



User Guide

Tracer® TU Service Tool



SAFETY WARNING

Only qualified personnel should install and service the equipment. The installation, starting up, and servicing of heating, ventilating, and air-conditioning equipment can be hazardous and requires specific knowledge and training. Improperly installed, adjusted or altered equipment by an unqualified person could result in death or serious injury. When working on the equipment, observe all precautions in the literature and on the tags, stickers, and labels that are attached to the equipment.



Introduction

This Getting Started Guide presents an overview of the Tracer TU features and capabilities that support your work. The early sections include:

- A summary of the product capabilities
- An explanation of the various device connection options
- Guidance for the first time user on how to start a Tracer TU session
- A description of the main user interface features

The remaining sections provide quick tours through the main versions of the product, Tracer TU for Chillers and Tracer TU for Programmable Controllers. It also briefly describes the three closely integrated applications used with the main Tracer TU application:

- The Tracer Graphical Programming (TGP2) Editor
- The Tracer Graphics Editor (TGE)
- The Tracer SC User Interface.

This guide is intended to complement the two main Online Help systems, the *Tracer TU Help for Chillers* and the *Tracer TU Help for Programmable Controllers*.

Warnings, Cautions, and Notices

Safety advisories appear throughout this manual as required. Your personal safety and the proper operation of this machine depend upon the strict observance of these precautions.

The three types of advisories are defined as follows:



WARNING

Indicates a potentially hazardous situation which, if not avoided, could result in death or serious injury.



CAUTION

Indicates a potentially hazardous situation which, if not avoided, could result in minor or moderate injury. It could also be used to alert against unsafe practices.



NOTICE

Indicates a situation that could result in equipment or property-damage only accidents.

⚠ WARNING

Proper Field Wiring and Grounding Required!

Failure to follow code could result in death or serious injury.

All field wiring MUST be performed by qualified personnel. Improperly installed and grounded field wiring poses FIRE and ELECTROCUTION hazards. To avoid these hazards, you MUST follow requirements for field wiring installation and grounding as described in NEC and your local/state/national electrical codes.

⚠ WARNING**Personal Protective Equipment (PPE) Required!**

Failure to wear proper PPE for the job being undertaken could result in death or serious injury.

Technicians, in order to protect themselves from potential electrical, mechanical, and chemical hazards, **MUST** follow precautions in this manual and on the tags, stickers, and labels, as well as the instructions below:

- Before installing/servicing this unit, technicians **MUST** put on all PPE required for the work being undertaken (Examples; cut resistant gloves/sleeves, butyl gloves, safety glasses, hard hat/bump cap, fall protection, electrical PPE and arc flash clothing). **ALWAYS** refer to appropriate Safety Data Sheets (SDS) and OSHA guidelines for proper PPE.
- When working with or around hazardous chemicals, **ALWAYS** refer to the appropriate SDS and OSHA/GHS (Global Harmonized System of Classification and Labelling of Chemicals) guidelines for information on allowable personal exposure levels, proper respiratory protection and handling instructions.
- If there is a risk of energized electrical contact, arc, or flash, technicians **MUST** put on all PPE in accordance with OSHA, NFPA 70E, or other country-specific requirements for arc flash protection, **PRIOR** to servicing the unit. **NEVER PERFORM ANY SWITCHING, DISCONNECTING, OR VOLTAGE TESTING WITHOUT PROPER ELECTRICAL PPE AND ARC FLASH CLOTHING. ENSURE ELECTRICAL METERS AND EQUIPMENT ARE PROPERLY RATED FOR INTENDED VOLTAGE.**

⚠ WARNING**Follow EHS Policies!**

Failure to follow instructions below could result in death or serious injury.

- All Trane personnel must follow the company's Environmental, Health and Safety (EHS) policies when performing work such as hot work, electrical, fall protection, lockout/tagout, refrigerant handling, etc. Where local regulations are more stringent than these policies, those regulations supersede these policies.
- Non-Trane personnel should always follow local regulations.

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Tracer TU Service Tool Overview

The Tracer TU service tool is available in three main product versions, which are available in several user licenses with various feature sets.

Tracer TU for Chillers

(Available in Pro – Chiller View, Professional, and Unlimited Licenses)

This version continues to provide full support for the UC800 and CenTraVac™ chillers as well as selected Series R™ chillers. It includes chiller configuration, LLID binding, status and performance monitoring, diagnostics, trending, reporting, and backup and restore utilities.

Note: *The Controls, and Advantage software licenses do not include Tracer TU for Chillers. Therefore, the Tracer TU for Chillers information included in this guide does not apply to these licenses.*

Tracer TU for Programmable Controllers

(Available in Pro – Controls, Professional, Advantage, and Unlimited licenses)

This version of Tracer TU provides a large feature set including point, device, and network monitoring, online and offline controller configuration, offsite facility configuration, group overrides, custom views of network devices, data logging, reporting, wireless network creation and maintenance, and backup and restore utilities. This version provides support for the following Trane products:

- Tracer® Ensemble™
- Tracer® SC+ System Controller and the Tracer® SC System Controller
- Tracer® UC210 controller
- Tracer® UC400 controller
- Tracer® UC600 controller
- BACnet® Communication Interface for Chiller (BCI-C)
- BACnet® Communication Interface for IntelliPak (BCI-I)
- BACnet® Communication Interface for ReliaTel (BCI-R)

It also includes the following features and applications:

- The File Transfer Utility
- The Backup Utility
- Offline Controller Configuration
- Offsite Facility Definition
- Air and Water Balancing Tools
- The Tracer Graphical Programming (TGP2) Editor
- The Tracer Graphics Editor (TGE)
- Access to the Tracer SC User Interface

Tracer TU Complete

(Available with Professional and Unlimited Licenses)

The Tracer TU Complete version of the Tracer TU service tool provides the two main versions of the software in one package. The version of Tracer TU you see depends on the controller to which you are connected. Tracer TU for Chillers appears when you connect to a UC800. Tracer TU for Programmable Controllers version appears when you connect to all other programmable Trane BACnet controllers.

Laptop Requirements

Your laptop must meet the following hardware and software requirements:

- 4 GB RAM
- 1024 x 768 screen resolution
- Ethernet 10/100 LAN card
- An available USB 2.0 port
- Windows 7 Service Pack 1 Enterprise or Professional (32-bit or 64-bit) or Windows 10 Anniversary Edition operating system (32-bit or 64-bit)
- Microsoft .NET Framework 4.8 or later (auto-installed if not present)
- Microsoft Visual C++ Redistributable for Visual Studio 2015, 2017, and 2019 (v142) (auto-installed as required for TGP2 and the legacy Trane USB driver)

Notes:

- *Tracer TU is designed and validated for this minimum laptop configuration. Any variation from this configuration may have different results. Therefore, support for Tracer TU is limited to only those laptops with at least the configuration previously specified.*
- *In addition, for optimal Tracer TU performance the following features are recommended:*
 - *8 GB RAM*
 - *A 7200 RPM hard disk drive or a solid state drive*
- *To view the Tracer TU Getting Started Guide (pdf format), download the Adobe Acrobat Reader DC from <https://get.adobe.com/reader/>.*



Tracer TU for Programmable Controllers Features and Capabilities

This version of Tracer TU for Programmable Controllers provides the following features and capabilities:

Multiple connection options for UC210, UC400, UC600, and System Controllers

- Connect to UC210s, UC400s, UC600s, and System Controllers directly via USB cable, indirectly via System Controller pass-through using an Ethernet cable or LAN access, or through a zone sensor or a wireless network using the Tracer TU Adapter (Wired/ Wireless). (See "[Access to Devices on Wireless Networks](#)," p. 55).

Note: When connecting to a System Controller through a network, Tracer TU uses an HTTP connection (Port 80) by default. If you want to use a secure connection (HTTPS), select Port 443 or an alternate port number designated by the site for that purpose. Bear in mind that using a secure connection will slow Tracer TU performance.

- Use BACnet Discovery to view and access all devices on an IP network including additional System Controller and their links.
Note: BACnet Discovery requires V8.6 or higher firmware to be installed on all devices.
- Connect to a Trane BACnet device on a single MS/TP link and then from that connection point, discover, access, and perform service on other Trane BACnet devices on that link. (See "[Single Link Access](#)," p. 69 for additional information, specific usage rules, and considerations.)

Note: A UC800 with firmware level 5.24 or higher can be discovered and serve as a Single Link Access connection point. However, access to the UC800 is not allowed.

Wireless Network Management

- Assess network health by viewing a Network Summary Report and a graphical mapping of a network that indicates the strength of communication links and the number of hops from the coordinator to each member device.
- Use Wireless menu options to form networks, add or remove devices, disband a network, and view information about the WCI's.
- Associate up to six wireless sensors with one controller to obtain an average temperature without TGP2 programming.

Equipment Status

- View controller status.
- View the status of points and alarms.

Point Configuration and Overrides

- Create and edit points in a controller configuration file (UCxxxConfig) offline or online while connected to a device.
- Use the Facility View to perform a group override of all air valves and water valves for the entire communication link or for selected devices. Calibrate air valves on a link simultaneously.
- Use right-click menus to create, edit, delete, and override points or put points out of service. You can also access point information on the Status Utility Analog, Binary, and Multistate screens.
- Use the Command Compare feature to determine if a selected point is performing as intended by monitoring its effect on a related point. (See "[Using Command Compare](#)," p. 43 and "Overriding, Comparing, and Changing the Service Status of Points" in the *Tracer TU Help for Programmable Controllers* for more information.)

Supported Equipment Types

- Configure and commission VAV boxes, blower coils, fan coils, unit ventilators, and variable-speed water source heat pumps (VS-WSHP).

- Edit points and programs in standard Trane factory blower coil, fan coil, and unit vent configurations to suit job requirements. (See [“Factory Equipment Configurations You Can Modify \(UC210 and UC400\),”](#) p. 57.)
- Perform step tests for VS-WSHPs and BCI-Rs.
- View BCI-R, BCI-C, and BCI-I points and status information. Set up alarms and data logs.

Trending Data Logs and Live Data

- View and trend data logs retrieved from a UC210, UC400, or UC600.
- Configure and start a session log to capture and graph real time data on the UC600.
- Create and save graph templates for reuse.
- Capture data while a data log is running

Note: Session logging is not available when using System Controller pass-through.

Controller Settings

- Specify the units used to display controller data in Tracer TU and the units used on the controller.
- Specify the rotary dial setting or software device ID and baud rate.
- Set up and discover XM30, XM32, XM70, and XM90 expansion modules.
- Setup a controller to use multiple wireless sensors.
- Configure notification classes.
- Configure UC600s for enhanced communication including DHCP or static IP addressing, HTTP or HTTPS (secure) communication, browser access to TD7 Display content, BBMD capability, and a choice of BACnet IP, BACnet Zigbee, or BACnet MS/TP communication.

Notification Class Configuration

You can create, configure, and edit BACnet controller notification classes either (1) online or (2) offline within a Controller Configuration using the Notification Class box on the Controller Settings screen. You can also add, edit, or delete event recipients for notification classes.

Offsite Facility Definitions

A Facility Definition is an entire pre-configured and pre-programmed facility that includes two main parts:

- An offline Facility Configuration, which is created in Tracer TU
- All required System Controller database configuration and programming

Creating a Facility Definition allows you the freedom to complete much of the device and System Controller database configuration and programming work at your office before you arrive at the job site. When both parts of the Facility Definition are complete, you can save them to a portable storage device as two files: (1) A Facility Configuration Export file (*.zip) and (2) a System Controller backup file (*.zip). These two parts are then merged at the job site after you restore the System Controller backup file to the System Controller and import the Facility Configuration Export File into Tracer TU. (See [“Offline Facility Configurations Used to Build Offsite Facility Definitions,”](#) p. 58 for additional information.

CSET File Import

Import a CSET file into Tracer TU. This import capability reduces the cost associated with rework and errors when creating a Facility Configuration from a CSET file. You can import the CSET file and edit the resulting Facility Configuration file as necessary.

Note: It may be necessary to assign Controller Configurations or Equipment Templates to custom devices or certain non-Trane, Legacy, or LonTalk devices not recognized by the System Controller.



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Multiple ways to view devices, points, and properties

- The Facility View features a set of standard "views" made up of different collections of points. The collection of points in each view supports a specific function (for example, VAV setup).
- Access and view Modbus, LonTalk, Trane Legacy, and non-Trane BACnet device points on special Unit Summary and Unit Status screens through a System Controller connection. Toggle between some System Controller (converted) values and their corresponding controller (communicated) values.

Two Tracer TU Sessions

Open a second Tracer TU session (instance) from within a first Tracer TU session and either connect to a UC400/210/600 to perform online tasks or perform offline tasks. Each Tracer TU session runs independently of the other.

- Access the same controller in two sessions using a USB connection.
- Work in a System Controller and a device on its networks simultaneously.
- Use a wired/wireless connection through the Tracer TU Adapter to launch one or both Tracer TU sessions.

Report Generation

You can generate three types of reports in Comma Separated Value (.csv) format:

- Point Summary—Contains properties of all points in the controllers selected.
- Auto Commissioning—Covers a set of VAV devices from the Auto Commissioning dialog box.
- Custom Facility—Based on any standard or custom view on the Facility View (a predefined set of points for a group of devices).

Controller Configurations and Equipment Templates

Create, save, and edit a complete controller configuration that includes a point configuration, data logs, TGP2 programs (.tgp2 and .bc files), and internal template information. Use the normal Tracer TU utility screens to include points, TGP2 programs, data logs, alarms, standard or custom graphics, TD7 Display graphics, TD7 reports, and UC600 schedules. During editing, the internal template information is kept up to date. You can then download the Controller Configuration to similar devices without overwriting identifying information on the target devices. You can also assign them to offline controllers in a Facility Configuration. (See ["Controller Configurations," p. 57.](#))

Equipment Templates are assigned primarily to some Legacy Trane UCMs, non-Trane BACnet devices, and LON devices. They provide only the interface used by the System Controller to install and control these devices and do not contain any configuration information. You can convert System Controller Equipment Templates to Tracer TU Equipment Templates, or create them in Tracer TU for use in a Facility Configuration.

Tracer UC600 Operator Display User Interface

You can access and work with the UC600 Operator Display User Interface screens directly within Tracer TU when connected to a UC600 with or without a TD7 Display.

UC600 Tracer™ TD7 Display

- Enable the Tracer TD7 display by
 - Configuring three custom reports for the Tracer™ TD7 Display. (See "UC600 Custom Reports" in this table.)
 - Creating up to three schedules on the UC600. (See "UC600 Scheduling" in this table.)
 - Setting display preferences for the Tracer TD7 display.
- Limit Tracer TD7 access to a set of user-id and PIN combinations defined on the Security screen of the Tracer TU Controller Settings Utility.

UC600 Custom Reports

Configure three custom reports for the Tracer™ TD7 Display that can each include real time values for up to 27 data points. You can then view these reports either on the Tracer TD7 and from within Tracer TU. (See “Custom Reports for Tracer™ TD7 Display (UC600),” p. 54.)

UC600 Scheduling

Create three schedules on the UC600 with advanced schedule set up and maintenance screens. You can also view and work in the actual TD7 Display screens through Tracer TU with or without a TD7 Display. (See “UC600 Scheduling Screen,” p. 53.)

UC600 Event Log

View the UC600 Event Log on the Alarms screen. You can clear the Event Log by clicking the Clear Event Log button located below the log.

Backup and Restore

Use the Backup Utility to back up all files and configuration information on one or more controllers to your designated backup location. The backup operation includes compiled TGP2 programs, configuration parameters, and the points.xml file. You can use the File Transfer Utility to load a backup file containing configuration data and programs on field programmable controllers or to restore a controller. The File Transfer Utility and the Backup Utility display a detailed Error Report containing an error message for each affected device when a file transfer to the System Controller or a backup operation fails. (See “File Transfer and Backup Error Messages” in the Online Help.)

Note: File backup and transfer operations on the UC800 and BCI-C require a direct USB connection for reasons of human and machine safety.

Air and Water Balancing

You can use Tracer TU to perform several air and water balancing tasks:

- Calibrate one or more VAV air valves to maximum and minimum flow so you can take physical air flow measurements. Tracer TU uses your measured values to calculate the Air Flow Gain and Air Flow Measurement Offset values for both maximum and minimum air flow. You can calibrate the air valves of multiple VAV units in the Facility View. You can also calibrate the hot deck air valve for VAVs configured as dual duct.
- Auto-commission single and dual duct VAV boxes.
- Override one or more air valves, fans, or water valves on VAV boxes, fan coils, blower coils, unit ventilators, and water source heat pumps.

Related Applications

Launch related applications from within Tracer TU:

- The System Controller software (a Web application)
- The TGP2 Editor
- The Tracer Graphics Editor (TGE)

Upload/Download Files (File Transfer/File Backup)

- Upload programs to Tracer TU for editing.
- Perform a mass download of Controller Configurations, Backup files, programs, and firmware to one or more devices (System Controllers, UC210s, UC400s, UC600s, Air-Fi™ Wireless Communications Interfaces (WCI), and Air-Fi™ Wireless Communications Sensors (WCS).)

