the Command Line Interpreter mode.

6. When prompted, enter **admin** for both the User Name and Password.

7. Enter the following commands:
   - Switch
   - igmp
   - disable
   - /

   **Note** The “/” command will take the user back to root.

8. Cycle power to the switch.
9. Verify that the configuration of switch is as follows:

<table>
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<tr>
<th>Configuration Item</th>
<th>Status</th>
</tr>
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<tbody>
<tr>
<td>Self Test &amp; System Initialization Complete</td>
<td>OK!</td>
</tr>
<tr>
<td>N-TRON Industrial Ethernet Switch - Model Number: 508FX2-A.</td>
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<td>Copyright (c) 2003-2007 N-TRON</td>
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<td>MAC ADDRESS: 00-07-AF-01-8B-67</td>
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</tr>
<tr>
<td>N-View is ENABLED.</td>
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<tr>
<td>Trunking (Link Aggregation) is DISABLED.</td>
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<tr>
<td>Mirroring is DISABLED.</td>
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</tr>
<tr>
<td>Tagged QOS is ENABLED.</td>
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</tr>
<tr>
<td>Port QOS is DISABLED.</td>
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<tr>
<td>VLAN is DISABLED.</td>
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<tr>
<td>IGMP Snooping is DISABLED.</td>
<td></td>
</tr>
<tr>
<td>Aging is ENABLED.</td>
<td></td>
</tr>
</tbody>
</table>

Managing IGMP Snooping....................

Exit to return to Management Console Function.

Press [ESC] to Exit >
S. Issue: The ToolboxST application may stop working while navigating the FOUNDATION fieldbus blocks on an F809F H1 device (Windows Style 'ToolboxST has Stopped Working' APPCRASH). Exception Code: 0xC0000005

Applies to: Any ControlST software suite version upgrading to V04.07.03 or later.

Description: Viewing live parameters from the hardware tab for the F809F device can cause the ToolboxST application to stop working and must be closed. This problem occurs when there are multiple revisions of the F809F (rev 2) and F809F-Plus (rev 3) device. The following message displays:

An application event will be logged as follows:

Action: Delete one of the revisions of the F809F device. For example, delete all the F809F (rev2) devices and then unimport the DD files using the following procedure.
➢ To delete and unimport the F809F (rev 2) device

From the controller Hardware tab View menu, select FOUNDATION Fieldbus DD Manager.

From the DD Importer, locate the F809F item, click to select the Action box, and click Remove.
From the DD Importer, the F809F item now displays as Available, but is no longer Imported.
1. From the toolbar, click the **Build** icon.

2. From the toolbar, click the **Download** icon.

3. From the toolbar, click the **Save** icon.

4. Close and then reopen the ToolboxST application.

**Issue:** Excessive Alarms and Events configurations will not generate a Build error.

**Applies to:** Any ControlST software suite version upgrading to V04.04 to V05.02.

**Description:** Beginning in ControlST V04.04 and prior to V05.04.01C, the Process Alarm and Events limits defined in the controller firmware were not aligned with the ToolboxST build rules and the controller fails to download considering the limits were exceeded. These limits in runtime were aligned with the ToolboxST build rules to produce Build errors beginning in V05.04.01C and higher.

**Action:** When upgrading to ControlST V04.04 to V05.02, verify ToolboxST build rules to ensure the controller configurations do not exceed the following limits:

- Configured Process Alarms and Holds limit = 4,096 maximum
- Configured Holds limit = 512 maximum
- Configured Events limit = 2,048 maximum

If these limits are exceeded, reduce the number of Process Alarms and Events, Holds, and Events.
## Upgrade Rules (Version Specific)

The following table lists the upgrade rules that apply to specific products during an upgrade to the ControlST Software Suite. The Product column lists the product that has new upgrade rules. The Product Version column lists the version of the product that has new upgrade rules. The Upgrade Rule column describes the actions performed during product version upgrade.

<table>
<thead>
<tr>
<th>Product</th>
<th>Product Version</th>
<th>Upgrade Rule</th>
</tr>
</thead>
<tbody>
<tr>
<td>PMVP</td>
<td>Firmware V04.07.00C</td>
<td>The following I/O point changes will occur upon upgrade of the PMVP module:</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Previous I/O Point Name</td>
</tr>
<tr>
<td></td>
<td></td>
<td>L25 BYPASS</td>
</tr>
<tr>
<td></td>
<td></td>
<td>L25 BYPASSZ</td>
</tr>
<tr>
<td>PPRA</td>
<td>Firmware V04.07.00C</td>
<td>The following I/O point changes will occur upon upgrade due to new configuration options available for the PPRA module:</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Previous I/O Point Name</td>
</tr>
<tr>
<td></td>
<td></td>
<td>PR1A_SPEED</td>
</tr>
<tr>
<td></td>
<td></td>
<td>PR2A_SPEED</td>
</tr>
<tr>
<td></td>
<td></td>
<td>PR3A_SPEED</td>
</tr>
<tr>
<td></td>
<td></td>
<td>PR1B_SPEED</td>
</tr>
<tr>
<td></td>
<td></td>
<td>PR2B_SPEED</td>
</tr>
<tr>
<td></td>
<td></td>
<td>PR3B_SPEED</td>
</tr>
<tr>
<td></td>
<td></td>
<td>REPEATER_FLT</td>
</tr>
<tr>
<td>WETA</td>
<td>Firmware V04.07.00C</td>
<td>AnalogInput01 through AnalogInput12 I/O points have a new default configuration value as follows:</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Previous Configuration Value</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Unused</td>
</tr>
<tr>
<td>PVIBH1B</td>
<td>Firmware V05.01.00C</td>
<td>Manual reconfiguration steps are required by the user during this upgrade. Refer to GEH-6721_Vol_II for detailed upgrade instructions.</td>
</tr>
<tr>
<td>YVIBS1B</td>
<td>ControlST 6.01 or later</td>
<td>Beginning with ControlST 6.01, compatibility for the S1B version of these of these I/O packs (BPPC versions) is added. However, do not upgrade an S1A (BPPB) version) beyond firmware V04.06.03C. Back up the ToolboxST system (.tcw) file prior to any upgrade. All I/O packs attached to a single terminal board must be the same hardware revision. Manual reconfiguration steps are required by the user during this upgrade. Refer to GEH-6721_Vol_II for detailed upgrade instructions.</td>
</tr>
<tr>
<td>YAICSIB, YDIAS1B, and YDOAS1B</td>
<td>ControlST 6.01 or later</td>
<td>Beginning with ControlST 6.01, compatibility for the S1B version of these of these I/O packs (BPPC versions) is added. However, do not upgrade an S1A (BPPB) version) beyond firmware V04.xx.xxC. Back up the ToolboxST system (.twc) file prior to any upgrade. All I/O packs attached to a single terminal board must be the same hardware revision. Refer to GEH-6721_Vol_II for more information.</td>
</tr>
</tbody>
</table>

## Downgrade Considerations

If it is necessary to downgrade a ControlST system or component software or firmware, the following points should be considered:

- A project (.tcw file) is tied to a branch of ControlST
- Upgrades of ControlST projects are supported and thoroughly tested
- Downgrades of ControlST projects and/or components are not supported or tested