The File Transfer Utility and the Backup Utility display a detailed Error Report containing an error message for each affected device when a file transfer to the System Controller or a backup operation fails. (See “File Transfer and Backup Error Messages” in the Online Help.)



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- Make incremental changes to controller configurations and save only those changes without having all standard points return to factory defaults. (Requires a sealed factory configuration and system build 2.65 or higher.)

Note: File transfer operations on the UC800 and BCI-C require a direct USB connection for reasons of human and machine safety.

Tracer TU for Chillers Features and Capabilities

Note: The Pro-Controls and Advantage software licenses do not include Tracer TU for Chillers. Therefore, the Tracer TU for Chillers information included in the following table does not apply to these licenses.

The Tracer™ TU for Chillers provides the necessary setup, configuration, and monitoring capabilities used with the Tracer AdaptiView™ control to service Trane CenTraVac™ chillers (models CVHE, CVHF, CVHG, CVHH, CVHL, and CVHS), CenTraVac Duplex chillers (models CDHF, CDHG, or CDHH), AdaptiView Panel Upgrades (CVRE), GVAF, Ipack, and Series R™ chillers (models RTAE, RTAF, RTHA-B, RTHC, RTHD and RTWF). Tracer TU for Chillers capabilities are listed in this subsection.

Connect directly to UC800 via USB

- Connect to and read the settings from a Tracer AdaptiView controller (UC800).
- Connect to a UC800 on a single MS/TP link and then from that connection point, discover, access, and perform service on other Trane BACnet devices on that same link. (See “[Single Link Access](#),” p. 69 for additional information, specific usage rules, and considerations.)

Note: This capability does not apply to UC800s with firmware lower than 5.24 or to use with Tracer TU for Chillers (Chiller-Only) Edition.

Chiller Status

Monitor chiller and controller status including line side data that indicates chiller power consumption.

Chiller Configuration

- Create a new chiller configuration.
- Make changes to chiller configuration settings.
- Save changed setpoints and configurations to the controller.
- Save chiller configurations to your hard drive and then reuse the configurations on multiple chiller units.

Overrides

Override selected chiller outputs. In addition, the Manual Overrides screens provide one location where you can perform key manual overrides for CTV, CTVD, RTAE, RTAF, RTHA-B, RTHC, and RTHD chillers. You can view the values of various monitor points for several of the supplied override points.

Alarms and Diagnostics

Check for and respond to alarms.

Data Recorders

Create up to three custom data recorder files to track specific points over time.

Two Tracer TU Sessions

Open a second Tracer TU session (instance) from within a first Tracer TU session and connect to a UC400, UC210, UC600, the same UC800, or a controller configuration to perform online or offline tasks. You can also connect to a second UC800 using System Controller pass-through for

viewing and reporting purposes. (Only one session can use a USB connection when connecting to two different controllers.) Each Tracer TU session runs independently of the other.

Note: *This feature is for internal Trane use only.*

Reporting

Produce XML-based ASHRAE Chiller and Event Log reports, which are rendered as Web pages and can also be saved in PDF format.

Chiller firmware wizard

Two levels of firmware are included in the product installation file for each chiller model.

You can obtain additional levels of chiller firmware using a firmware setup wizard, which is available on the Tracer TU installation flash drive. The new firmware setup wizard allows you to view and select the specific firmware levels you need.

Backup and Restore

Back up and restore UC800 configuration files.



Installing Tracer TU

This section explains how to obtain the Tracer TU installation file and install your licensed version of the software on your PC.

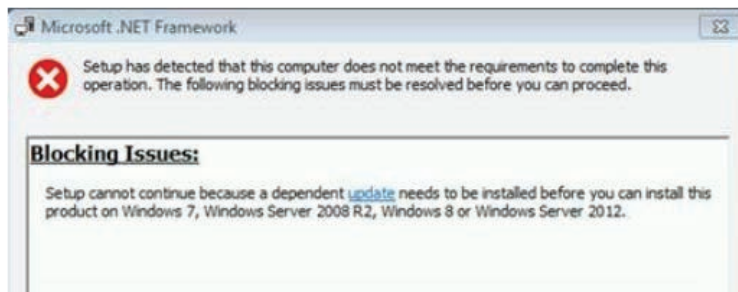
Contact your local Trane sales office to order Tracer TU.

Special Installation Requirement: .NET Framework 4.7

An Internet connection is required during Tracer TU V10.0 installation to enable installation of Microsoft .NET Framework 4.7. The installation procedure you encounter depends on the level of the Windows operating system on your PC.

- Windows 7 SP1

To run .NET Framework 4.7 on Windows 7 SP1 you must first install the **D3DCompiler_47.dll** file. If you try to install the Microsoft .NET Framework 4.7 on a computer that runs Windows 7 Service Pack 1 (SP1), the setup is blocked and cannot continue. You will see the following message box:



Click the **update** link in the message box to download the required dll. You can also find information at

<https://www.microsoft.com/en-us/download/details.aspx?id=55170>.

- Windows 10

The Windows 10 Anniversary Update or higher is required for this upgrade. If you are running a lower version of Windows 10, first install the Anniversary Update. See

<https://www.microsoft.com/en-us/download/details.aspx?id=55170>.

Installation Procedure

When you have obtained the Tracer TU installation USB flash drive, complete the following steps to install the software.

Notes:

- *The USB flash drive should only be used to install Tracer TU.*
- *Installing Tracer TU requires Administrator account privileges. Before you attempt to install the software, you should verify that the installing user-id has these privileges. See your software administrator for assistance.*
- *The installing user-id is the only user-id that can access and operate Tracer TU, unless you complete an additional procedure. (See "Establishing Access to Tracer TU for Alternate Users," p. 19).*

1. Place the installation flash drive in a USB port.

The installation should start automatically. If the installation does not start automatically, perform the following steps:

- a. Click **Start** in the bottom left corner of your screen.
- b. Click **Run**.

- c. Browse to the location of the installation file (**Tracer TU Setup.exe**) and click **Open**.
- d. Click **OK** on the Run dialog box.
A Welcome dialog box appears.
2. Click **Next**.
3. Click **I accept . . .** to accept the License Agreement after reviewing it.
4. Click **Next** to accept the default installation location (C:\Program Files\Trane\Tracer TU).
(You can click **Change** to specify an alternate location before clicking Next.)
5. Select **Anyone who uses this computer** or **Only for me** on the User Profile dialog box.
6. Discontinue any connection between your PC and a Trane controller before starting the installation.
7. Click **Install** on the Ready to Install Tracer TU dialog box.
8. Click **OK** if you see a message box indicating that the Microsoft .NET run-time files are out of date. This software is required to run Tracer TU.
***Note:** Extra steps may be required if you are installing Tracer TU on a Windows 7 or higher machine and Microsoft .NET 4.7 must also be installed as part of the installation. When .NET 4.7 is finished installing, you are prompted to restart your machine. After the restart, you must start the installation once again (by clicking the Tracer TU Setup.exe file) to resume and complete product installation. You may then be prompted to install an additional Redistributable file as well.*
9. Click **Continue Anyway** if the dialog box warning you that the software has not passed Windows Logo testing appears.
10. Click **Finish** to complete the installation process.

Special Situation: Stopping the Tracer TU Service

In rare circumstances, when you are upgrading Tracer TU from an earlier release, you may see the following message:

Service Tracer TU Service could not be stopped.

The message box includes the "Retry" and "Cancel" options.

If you encounter this message, perform the following steps:

1. Open the Windows Task Manager by pressing **Ctrl-Alt-Delete** and then clicking the **Task Manager** button.
2. Go to the **Process** tab.
3. Find and select **EvoUSB.exe**.
4. Click **End Process**.
5. Return to the message dialog box and click **Retry**.

The Tracer TU upgrade installation will continue.

Results of the Installation

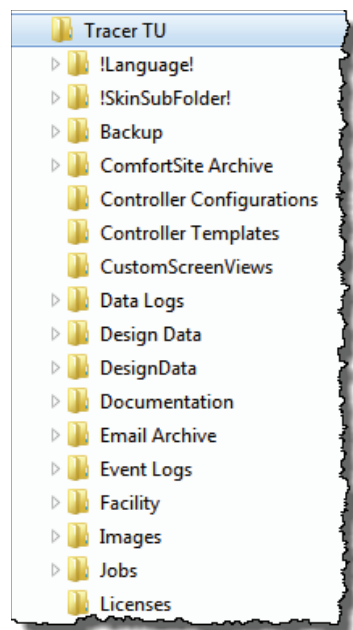
The installation routine places all system files in different locations depending on whether a 32-bit system or a 64-bit system is installed.

- For Windows 7 or 10 64-bit systems, the Tracer TU system files are placed under the Program Files (x86) folder (C:\Program Files (x86)\Trane\Tracer TU)
- For Windows 7 or 10 32-bit systems, the Tracer TU system files are placed under the Program Files folder (C:\ProgramFiles\Trane\TracerTU).

The installation also places three icons on your desktop (Tracer TU, Tracer SC via USB, and Trane Controller Via USB). A Tracer TU program item is also added to the Programs list on the Start Menu.

In addition, the installation creates several folders under \My Documents\Tracer TU. Generated data log files, reports, backup files, Controller Configurations, and Facility Configurations are saved to these folders by default. The typical folder structure is shown in the following figure.

Figure 1. Typical subfolders installed with Tracer TU



You can create additional folders under these standard folders to store data for each job as needed.



Obtaining a Product License

Licensing and Registering Tracer TU

Tracer TU is a licensed product. You must obtain a license for each PC on which Tracer TU is installed. In addition, your Tracer TU license will be valid for a set period. As the expiration date approaches, you will be notified each time you start Tracer TU. When your license expires, Tracer TU will no longer be operable. You can only launch the Tracer TU Balancing Tool at that time. If you have not used Tracer TU during the time when the expiration warnings would have been displayed, you are given a two-week grace period during which you can update your license.

Complete the following procedure on each PC to obtain a product license and to register your software:

1. Click the **Tracer TU** icon on your desktop to start Tracer TU.
2. Click **Activate** on the Startup Task Panel.

The License Tracer TU Balancing Tool dialog box appears.

Note: *The Tracer TU Balancing Tool is the default application loaded when you initially start Tracer TU before applying the license file. If you have purchased Tracer TU for Programmable Controllers, Tracer TU for Chillers, or Tracer TU Complete, the correct application will appear when your license file is applied.*

3. Enter the **Software Serial Number** that is displayed on a sticker on the software box and on the License Agreement and click the **Generate PC ID** button.

The resulting PC ID number is displayed at the bottom of the dialog box.

4. Click **Copy PC ID** and paste the number in a Microsoft Word or Notepad file to store it for later use.

5. Click **Exit**.

6. With both the Software Serial Number and PC ID in hand, call your local Trane representative to obtain a software license.

A license file will be sent to you by e-mail.

7. Save the license file to your desktop when you receive the e-mail.

8. Start Tracer TU. and then click **Activate** on the Startup Task Panel once again.

9. Click **Register** on the License Tracer TU dialog box.

The Select License File dialog box appears.

10. Navigate to the location where the license file was stored (for example, the desktop).

11. Click **Register**.

The Startup Task Panel dialog box appears. You can now connect to a controller and start a Tracer TU session.

Establishing Access to Tracer TU for Alternate Users

You may want to enable access to Tracer TU on a specific PC for other users in your office. You can do so by completing the following steps.

1. Log on to Windows using an alternate user-id.
2. Perform steps 6, through 11 in the previous procedure.

The Connect dialog box appears. The alternate user can now connect to a controller and start a Tracer TU session.



Device Connections

When you have installed Tracer TU, you can start a Tracer TU session by connecting your PC to the controller and then clicking the **Tracer TU icon** on your desktop or clicking the **Trane>Tracer TU** item on the Start menu's All Programs list.

A USB connection (using a Type A/B USB cable) provides the best performance.

UC800

If you are making changes to the chiller configuration, the UC800 requires a direct USB connection for machine and human safety reasons.

Note: *Observe existing USB standards for cable length. (For more information go to relevant Web sites resulting from search terms, such as "USB standard cable length.")*

Type A/B cable



UC800



Programmable Controllers

Programmable controllers have additional connection options. (See "[Starting a Tracer TU for Programmable Controllers Session](#)," p. 22.)

System Controller



UC210



UC400



UC600



Driver Installation

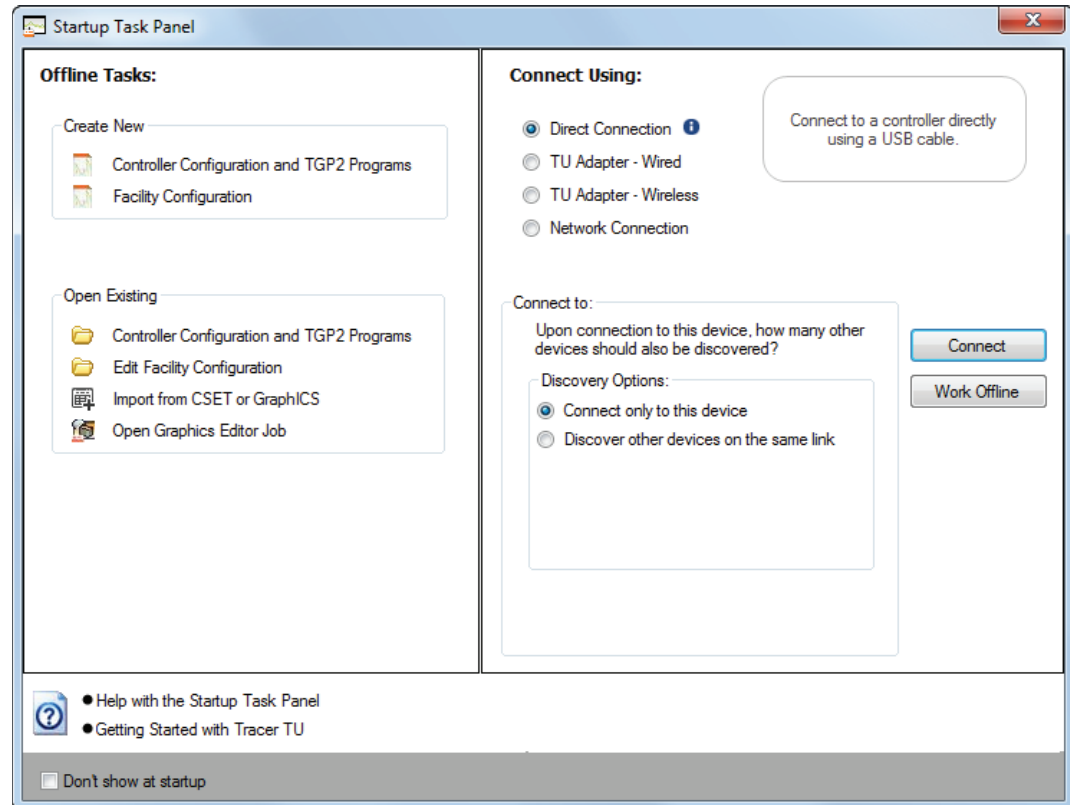
The first time you connect to a controller, the appropriate driver is installed automatically. A small message box that indicates the installation is taking place appears at the bottom of your screen near the system tray. This message is followed by a successful installation message.

Note: *If you encounter an error condition or message during this installation process or during the subsequent connection steps, see "[Appendix A. Tracer TU Installation and Connection Error Conditions](#)," p. -1 for corrective actions.*

The Startup Task Panel

When you click the **Tracer TU** desktop icon or the **Trane>Tracer TU** program item on the Start menu, the Startup Task Panel dialog box appears.

Figure 2. Startup task panel



Tracer TU pre-selects the radio button that corresponds to the connection method you are using, so you can either first select a facility or click the **Connect** button immediately. If you connect to a controller directly with a USB cable, you can select a Discovery Option as shown in the previous figure.

When you connect to a controller, the Unit Summary screen appears as shown in [“Starting Tracer TU for Chillers,” p. 21](#) or [“Unit Summary Screen \(UC210, UC400, and UC600\),” p. 39](#).

Note: If you first connect through a System Controller, a security dialog box appears on which you must enter a user name and password. You can then select the device you want to work with on the Device Navigation Tree (see [“The Device Navigation Tree,” p. 68](#) and [“Using a LAN Connection,” p. 23](#)).

Starting Tracer TU for Chillers

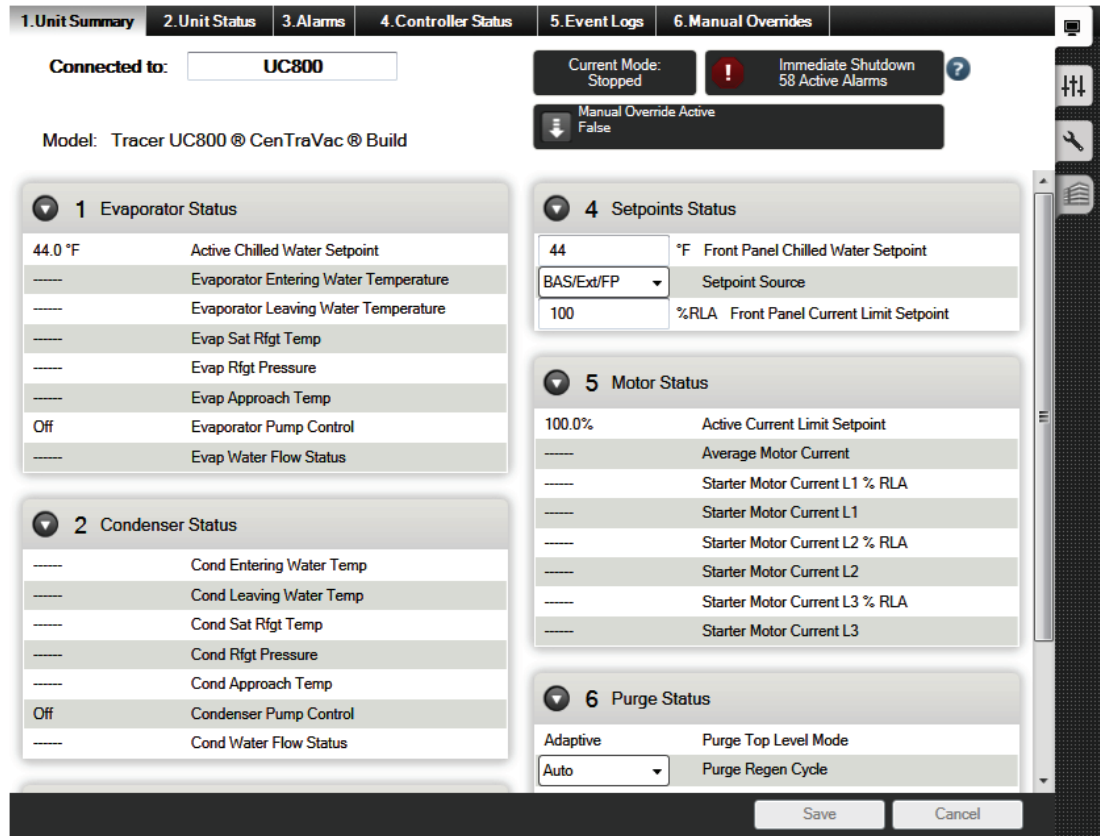
For reasons of human and machine safety, you must use a USB connection when configuring a chiller or making changes to the chiller configuration. However, you can use System Controller pass-through for viewing and reporting purposes.

Connecting With A USB Cable

1. Connect your USB cable to the UC800 service tool port and select the **Direct Connection** radio button on the Startup Task Panel if it is not already selected.
2. Click the **Connect** button.

The Unit Summary screen appears as shown in the following figure. It is the first screen in a group of Status Utility screens.

Figure 3. The Unit Summary screen (Status Utility)



For Additional Information

For continued coverage of Tracer TU for Chillers features, see [“A Brief Tour of Tracer TU for Chillers,” p. 29.](#)

Starting a Tracer TU for Programmable Controllers Session

You can connect to programmable controllers in the following ways:

- Direct physical connection using a USB cable (See [“Starting Tracer TU for Chillers,” p. 21.](#))
- Direct physical connection to a System Controller using an Ethernet cable (See [“Using a System Controller Connection,” p. 22.](#))
- Network connection using an IP address over the local area network (LAN) on which the System Controller resides, or an Internet connection from a remote location through a firewall or router to access a System Controller, and the controllers on its wired and wireless links. (See [“Using a LAN Connection,” p. 23,](#) which follows in this section.) Use BACnet Discovery for access to all devices on a BACnet/IP network. (See [“BACnet Discovery,” p. 64.](#))
- Connection through a zone sensor using the Tracer TU Communication Adapter. See the *Tracer TU Communication Adapter User Instructions* (X39641115-01x), which is included with the product.
- Indirect connection from one device to another using the Single Link Access feature. (See [“Single Link Access,” p. 69.](#))
- Wireless connection to a network device in an established wireless network. (See [“Access to Devices on Wireless Networks,” p. 55.](#))

When you click the **Tracer TU** desktop icon or the **Trane >Tracer TU** program item on the Start menu, the the Startup Task Panel appears.. (See [“The Startup Task Panel,” p. 21 .](#))

Using a LAN Connection

To use a LAN connection, you create a link to a "facility" in Tracer TU.

Note: The term "facility" corresponds to an individual System Controller that acts as a central point of control for all devices on its links, including Tracer SC/SC+ (base) controllers and Comm3/4 Bridges. (The main System Controller is referred to as an Tracer SC/SC+ (app) controller.)

To create a link to a facility, you need to know the IP or DNS address assigned to the System Controller you want to access. You can create a link to the facility on the Startup Task Panel in two ways:

- Use the Add New Facility Connection option to create a persisting link, which you can access from the Startup Task Panel. (See "Adding a Facility," p. 23.)
- Manually enter an IP address or DNS name on the Startup Task Panel to link to a System Controller on a one-time basis. (See "Using the Manual Entry Option," p. 24)

Adding a Facility

1. Click either the **Tracer TU** desktop icon or the **Tracer TU** program item in the Tracer TU group on the Start menu.

The Tracer TU splash screen appears briefly followed by the Startup Task Panel dialog box.

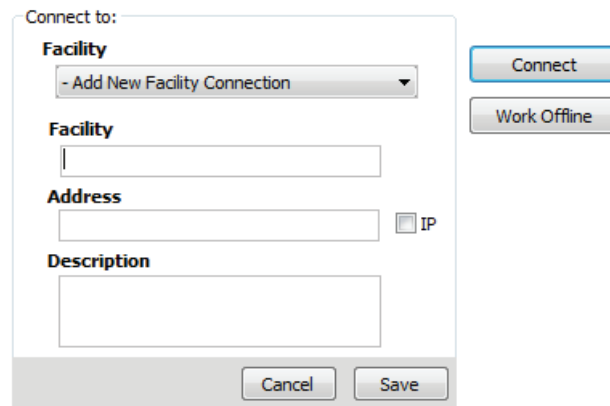
2. Select the **Network Connection** radio button.

The Facility drop-down selection box appears.

3. Select **Add New Facility Connection**.

A set of entry boxes appear in which you can specify the name of the Facility, its address (URL or IP), and a brief description.

Figure 4. Add new facility connection box on the startup task panel

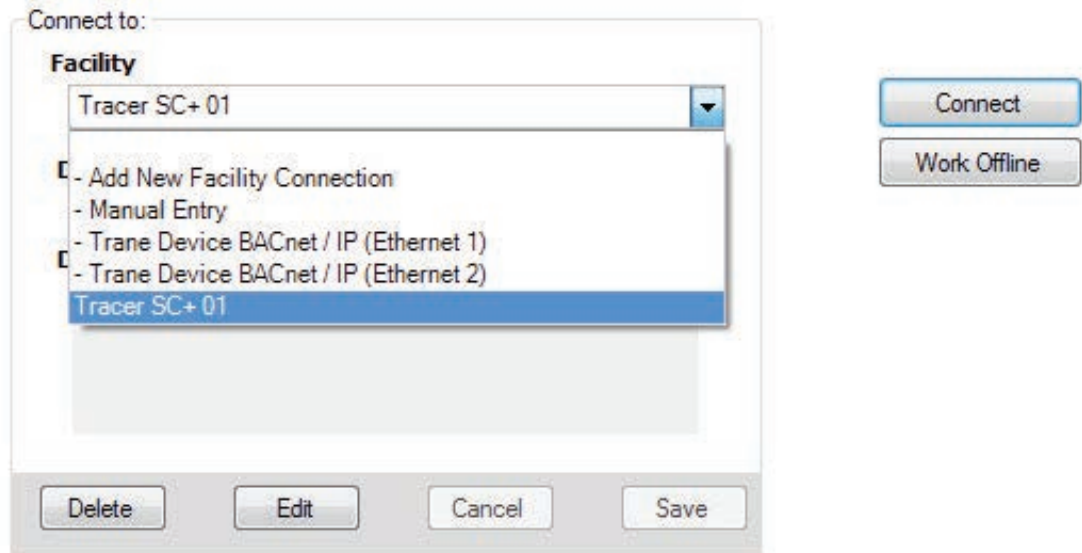


4. Enter the name of the System Controller you want to access.
5. Enter a DNS address or an IP address.
6. Specify a port if your site uses a specific port other than the default 80.

Note: You can specify a secure connection (HTTPS) by selecting the IP check box and specifying port 443. However, be aware that using a secure connection slows Tracer TU performance.

7. Click **Save**.

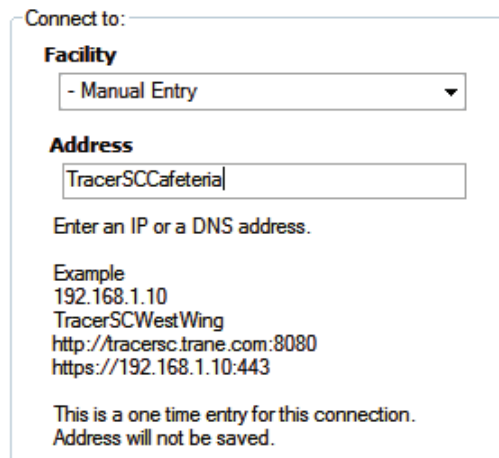
Each facility you create is saved and can then be selected from the Facility drop-down list.

Figure 5. Selecting a System Controller from the Facility drop-down list


Using the Manual Entry Option

You can specify a facility on a one-time basis without creating a facility entry on the Startup Task Panel.

1. Select **Manual Entry** on the Facility drop-down list.
2. Enter an IP or DNS address in the entry box as shown in the following figure.

Figure 6. Using the Manual Entry option on the Startup Task Panel


3. Continue with the steps described in [“Connecting to a System Controller and Its Devices,”](#) p. 24.

Connecting to a System Controller and Its Devices

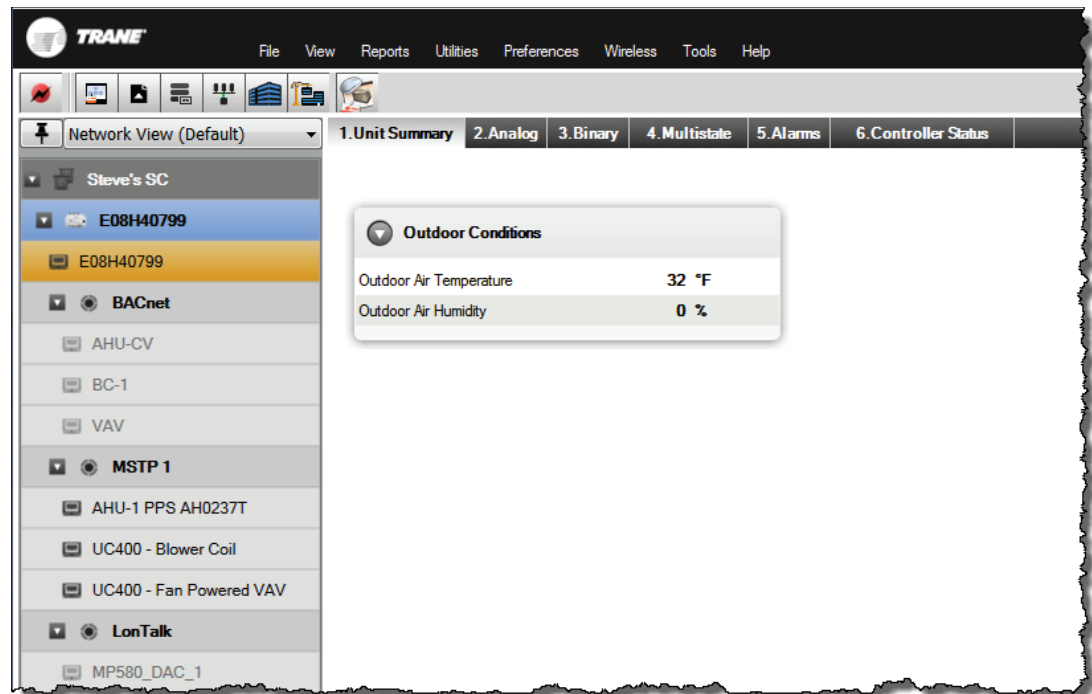
1. Select the facility you have just created or any existing facility on the drop-down list.
2. Click **Connect**.

A security dialog box appears that prompts you for a user name and password. When Tracer TU is connected, you can now see the Device Navigation Tree pane on the left side of the

Tracer TU window. All the devices on the System Controller's links are listed in the Device Navigation Tree. (See "The Device Navigation Tree Pane" section in the *Tracer™ TU Help for Programmable Controllers* for additional information about complex networks that use a manager System Controller (Tracer SC/SC+ (app) controller) with System Controllers that act as routers (Tracer SC/SC+ (base) controllers).

The System Controller version of the Unit Summary screen appears as shown in the following figure.

Figure 7. The Unit Summary screen (System Controller version)



All the devices on the System Controller's links are listed in the Device Navigation Tree to the left of the screen. You can connect to any device on the BACnet (wired or wireless), Modbus, and LON links by right-clicking the device entry on the tree and selecting **Connect to Device**. (See "A Brief Tour of Tracer TU for Programmable Controllers," p. 38 for a description of this screen and for continued coverage of Tracer TU for Programmable Controllers features.)

Additional Options on the Drop-down List

Additional options on the Facility drop-down list are:

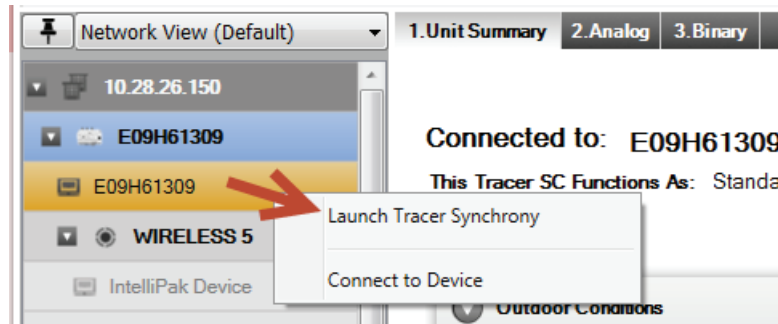
- **Manual Entry**—Enter a IP or DNS address on a one time basis.
- **Trane Device BACnet/ IP (Ethernet 1) (Ethernet 2)**—These addresses allow direct connection to one of the System Controller Ethernet ports. After connecting your Ethernet cable directly to a System Controller Ethernet port, select the corresponding address and click Connect.
- Facilities you have previously created are listed as additional options.

Launching the System Controller User Interface

You can launch the System Controller User Interface (either the Tracer SC User Interface or Tracer Synchrony), a web based application that is used to configure the System Controller.

1. Right-click the **System Controller** icon (orange area) at the top of the Device Navigation Tree.
2. Click **Launch Tracer Synchrony** or **Launch Tracer SC** to start the application as shown in Figure 8, p. 26.

Figure 8. Launching the System Controller Software from the Device Tree



If you connect directly to a System Controller with a USB cable, you can click the **Tracer SC via USB** icon or the **Trane Controller Via USB** icon installed on your desktop. (See “[System Controller User Interface](#),” p. 72 for details.)



Tracer SC Via USB icon
Click to launch the Tracer SC User Interface



Trane Controller Via USB icon
Click to launch Tracer Synchrony

Check for Units of Measure

When you connect to a controller directly with a USB cable or indirectly by System Controller pass-through or Single Link Access (see “[Single Link Access](#),” p. 69), Tracer TU determines whether units have been specified for the controller. If no units have been specified, you are immediately transferred to the Controller Settings tab screen where you can specify the units. This check for units ensures that units are defined before you proceed with configuration tasks.



Tracer TU Interface Navigation and Controls

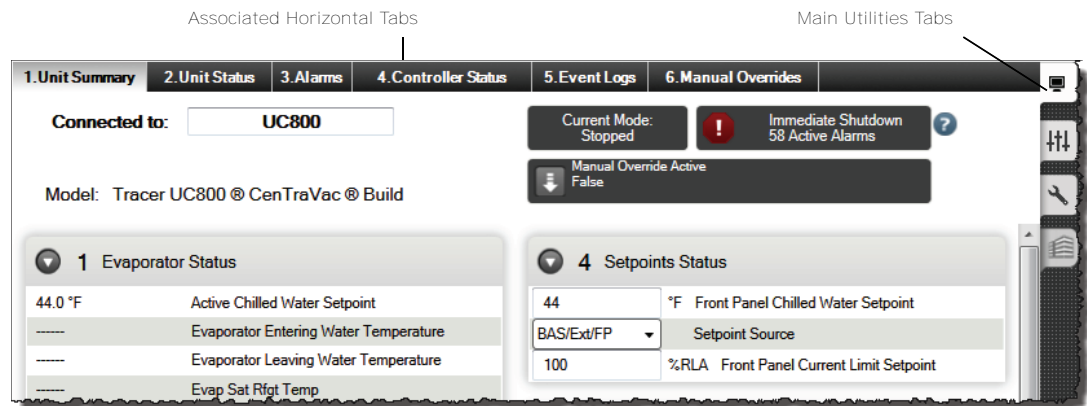
The best way to explore Tracer TU is to examine its main utilities, which you can access through the vertical tabs on the right side of the Tracer TU window or by using the Utilities menu at the top of the screen. Click through these vertical tabs and examine the horizontal tabs associated with each of them. Later in this guide, you will be directed to the tutorial topics in the Tracer TU Help file for more detailed descriptions.

The Location of the Utilities Tabs

The main utilities tabs are located on the right side of the Tracer TU screen as shown in the following figure.

Note: The following figures show details of the Tracer TU for Chillers screens. However, the Tracer TU for Programmable Controllers utility tabs and their associated horizontal tabs are similar and use the same conventions..

Figure 9. The main utilities tabs



Associated Horizontal Tabs

Each main tab has its own group of associated horizontal tabs. For example, when you click the Equipment Utility tab (the wrench icon shown above) in Tracer TU for Chillers, the following horizontal tabs appear at the top of the viewing area.

Figure 10. The horizontal tabs associated with the Equipment Utility tab

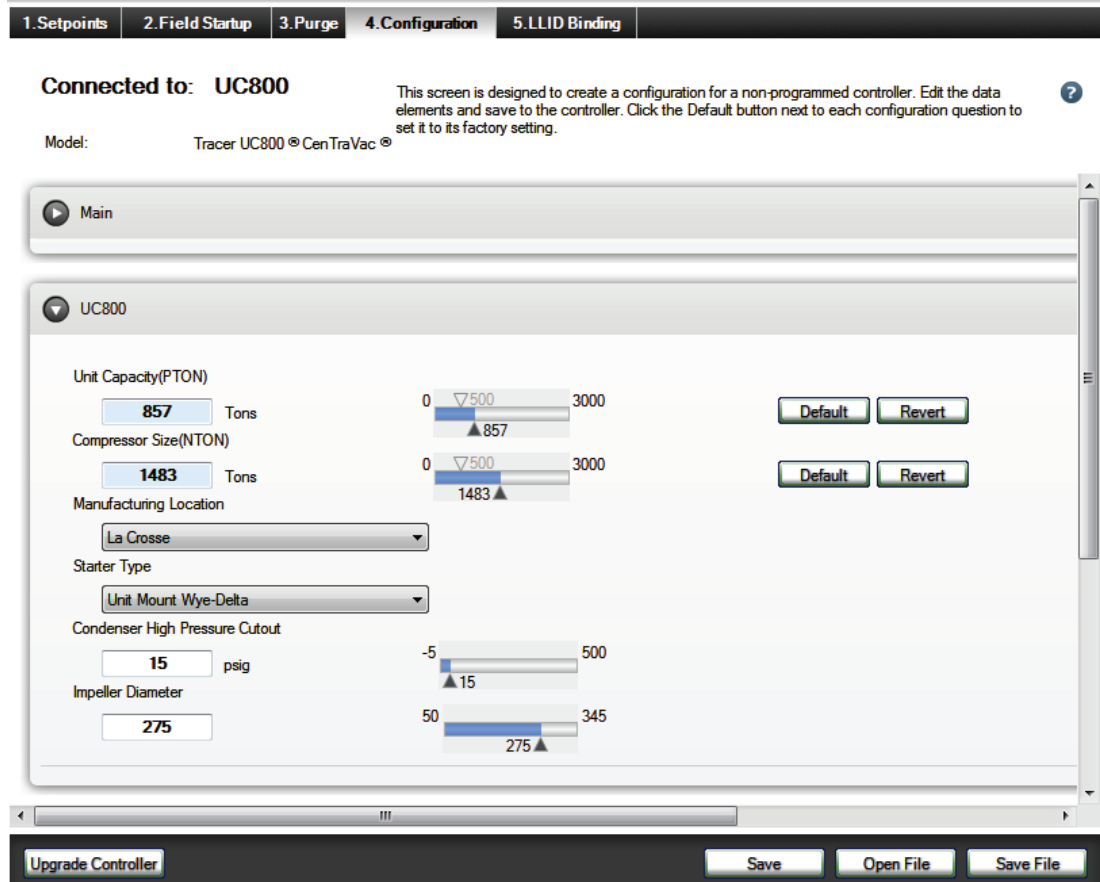


Click any one of these tabs to select it and display the corresponding screen. The selected tab turns white as shown in the previous figure. (Note that the Setpoints tab is selected by default.)

Expanding Boxes

If you click the Equipment Utility Configuration tab, you see the expanding box labels on the Configuration tab screen. An expanded UC800 box is shown in the next figure.

Figure 11. Expanded UC800 box on Configuration tab screen



Notice that each heading bar has an arrow icon on the left. The arrows point down when the expanding box is open (see UC800 box) and to the right when the box is collapsed. Use the arrow icon on each heading bar to expand and display its contents. Click the icon again to collapse the box and hide its contents.

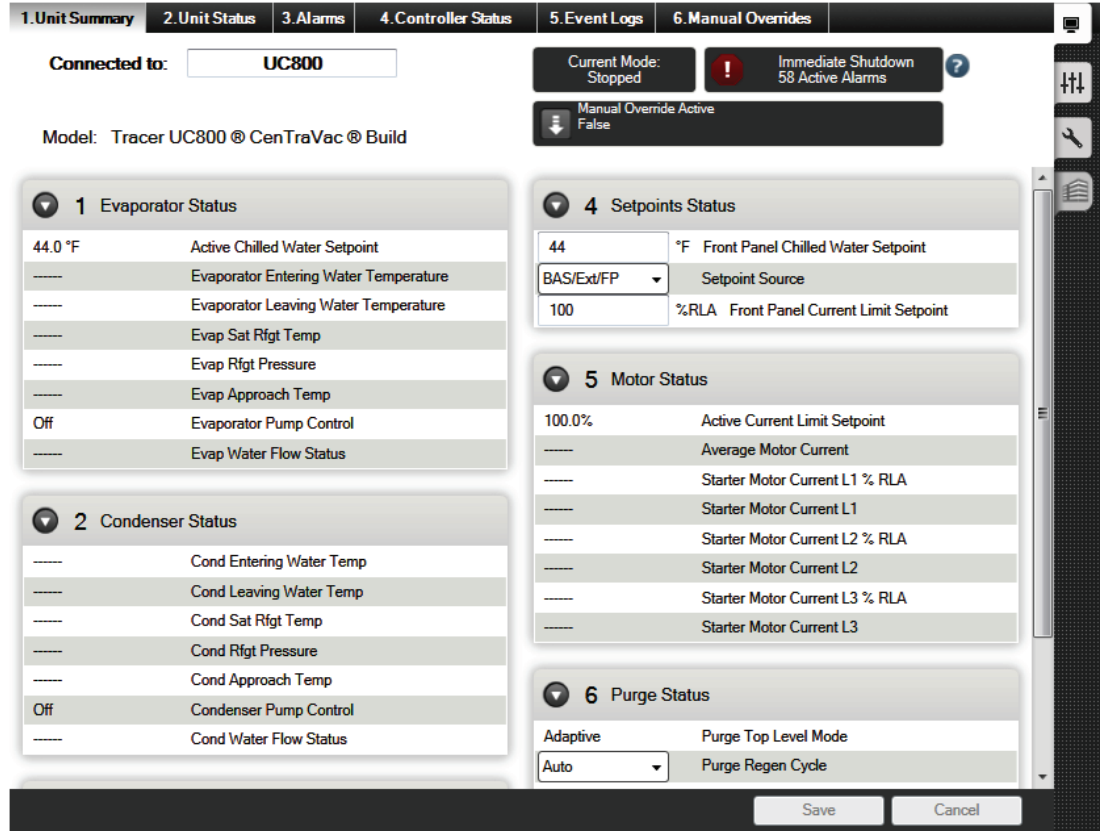
Settings controls

Several settings can have up to four types of controls. You can enter a new value in the entry box on the left, or you can use the slider to the right. In Tracer TU for Chillers, a Default button appears when you change the setpoint to a value other than the default. Click **Default** to change the value back to the factory default value. In all Tracer TU versions, the Revert button appears when you make a change to the current value. Click **Revert** to return to the last saved value, which is displayed in "ToolTip" or "hover" text that appears when your cursor moves over the button.

A Brief Tour of Tracer TU for Chillers

The Unit Summary screen is the first screen to appear after startup. It is one screen in a group of Status Utility screens. It contains “at-a-glance” status information about the equipment to which you are connected. Notice that the Unit Summary screen shown in the following figure is subdivided using numbered group boxes.

Figure 12. The Status Utility—Unit Summary tab screen



Notes:

- The CDHG, CDHG, and CDHH (Duplex chiller) version pictured above is very similar to the CVHE, CVHF, CVHG, CVHH, CVHL, and CVHS versions. However, it contains some double entries (Ckt1 and Ckt2) to account for the two compressor units.
- Other chiller models, such as Series R™ use similar user interface features.

The gray alert boxes at the top right provide vital information about the current mode, alarms, and the presence of active manual overrides. Two of the boxes are “hotspots” linked to other Status Utility screens. Clicking the **Current Mode** alert takes you to the Unit Status screen, and clicking the **Active Alarms** alert takes you to the Alarms screen. (The **Manual Override Active** alert is for display only.)

You can access the other Status Utility screens by clicking their corresponding horizontal tabs across the top of the viewing area (**Unit Status, Alarms, Controller Status, and Event Logs**).

Note: The Event Logs tab in the previous figure is included only with certain versions of the Tracer AdaptiView software.

The Status Utility

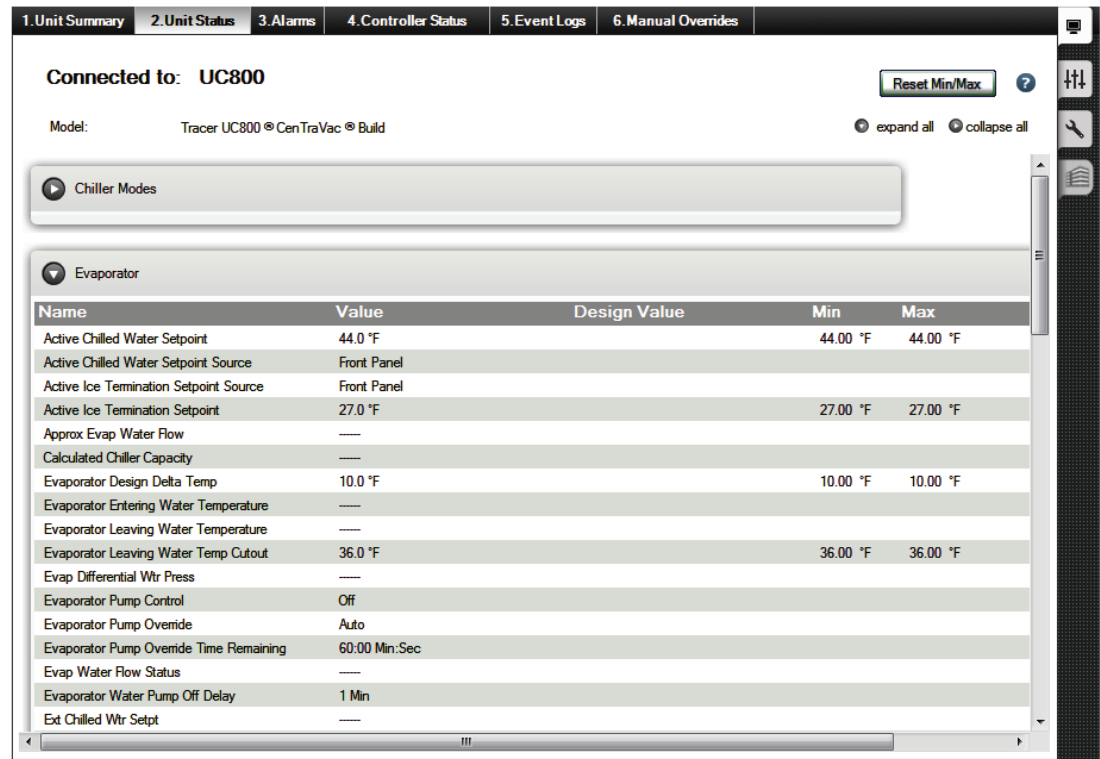


Use the Status Utility to monitor and assess current equipment operations, override an output, view and reset active alarms, and view events recorded in the controller event log.

Unit Status Screen

The following figure shows the Unit Status tab screen, which displays the status information grouped by components or subsystems.

Figure 13. The Status Utility—Unit Status tab screen



Note: The CDHF, CDHG, and CDHH version of the Unit Status screen has some duplicate expanding boxes to account for the two compressors used with Duplex chillers. This is true of several other Tracer TU screens as well.

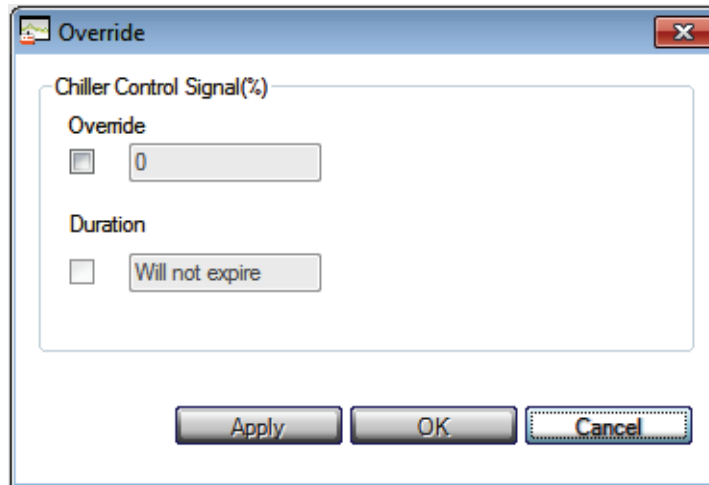
If applicable, a gray Override icon (shown below) appears on the right side of the screen for each setting that you can override. Settings that do not have the icon cannot be overridden.



To override an output, click the icon. The Override dialog box appears. The following figure shows the activated Override icons and the Override dialog box for the Chiller Control Signal setting, which is also displayed as the group box title.



Figure 14. The Status Utility—Override dialog box



When you activate an override, the icon turns blue indicating that the override is in effect. Some settings allow an override to be in effect only for a predetermined duration. When you override such a setting, a timed override icon with a clock image appears. If you place your cursor over the icon, a text box appears indicating the amount of time remaining for the override to be in effect.

Refer to the “Viewing Equipment Status and Settings (Status Utility)” in *Tracer TU Help for Chillers* for procedures explaining how to use the Status Utility screens. (For more information about Help, see “Accessing the Tracer TU Help for Chillers,” p. 37.

The Alarms Screen

The Alarms tab screen displays both active alarms and historic alarms. (Alarms are also referred to as “diagnostics”). Historic alarms have either been resolved by the system or acknowledged and resolved manually. There can be up to 100 alarms, both active and historic. For example, if there were 5 active alarms, the possible number of historic alarms would be 95.

You can also reset active alarms on this screen. Clicking Reset transfers active alarms to history and allows the chiller to resume operation.

NOTICE

Avoid Potential Chiller Damage!

Failure to properly resolve the source of an alarm before restarting the chiller could cause recurring alarms or result in chiller damage.

If an active alarm causes the chiller to stop operating, do not reset the alarm or attempt to restart the chiller before diagnosing and fixing the source of the problem. Restarting an alarm may restart the chiller.

Figure 15. The chiller Alarms screen

1. Unit Summary	2. Unit Status	3. Alarms	4. Controller Status	5. Event Logs	6. Manual Overrides
<p>Connected to: UC800 ?</p> <p>Model: Tracer UC800 © RTAE © Build Reset</p>					
Target	Severity	Date and Time	Description	Persistence	
▼ active alarms					
	Chiller	Immediate Shutdown	10/24/2013 08:41:59	Very Low Evaporator Rfght P...	Latching
	Chiller	Immediate Shutdown	10/24/2013 08:41:59	Very Low Evaporator Rfght P...	Latching
	Circuit 2	Normal Shutdown	10/24/2013 08:41:55	Comm Loss: Fan Inverter S...	Latching
	Circuit 2	Normal Shutdown	10/24/2013 08:41:55	Comm Loss: Condenser Fan...	Latching
	Circuit 1	Normal Shutdown	10/24/2013 08:41:55	Comm Loss: Fan Inverter S...	Latching
	Circuit 1	Normal Shutdown	10/24/2013 08:41:55	Comm Loss: Condenser Fan...	Latching
	Circuit 2	Normal Shutdown	10/24/2013 08:41:54	Comm Loss: Winding Temp ...	Latching
	Circuit 2	Normal Shutdown	10/24/2013 08:41:54	Comm Loss: Winding Temp ...	Latching
	Circuit 2	Immediate Shutdown	10/24/2013 08:41:54	Comm Loss: AFD 2A	Nonlatching
	Circuit 2	Immediate Shutdown	10/24/2013 08:41:54	Comm Loss: Oil Pressure, C...	Latching
	Circuit 2	Normal Shutdown	10/24/2013 08:41:54	Comm Loss: Oil Loss Level ...	Latching
	Circuit 2	Normal Shutdown	10/24/2013 08:41:54	Comm Loss: Cprsr Discharg...	Latching
	Circuit 2	Warning	10/24/2013 08:41:54	Comm Loss: Fan Inverter Fa...	Latching
	Circuit 2	Normal Shutdown	10/24/2013 08:41:54	Comm Loss: Expansion Val...	Latching

The alarm icons displayed on the left side of the screen indicate the level of severity.



Red indicates an alarm requiring immediate attention.



Orange indicates a low priority alarm.



Blue indicates a normal condition.



Yellow indicates a warning alarm.



Green indicates unclassified information.

The Controller Status Screen

The read-only Controller Status tab screen lists controller information including the application part number, its model type, controller serial number, build part number, boot part number, sales order number, unit model number, and unit serial number.

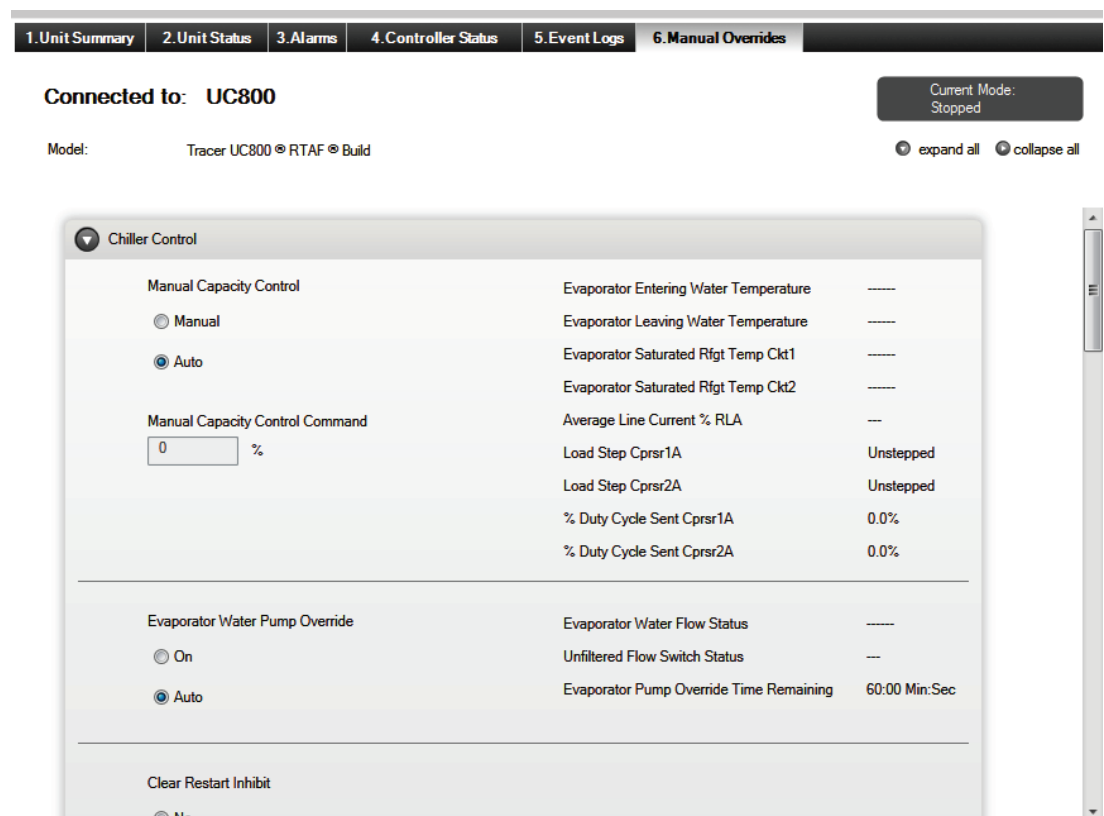
The Event Logs Screen

The Event Logs tab screen displays events that led up to a chiller shutdown. The UC800 event log is generated on a demand basis and can contain up to 5000 events. Each event record indicates the type of event (alarm, circuit, chiller, and so on), the date and time of the event, a brief description of the event, and a small set of related data items and their values. The log columns are sortable. Click the heading of any column to change the sort order of the table (alternating between ascending to descending).

The Manual Overrides Screen

The Manual Overrides screen shown in [Figure 16, p. 33](#) provides one location where you can perform key manual overrides for CenTraVac™, RTAE, RTAF, RTHA-B, and RTHC-D chillers. You can then monitor specific point values related to an override when it is in effect. The CenTraVac, RTAE, RTAF, RTHA-B, and RTHC-D versions of this screen include sets of points appropriate to each model.

Figure 16. The Status Utility - Manual Overrides screen for RTAF



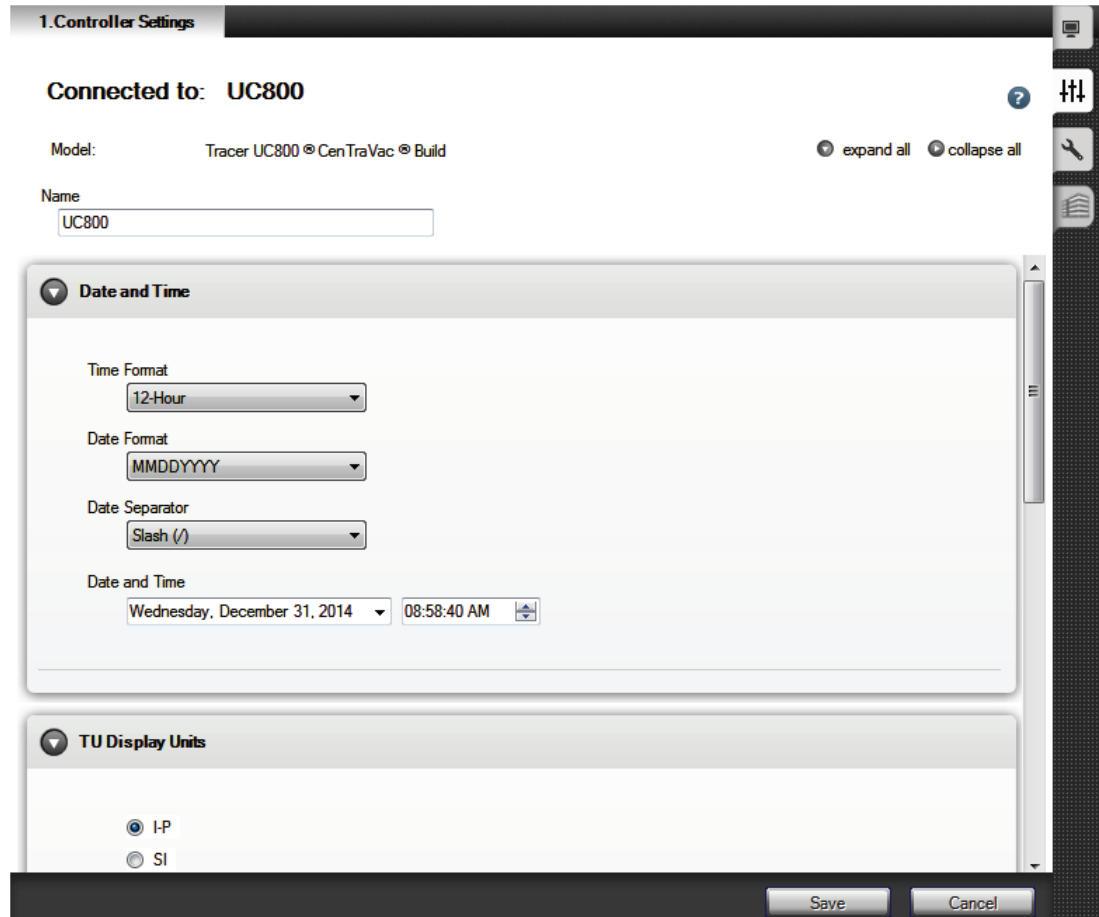
See the “Manual Overrides” subsection under the “Screens and Dialog Boxes” section in the *Tracer TU Help for Chillers* for a description of the various overrides and the points that are monitored during the overrides.

Controller Settings Utility



Use the Controller Settings Utility to enter Date and Time formats and the units of measure in which values are displayed (either inch-pound [I-P] or Standard International Units [SI]). The Controller tab screen also includes a Protocol expanding box where you can change protocol settings, such as the Baud Rate and Software Device ID.

Figure 17. Controller Settings Utility—Controller tab screen



The Controller Settings Utility also includes the Operator Display screen on which you can enable security so personnel can modify Tracer AdaptiView display settings only by entering specified PIN numbers.

Refer to the “Modifying Controller Settings (Controller Settings Utility)” section in the Contents of the *Tracer TU Help for Chillers* for procedures explaining the use of the Controller Settings Utility screens.

Equipment Utility



Use the Equipment Utility Configuration screen to define chiller components, features, and capabilities based on the selected chiller model. (See “Tracer TU Interface Navigation and Controls,” p. 27 for an image of the Configuration tab screen.) The configuration determines the required set of Low Level Intelligent Devices (LLIDs), and how the chiller application is run in the controller (UC800). You can then use the Configuration, Setpoints, Field Startup, and Purge screens to verify or modify chiller setpoints and configuration settings. The following figure shows the LLID Binding tab screen, which you can use to verify, bind, unbind, sequence, reassign, and upgrade Low-Level Intelligent Devices (LLIDs).

Figure 18. Equipment Utility—LLID Binding tab screen

1. Setpoints 2. Field Startup 3. Purge 4. Configuration 5. LLID Binding

Connected to: UC800

Model: Tracer UC800 © CenTraVac © Build

All LLIDs must be powered and connected before sequencing and binding.

Bind State	LLID Name	LLID Type	Date Code
<input type="checkbox"/>	Analog Current Loop Input #1 and #2	Dual Analog I/O	0
<input type="checkbox"/>	Compressor Refrigerant Discharge Temperature Sensor	Temperature Sensor	0
<input type="checkbox"/>	Condenser and Evaporator Water Pumps, Oil Tank Heater Control, and Ice Buil...	Quad Relay Output	0
<input type="checkbox"/>	Condenser Entering Water Temperature Sensor	Temperature Sensor	0
<input type="checkbox"/>	Condenser High Pressure Cutout Switch and HGBP Valve Closed Input	Dual High Voltage Binary Input	0
<input type="checkbox"/>	Condenser Leaving Water Temperature Sensor	Temperature Sensor	0
<input type="checkbox"/>	Condenser Saturated Refrigerant Temperature Sensor	Temperature Sensor	0
<input type="checkbox"/>	Condenser Water and Evaporator Water Flow Switch/Interlock	Dual High Voltage Binary Input	0
<input type="checkbox"/>	Evaporator and Condenser Water Differential Pressure Inputs	Dual Analog I/O	0
<input type="checkbox"/>	Evaporator Entering Water Temperature Sensor	Temperature Sensor	0
<input type="checkbox"/>	Evaporator Leaving Water Temperature Sensor	Temperature Sensor	0

LED On Bind Unbind Reassign

Properties

Refer to “Configuring or Changing Chiller Settings (Equipment Utility)” in the *Tracer TU Help for Chillers* for procedural and conceptual information about using the Equipment Utility screens.

Chiller Reports

You can generate the following types of reports from the Tracer TU Reports menu. These reports can be archived or printed. You can also convert these reports to PDF format for e-mailing to customers.

- ASHRAE Chiller Report

Tracer TU generates a printable ASHRAE Chiller Report that lists a number of setpoints. You can enter job site information and notes, and then save the report. Finally, you can save the report in PDF format for your customer.

- Event Log Report

Lists all the events visible on the Event Log tab screen. (There are no required entries or setup; the report is generated when you select Event Log Report on the Reports menu.)

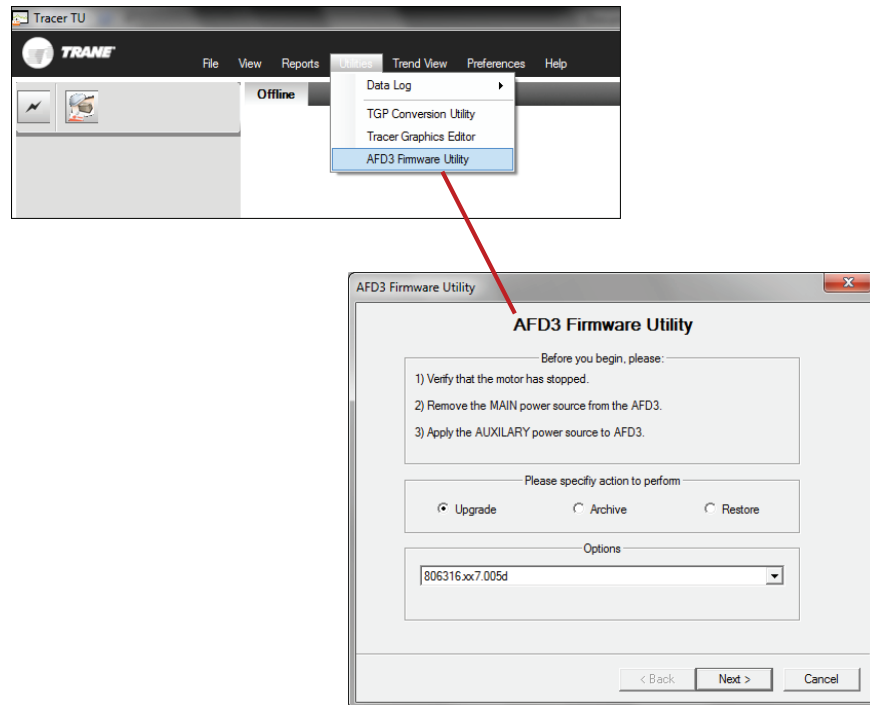
In addition to the report options, the Reports menu includes the following functional options.

- **View Reports**—Presents an Open File dialog box on which you can select archived reports for viewing.
- **Convert Reports to PDF**—Opens the Convert Reports to PDF dialog box on which you can select archived reports and convert them to PDF format.

AFD3 Firmware Utility

The AFD3 Firmware Utility provides an efficient way to upgrade the Adaptive Frequency Drive 3 firmware on the rare occasion when it is necessary. The utility also supports AFD3 configuration and event history archive and configuration restore operations.

Figure 19. The AFD3 Firmware Utility



Accessing the Tracer TU Help for Chillers

As you work with Tracer TU, you can refer to the Help for screen descriptions, procedures, and reference information covering the major Tracer TU features and capabilities.

Access Methods

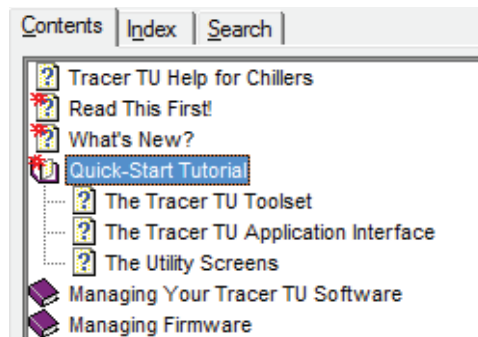
You can access Help in the following ways:

- Clicking the Help icon (a question mark in a blue circle), which is located in the upper right portion of each screen.
- Clicking the Help button on many dialog boxes.
- Clicking the Help menu at the top of the application window and selecting the Help option.
- Moving your cursor over various tabs and buttons to view “tool tip” text.

Quick Start Tutorial

The Quick-Start Tutorial topics provide more detail on the Tracer TU interface features and demonstrate some processes and procedures. (The Quick-Start Tutorial book is highlighted in the following figure).

Figure 20. Tracer TU Help for Chillers table of contents



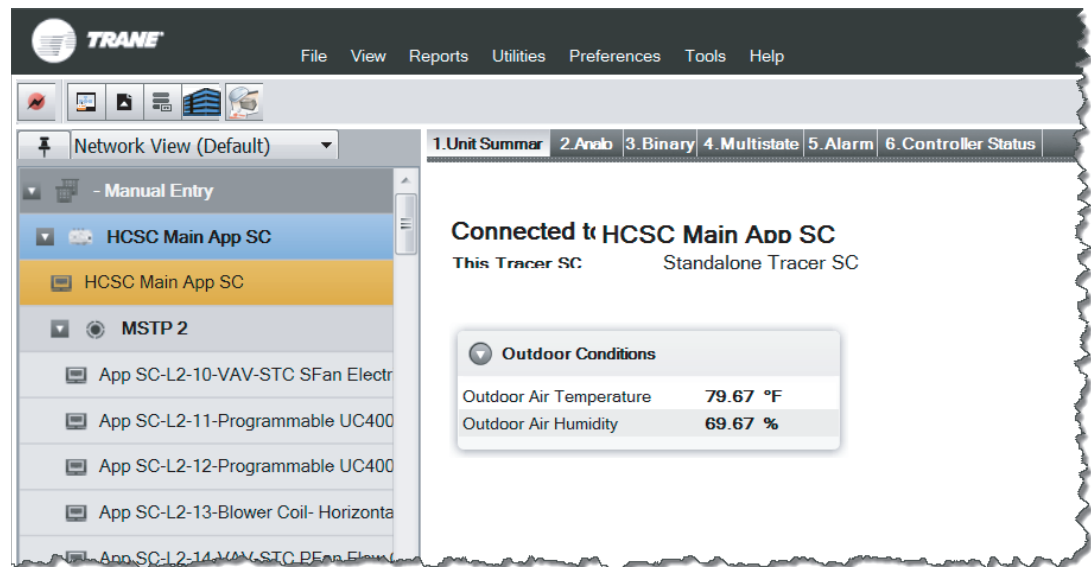
A Brief Tour of Tracer TU for Programmable Controllers

Tracer TU for Programmable Controllers presents the Unit Summary screen at startup. The contents of the Unit Summary screen vary depending on the controller to which you are connected. If you connect to a System Controller, you will first see the System Controller Unit Summary screen. You can then connect to any communicating controllers on the System Controller's links.

The Unit Summary Screen (System Controller)

The Unit Summary screen is displayed when you are connected to a System Controller.

Figure 21. Status Utility—The Unit Summary screen (System Controller version)



You can now perform either of the following actions:

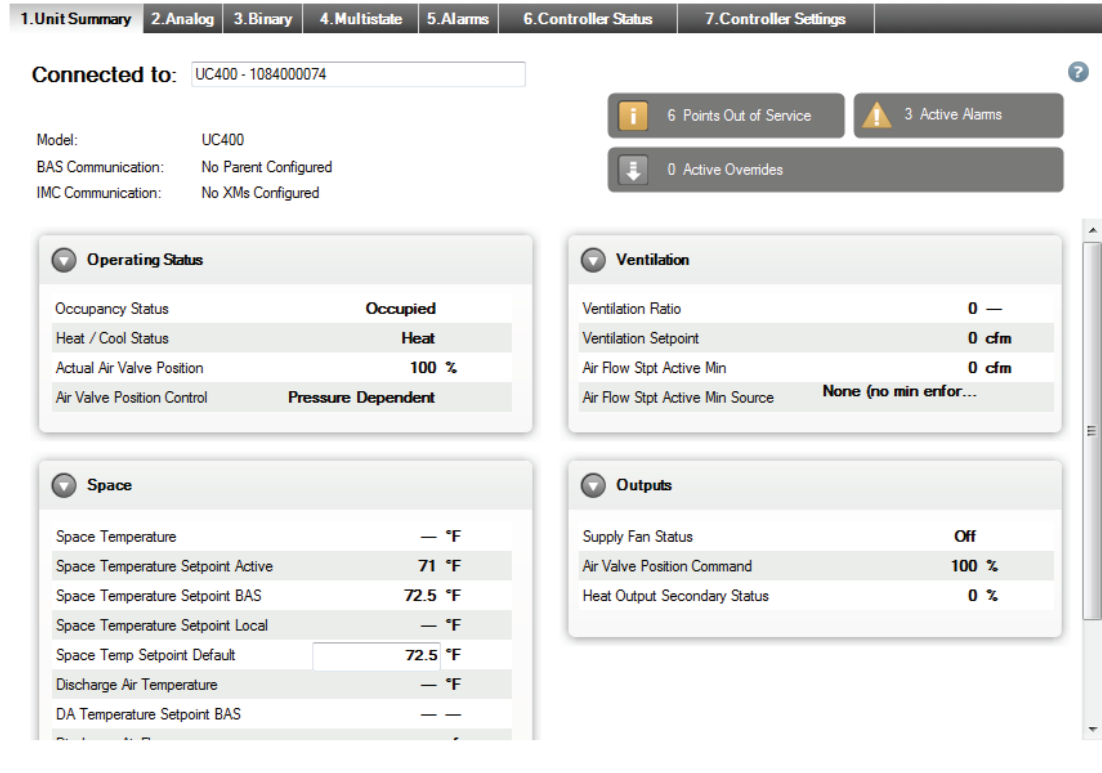
- Right-click the **System Controller** icon (orange area) at the top of the Device Navigation Tree and then click **Launch Tracer Synchrony** or **Launch Tracer SC** (depending on the device to which you are connected) to start the System Controller User Interface. (See “[System Controller User Interface](#),” p. 72.)
- Connect to one of the BACnet, LON, Trane Legacy, or Modbus devices displayed in the device hierarchy on the Device Navigation Tree pane on the left side of the Tracer TU window by right-clicking it and selecting **Connect to Device**. You can then perform tasks using the available Tracer TU utilities and applications.

Note: You can view the special Unit Summary and Unit Status screens for Non-Trane BACnet, LON, Trane Legacy, and Modbus devices.

Unit Summary Screen (UC210, UC400, and UC600)

If you are connected to a UC210, UC400, or UC600 when you start Tracer TU, or if you connect to a device through a System Controller, you first see the Unit Summary screen, which is associated with the Status Utility tab at the right. It is one screen in a group of Status Utility screens. It contains “at-a-glance” status information about the device to which you are connected. The following figure shows the UC400 version of the Unit Summary screen.

Figure 22. Status Utility—The Unit Summary screen (UC400 version)



The gray alert boxes at the top right provide vital information about the points that are out of service, any active alarms, and the presence of active overrides. Clicking the **Active Alarms** alert takes you to the Alarms screen. (The **Points Out of Service** and **Active Overrides** alerts are for display only.)

The UC600 version provides only the connection information and the three alert boxes, and, if the UC600 has a TD7 Display, the Unit Summary screen includes a button you can click to launch the Operator Display User Interface.

Figure 23. Operator Display User Interface button on the UC600 Unit Summary screen



Note: Most Tracer TU for Programmable Controllers screens are similar to the UC400 screens shown in this section.

Unit Summary and Unit Status Screens (Modbus, LonTalk, Non-Trane BACnet, and Trane Legacy Devices)

If you connect to a Modbus, LonTalk, Non-Trane BACnet, or Trane Legacy device using System Controller pass-through, Tracer TU displays groups of significant device data points on special Unit Summary and Unit Status screens. These screens are similar in format to the normal Trane BACnet screens.

- Unit Summary

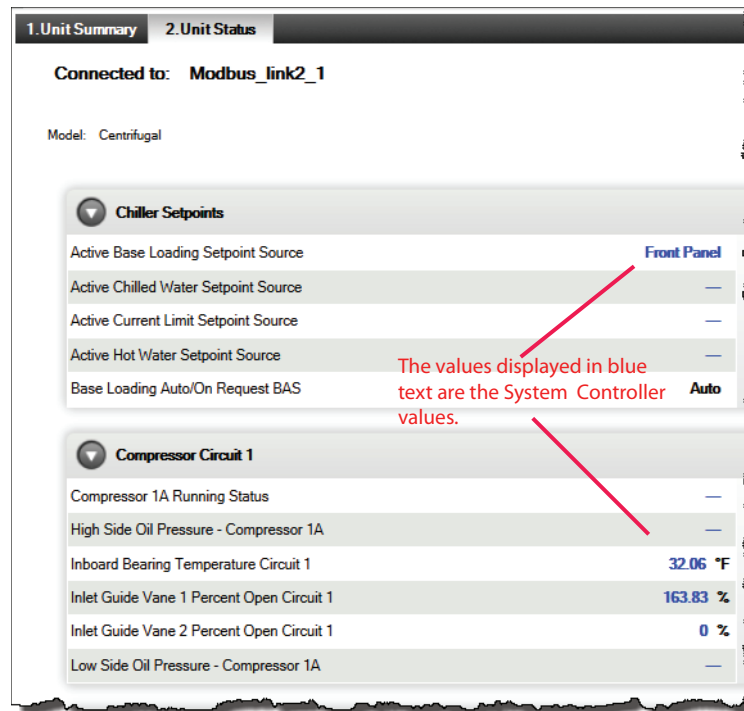
The contents of the Unit Summary screen are similar to the contents of the Application tab page on the corresponding individual Device page in the System Controller User Interface. The amount of data displayed in Tracer TU depends on the device type.

- Unit Status

The Unit Status screen lists point values grouped by main components similar to the normal Trane BACnet screens.

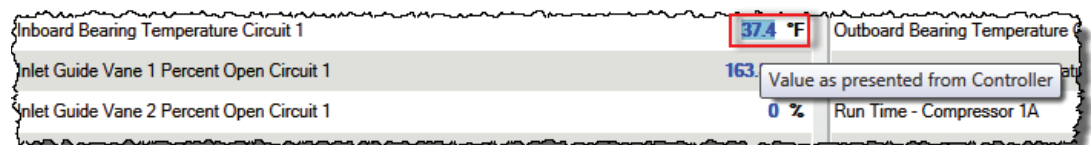
Some point values on these two screens are presented in blue text, which are the System Controller (converted) values.

Figure 24. Unit Status screen with convertible points



You can click any of these values to change them to their native controller (communicated) value as shown in the following figure.

Figure 25. System Controller Value Toggled to Controller Value



If the point can be overridden, you can use either value for the override.

The Status Utility

The Status Utility has a set of horizontal tabs providing access to its screens. Use the Status Utility screens to monitor performance and to create, edit, delete, override, and compare points using the Action drop-down list and the right-click menus on the **Analog**, **Binary**, and **Multistate** screens. In addition, the **Alarms** screen displays active alarms and the **Controller Status** screen provides information about the status of the controller, its installed programs, and expansion modules. Finally, the **Controller Settings** screen is where you can configure expansion modules, wireless sensors, notification classes, communication settings, the controller date and time, and controller units.

Binary Tab Screen

The following figure shows the Binary tab screen, which lists the binary inputs, outputs, and values that reside on the controller and are used by the installed programs. (The Analog and Multistate screens have a similar format.) You can create, edit, copy, and delete points from these screens and then send the changes to the device or an offline Controller Configuration. Refer to the “Configuring and Managing Points” section in the *Tracer TU Help for Programmable Controllers*.

Note: The padlock icons in the Lock column on the right, signify that the points are Factory supplied and are, therefore, not editable. The lock applies to most equipment with some exceptions. You can edit some points in Trane factory blower coil, fan coil, and unit ventilator configurations. See “Trane Factory Blower Coils, Fan Coils, and Unit Vents” in the *Tracer TU Help for Programmable Controllers* and “Factory Equipment Configurations You Can Modify (UC210 and UC400),” p. 57 of this guide for more information.

Figure 26. The Status Utility—Binary tab screen

The screenshot shows the 'Binary' tab selected in the Status Utility. At the top, it displays 'Connected to: UC400 - 1084000074' and 'Model: UC400'. Below this, there are 'expand all' and 'collapse all' buttons. A table lists various binary points with columns for Name, Value, Reference, and State. The table is organized into sections: Binary Input, Binary Output, and Binary Value. Each row includes an 'Override' icon (a downward arrow) and a 'Lock' icon (a padlock). At the bottom of the screen, there are 'Save To File', 'Send To Device', and 'Cancel' buttons.

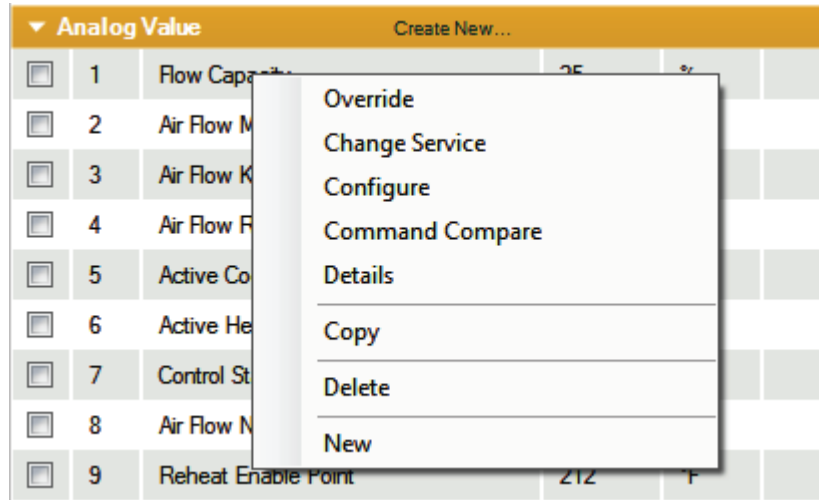
	Name	Value	Reference	State			
Binary Input Create New...							
<input type="checkbox"/>	1 Occupancy Input	Occupied	BI1.binaryValue	Normal			
Binary Output Create New...							
<input type="checkbox"/>	1 ECM Fan Output	Off	BO1 (Relay).binary...	Normal			
Binary Value Create New...							
<input type="checkbox"/>	1 Air Valve Position Control	Pressure Depe...		Normal			
<input type="checkbox"/>	2 Default Supply Air Temperature Mode	Cold		Normal			
<input type="checkbox"/>	3 Diagnostic: Air Flow Override Local	Inactive		Normal			
<input type="checkbox"/>	4 Discharge Air Reset Enable	Disable		Normal			
<input type="checkbox"/>	6 Pressure Dependent Mode Reheat Enable	Enable		Normal			
<input type="checkbox"/>	7 Diagnostic: Flow Sensor Calibration Failure	Active		Alarm			
<input type="checkbox"/>	8 Auto Calibrate	Enable		Normal			
<input type="checkbox"/>	9 Diagnostic: Low Primary Air Flow	Inactive		Normal			
<input type="checkbox"/>	11 Auto Commissioning Command	Cancel		Normal			
<input type="checkbox"/>	12 Diagnostic: High Air Flow	Inactive		Normal			
<input type="checkbox"/>	13 Diagnostic: Flow Sensor Failure	Active		Alarm			

You can click the Override icon (down arrow icon) in the grid to bring up either an Override Request dialog box (used for output or value points) or a Change Service Request dialog box (used for input points).

A Brief Tour of Tracer TU for Programmable Controllers

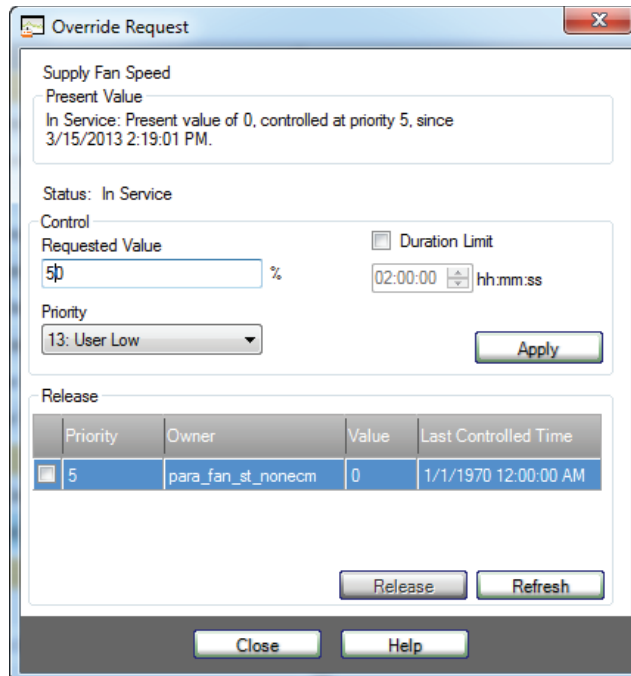
Alternatively you can right-click within the row of any point and select either the Override or Change Service options on the right-click menu, which is shown in the next figure, to display the same dialog boxes. Select Details on the right-click menu to view specific information about a point.

Figure 27. Right-click menu on the Status Utility Analog, Binary, and Multistate screens



The next figure shows the Override Request dialog box. The selected point name is displayed at the top of the dialog box. You can use the Override Request dialog box to either override a point or take it out of service.

Figure 28. Override Request dialog box



- Override the point using a different value and priority level. When you specify an override on this dialog box, a blue Override icon appears in the Control column of the Status Utility tab screen indicating that the override is in effect. You can also set the amount of time (Duration Limit) that the override will be in effect. If you set a Duration Limit, the Override icon includes a clock image. If you place your cursor over the icon, a text box appears indicating the amount of override time remaining.



- Taking a point out of service cuts off the connection with the point's reference. By disconnecting the point from its reference, you can substitute a temporary value for testing purposes or port a program and its points to another device before transitioning the equipment to the new program.

Refer to the "Overriding Points" section in the *Tracer TU Help for Programmable Controllers* for procedures explaining how to specify and release an override. (For more information about Help see "[Accessing the Tracer TU Help for Programmable Controllers](#)," p. 65.)

Note: You can also override the same point on multiple devices using the group override capability. See "[Facility View](#)," p. 61 for information about this capability.

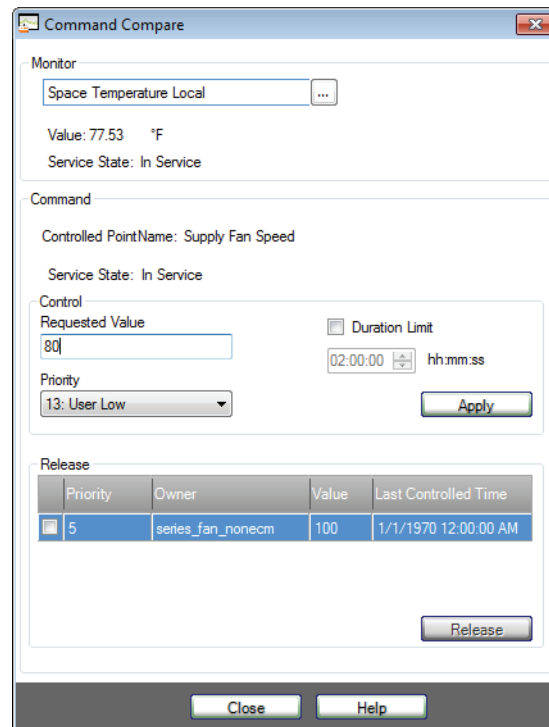
Using Command Compare

Use the Command Compare dialog box to determine if a selected point is performing as intended by monitoring its effect on a related point. For example, you can monitor the effect on a fan state or a setpoint by changing the occupancy state, or you can change the fan speed to observe the effect on duct air pressure (using caution to avoid a high pressure situation).

You can select Command Compare either from an input point you want to monitor while changing a related point, or from a value or output point you will control while monitoring a related point. Your selection determines the version of the Command Compare dialog box that is displayed.

The Command Compare dialog box shown in the following figure displays an initially selected input point (**Space Temperature Local**), which is the monitored point. When the value of the controlled point (**Supply Fan Speed**) is changed, you can observe the effect on the Space Temperature Local value to ensure that it reacts as expected.

Figure 29. Monitored input point on Command Compare dialog box



A Brief Tour of Tracer TU for Programmable Controllers

If you select Command Compare from a value or output point, the dialog box appears with the value or output displayed in the Controlled Point box. You then select the monitored point for that control point.

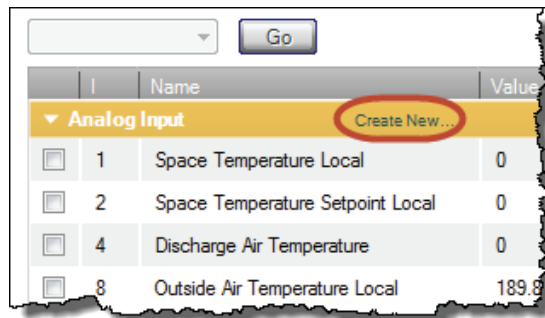
Notes:

- When you change a point's value you are performing an actual override of the point. Be sure to release the override when you are finished.
- If the controlled point is locked, your override request is ignored.

Creating and Editing Points

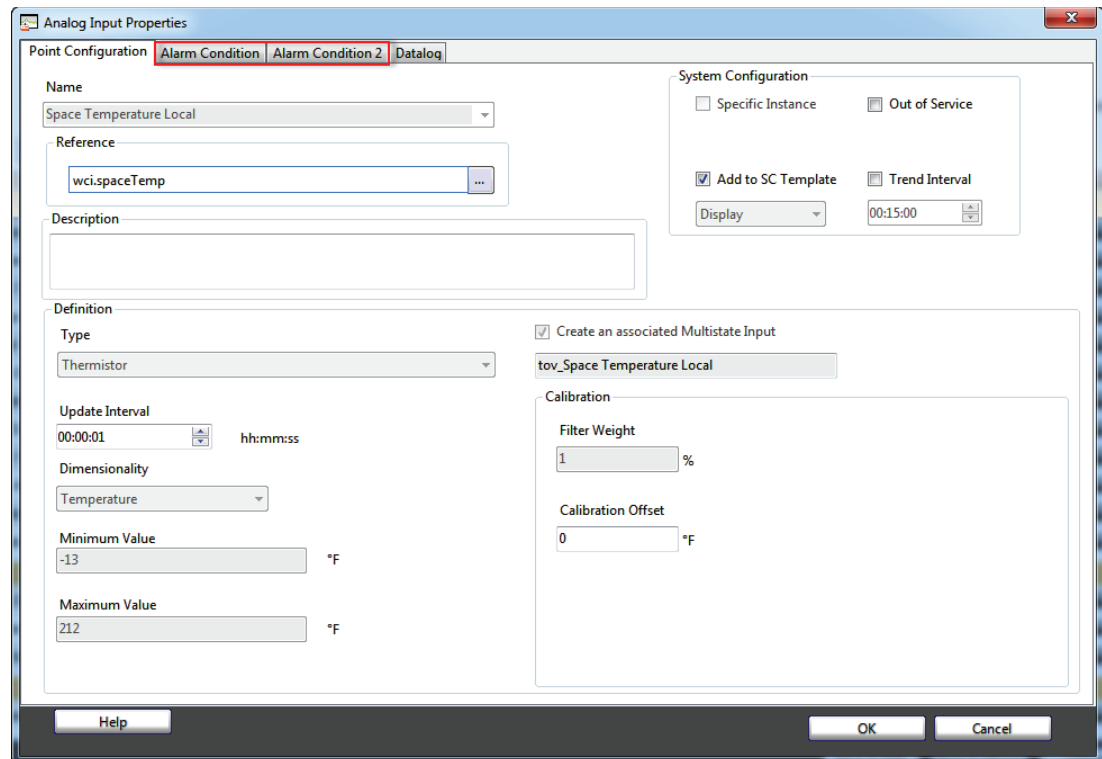
Use the Point Configuration Properties dialog boxes to create or edit points. Access the Point Configuration Properties dialog boxes using the Create New link or the drop-down list and Go button on the Analog, Binary, and Multistate point screens.

Figure 30. The Create New link



The following figure shows the Analog Input Properties dialog box. You can create an alarm and specify primary alarm conditions and a notification class on the Alarm Condition tab. If you want to specify secondary set of alarm conditions for the point, you can configuration those separate conditions on the Alarm Condition 2 tab. See the *Tracer TU Help for Programmable Controllers* (Configuring and Managing Points > Configuring Alarms) for more information. Use the Datalog tab to set up a data log to track point values over time.

Figure 31. Analog Input Properties dialog box accessed from the Analog tab screen

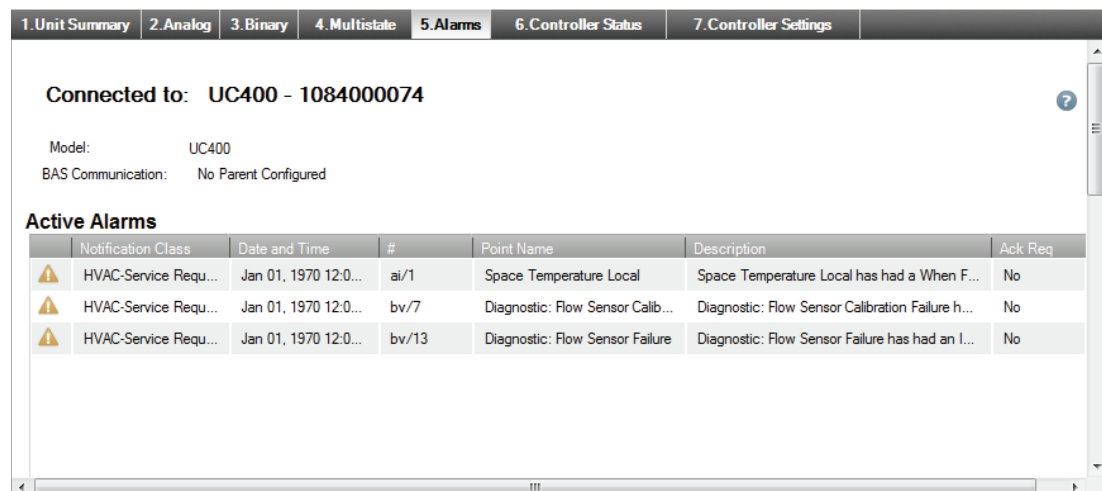


If you want to add the selected standard point or a custom point to the System Controller template, you can select the **Add to SC Template** check box in the System Configuration group box. You can also specify a trend interval for the point by selecting the Trend Interval check box. Finally, you can optionally enter a meaningful description of the point and its function in the Description entry box.

The Alarms Screen

The Alarms tab screen displays all active alarms.

Figure 32. The Alarms screen



A Brief Tour of Tracer TU for Programmable Controllers

Alarms are displayed in date and time order and then in order of severity. However, all columns are sortable. For example, if you prefer to view alarms by Point Name, you can click that column heading to arrange the entries in ascending or descending alpha order.

Note: See the alarm icons listed in *"The Alarms Screen," p. 31* for a description of the various icons displayed on the left side of the screen.

The alarm icons displayed on the left side of the screen indicate the level of severity.



Red indicates an alarm requiring immediate attention.



Orange indicates a low priority alarm.



Blue indicates a normal condition.



Yellow indicates a warning alarm.

The Acknowledgment column value indicates whether or not the alarm has to be acknowledged at the parent System Controller level.

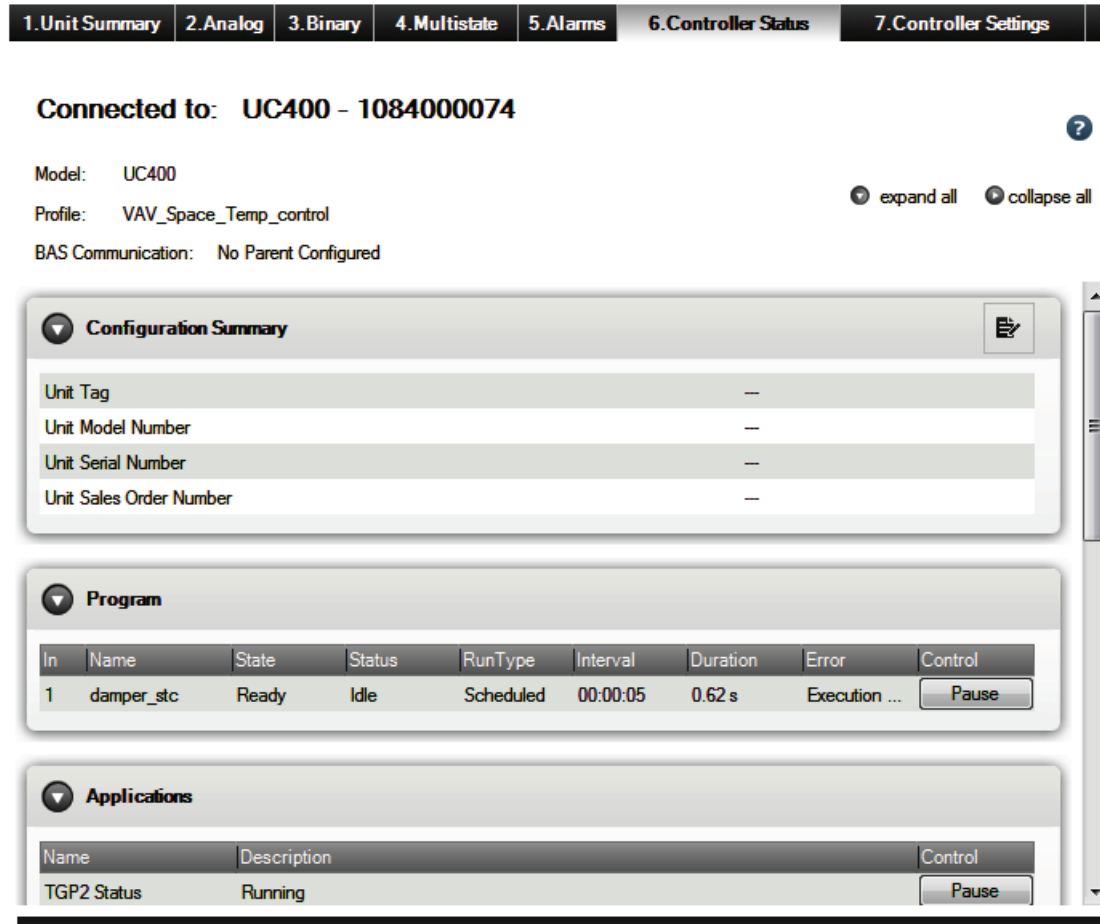
UC600 Event Log

When Tracer TU is connected to a UC600, the Alarms screen includes an Event Log similar to the Alarms list. The event log records everything that happens on devices that route events to it. The UC600 routes all of its own events to its own event log. You can clear the event log when you no longer need to see the listed items.

The Controller Status Screen

The Controller Status tab screen lists basic information about the controller, the installed programs, and any expansion modules used with the controller.

Figure 33. The Controller Status screen



The screenshot shows the Controller Status screen with the following elements:

- Navigation Tabs:** 1. Unit Summary, 2. Analog, 3. Binary, 4. Multistate, 5. Alarms, 6. Controller Status (selected), 7. Controller Settings.
- Connected to:** UC400 - 1084000074
- Model:** UC400
- Profile:** VAV_Space_Temp_control
- BAS Communication:** No Parent Configured
- Controls:** expand all, collapse all
- Configuration Summary:**

Unit Tag	--
Unit Model Number	--
Unit Serial Number	--
Unit Sales Order Number	--
- Program:**

In	Name	State	Status	RunType	Interval	Duration	Error	Control
1	damper_stc	Ready	Idle	Scheduled	00:00:05	0.62 s	Execution ...	Pause
- Applications:**

Name	Description	Control
TGP2 Status	Running	Pause

Configuration Summary

Displays a quick summary of basic controller and configuration information. In addition, you can edit the Unit Tag, Unit Model Number, Unit Serial Number, and the Unit Sales Order Number by clicking the icon on the right side of the title bar.

Program

Lists all installed programs. The grid includes information about current program status (Running or Idle) and specifies whether a program is scheduled to run at a specific interval, or if it runs when triggered by an event. The Duration column indicates the length of time it takes a program to run from start to completion (one program cycle).

Applications

Displays the operational state of the TGP2 program engine in which all programs execute including the amount of volatile memory used for TGP2 control in the connected device and the percentage of non-volatile memory used to store TGP2 programs and the configuration in a the connected device.

Expansion Module Status

The Expansion Modules Status box appears if the controller is communicating with any expansion modules, such as the XM30 or XM70 modules. The grid columns include module type, address, and communication status.

Controller

The Controller box provides identifying information about the controller.

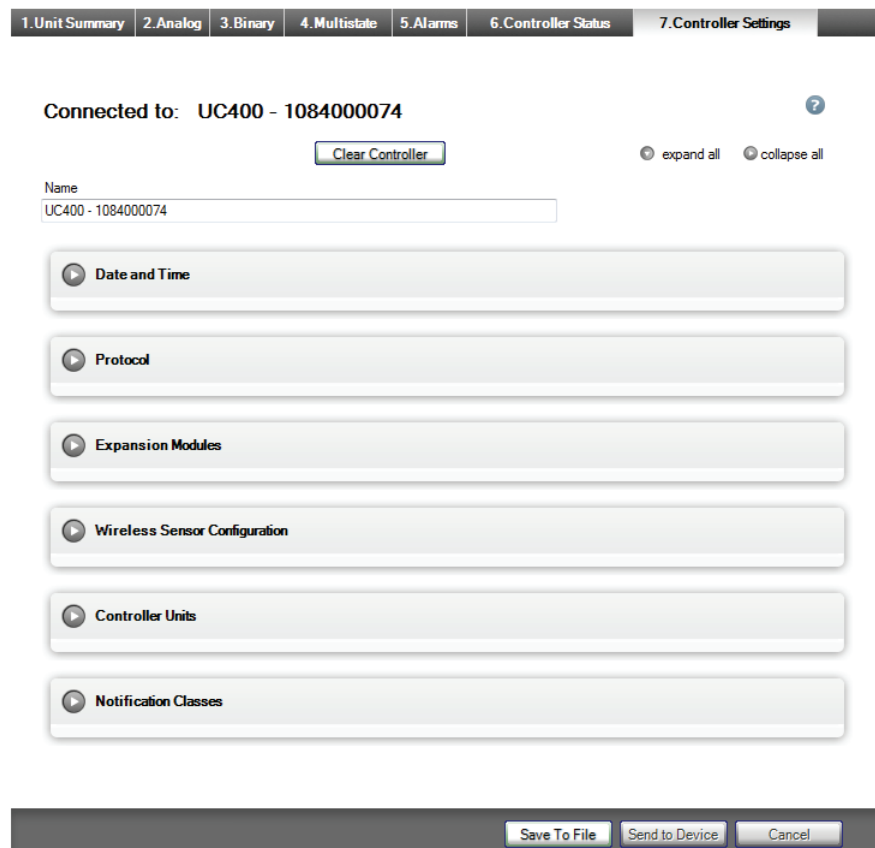
The Controller Settings Screen

Finally, use the **Controller Settings** tab screen to accomplish the following tasks:

- Enter Date and Time formats used by the controller.
 - The UC600 includes advanced date-time functions that provide the ability to
 - Set the time zone for the controller.
 - Enable Daylight Savings Time (DST) and set the DST start and end dates.
 - Set the current time on the controller.
- Change protocol settings, such as the Baud Rate and Software Device ID.
- Discover, add, or delete XM30, XM32, and XM70 expansion modules.
- Discover, add, or delete wireless space, humidity, CO₂, and occupancy sensors.
- Specify the units of measure used by the controller.
- Create, edit, and delete unit controller notification classes.

(See the “Modifying Controller Settings” section in the *Tracer TU Help for Programmable Controllers*.)

Figure 34. The Controller Settings screen



Data Graphing Utility

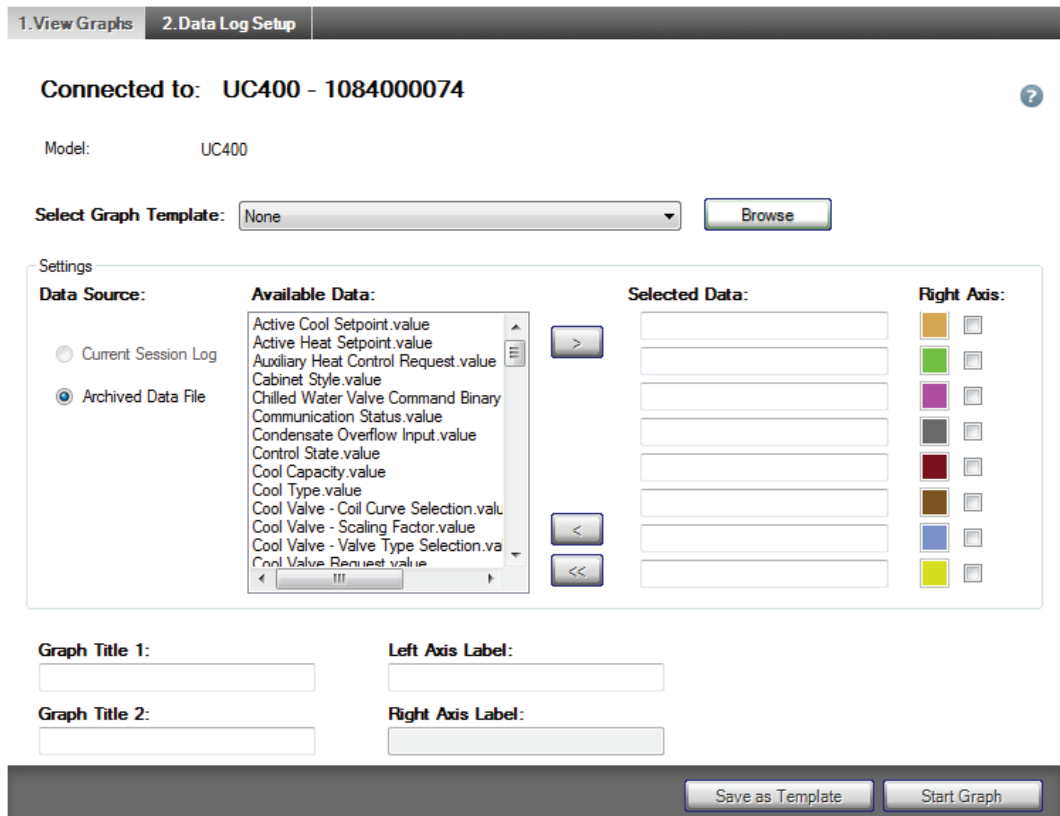


Use the Data Graphing Utility to set up and perform the following tasks:

- Configuring data logs.
Configure data logs on the companion Data Log Setup screen, which provides the most detailed data log configuration. You can also use the quick data log configuration controls on the Datalog tab of each Point Configuration dialog box (see “[Creating and Editing Points,](#)” p. 44). Each data log records data for a single point.
- Generating line graphs

At a time of your choosing, retrieve and view point data recorded over a time span and stored in the controller’s data logs. Set up and generate line graphs (trends) on the View Graphs tab screen. Each graph displays data for a single point (one data log file) you retrieved from the controller using the Retrieve Data Logs option on the Tools menu.

Figure 35. Data Graphing Utility—View Graphs tab screen



You can save and print the graphing image or graph data. You can also save log file data to other file formats for viewing and analysis.

Refer to the “Configuring and Graphing Data Logs” section in the *Tracer TU Help for Programmable Controllers* for procedures explaining how to use the Data Graphing Utility screens. More specifically, see the topic “Graphing Data From Archived Log Files” for information about viewing UC400, UC210, and UC600 data logs.

Equipment Utility



Use the Equipment Utility tab screens to configure and commission equipment. In addition, the UC600 Equipment Utility contains the Scheduling screen used to set up three different schedules.

Configuration and Setup Screens

The following figure shows the Configuration tab screen where you can create the equivalent of a Factory configuration for the type of equipment specified on the Device Type and Equipment Type drop-down lists. For example, when you select VAV in the Equipment type box, other boxes appear from which you can make specific selections. After you have made all selections, click Save to clear any previous configuration off the controller and to load the new programs and points.

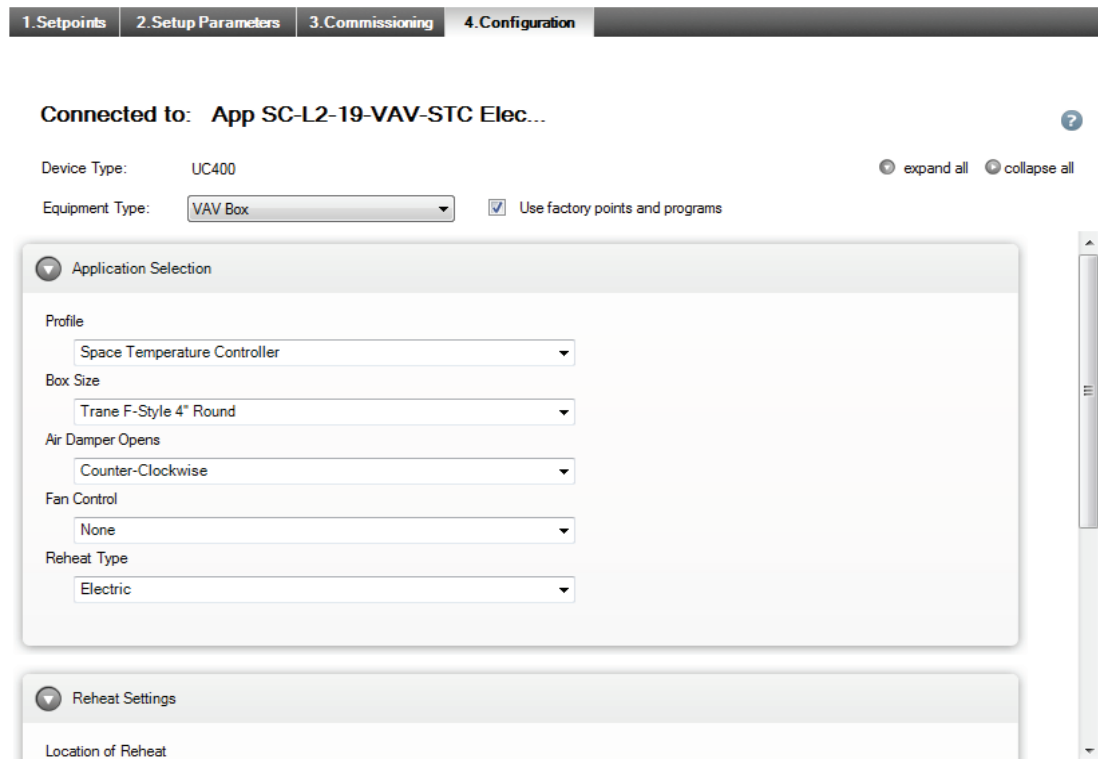
The following figure shows the Configuration tab screen where you can create or modify points and adjust specific equipment parameters.

Important: *Modifying a factory configuration should only be done if absolutely necessary, and only if you are knowledgeable about the effects of the proposed changes. You are responsible for the proper operation of the equipment if any changes are made to factory configurations.*

Note: *If you replace an existing configuration with a factory configuration, any uniquely named custom (user-created) data logs, custom points, and programs are preserved. If a conflict exists between custom points and factory points, Tracer TU issues a message stating that the conflict must be resolved before you can load the factory equivalent configuration. You must delete or reassign the custom point causing the conflict.*

(See the “Configuring and Commissioning Equipment” section in the *Tracer TU Help for Programmable Controllers*.)

Figure 36. Equipment Utility—Configuration tab screen



1. Setpoints 2. Setup Parameters 3. Commissioning 4. Configuration

Connected to: App SC-L2-19-VAV-STC Elec... ?

Device Type: UC400 expand all collapse all

Equipment Type: VAV Box Use factory points and programs

Application Selection

Profile: Space Temperature Controller

Box Size: Trane F-Style 4" Round

Air Damper Opens: Counter-Clockwise

Fan Control: None

Reheat Type: Electric

Reheat Settings

Location of Reheat

A Brief Tour of Tracer TU for Programmable Controllers

The Setpoints and Setup Parameters tabs to the left of the Configuration tab display screens that have sets of entry boxes and sliders you can use to specify the values of various equipment setpoints and parameters.

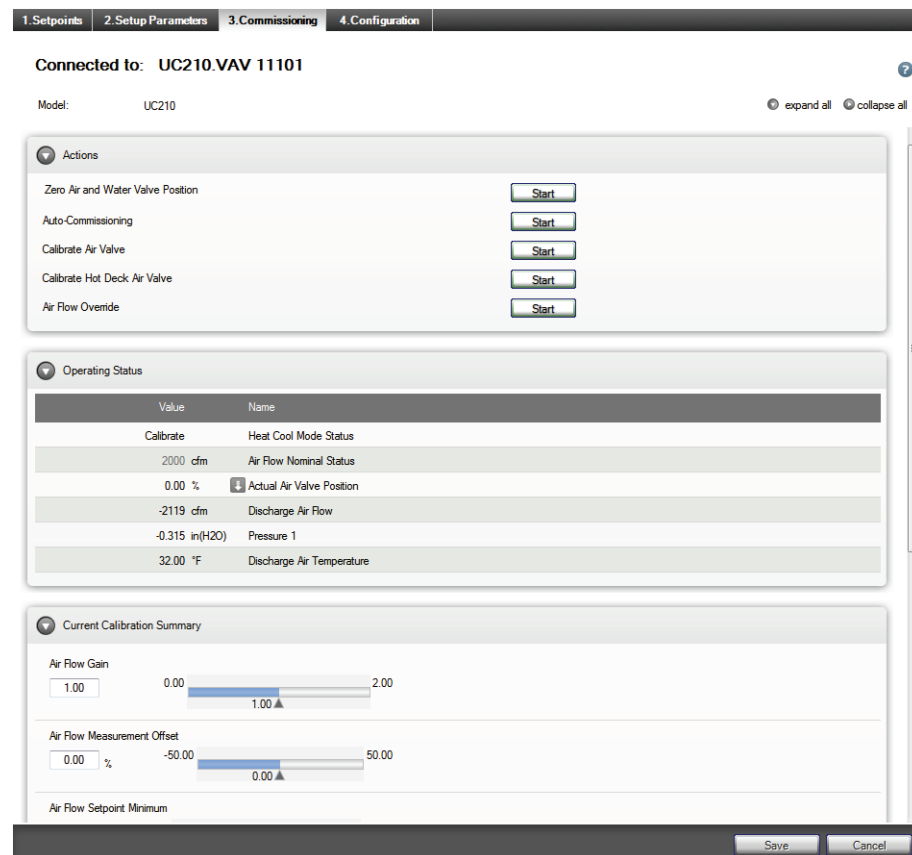
The Commissioning Screen

As its name suggests, the Commissioning tab screen is where you run Air and Water Balancing and Auto-Commissioning routines and update setpoints specific to those processes.

Note: *The Commissioning and Air/Water Balancing functions are also available on the Facility View where you can perform them for groups of devices.*

The Commissioning tab screen displays specific parameters related to air flow, fan, and water flow. It has the following expanding boxes: Actions, Operating Status, ECM Fan Setup (if an ECM fan exists), Current Calibration Summary (for VAV boxes), and Discharge Air Reset Limits (for VAV boxes).

Figure 37. The Commissioning screen



The Actions box includes screen objects you can use to launch the following tasks on an individual VAV box:

- **Zero Air and Water Valve Position**
Launches the Auto-Calibration routine to completely close the air or water valve and resets the Actual Air Valve Position point value to 0 (zero).
- **Calibrate Air Valve**
Displays the Calibrate Air Valve dialog box, which you can use to perform a two-point air valve calibration for an individual VAV box.
- **Calibrate Hot Deck Air Valve**
Displays the Hot Deck Air Valve Balancing Steps dialog box, which you can use to perform a two-point air flow calibration for an individual dual duct VAV box.

- **Air Flow Override**
Displays the Air Flow Override dialog box, which you can use to safely drive the air valve to Full Open position (or, alternatively, to Full Closed, Maximum Flow, or Minimum Flow position) without the risk of recalculating calibration values.
- **Water Valve Related Overrides**
Displays one of the water valve related override dialog boxes. (The Hot Water Valve Override Start button is shown on the previous image.) You can override the Economizer Valve, Isolation Valve, Hot Water Valve, and Chilled Water Valve to the open position for a limited duration as part of a system water balancing operation. When the time duration expires the water valve is released back to its normal setting..
- **Fan Related Overrides**
The Fan Override, Fan Override ECM, and Fan Override PSC options display the fan related overrides dialog boxes, which you can use when balancing air flow for the supported types of equipment.
- **Ventilation Damper Override**
Use this override dialog box to open the ventilation damper on all BC, FC, and UV units configured with modulating outside air dampers. The damper can be opened to an adjustable percent.

Operating Status

This box includes current settings related to air and water balancing. The gray override icons indicate that air, fan, and water valve settings can be overridden. Blue icons indicate that the settings are currently overridden. (See “Binary Tab Screen,” p. 41.)

ECM Fan Setup

(Visible if an ECM fan is configured.) This box includes flow setpoint, maximum and minimum flow settings, and a correction factor setting.

Current Calibration Summary

Presents the current values of the Air Flow Gain and Air Flow Measurement Offset along with the Minimum and Maximum Air Flow Setpoints for a VAV box. . The following setpoints have been added to this list:

- Standby Minimum Air Flow
- Air Flow Setpoint Minimum Standby Heat
- Air Flow Setpoint Minimum Heat
- Air Flow Setpoint Maximum Heat
- Air Flow Setpoint Minimum Local Heat

Discharge Air Reset Limits

This box contains settings that are used for Dual Max VAV boxes. When the VAV’s heating valve is open, the box flow will modulate between the flow settings to control to the Discharge Air Temp Design Setpoint. It includes the following adjustable setpoints:

- Air Flow Setpoint Reset Min Local Heat
- Air Flow Setpoint Reset Max Local Heat
- Discharge Air Temp Reset Max
- Discharge Air Temp Design Setpoint

UC600 Scheduling Screen

The UC600 supports up to three schedules a customer can access, set up, view, and maintain on the Tracer TD7 Display. Tracer TU also provides schedule set up and maintenance screens in the Equipment Utility.

Schedules are built on a series of user entered “events” that occur on each day of the week. An event is a change in a value applied to a group of points at a specific time that can occur during any day of the week. Each day is treated as a separate entity that can have up to ten events.

Of course, customers will need to enter “exceptions” to this schedule for specific dates and times. For example, on holidays when the building is unoccupied, exceptions are entered to keep the building at the unoccupied temperature. Exceptions can be configured for a single date or to recur on a user-defined recurrence pattern such as the third Thursday of the month.

The primary purpose of the events and exceptions in a schedule is to change the values within a piece of equipment or outputs controlled by the UC600. This is done by assigning points as “members” of a schedule. When a specific time of an event is encountered by the schedule, it controls the members to the value of the event. Exceptions are used to:

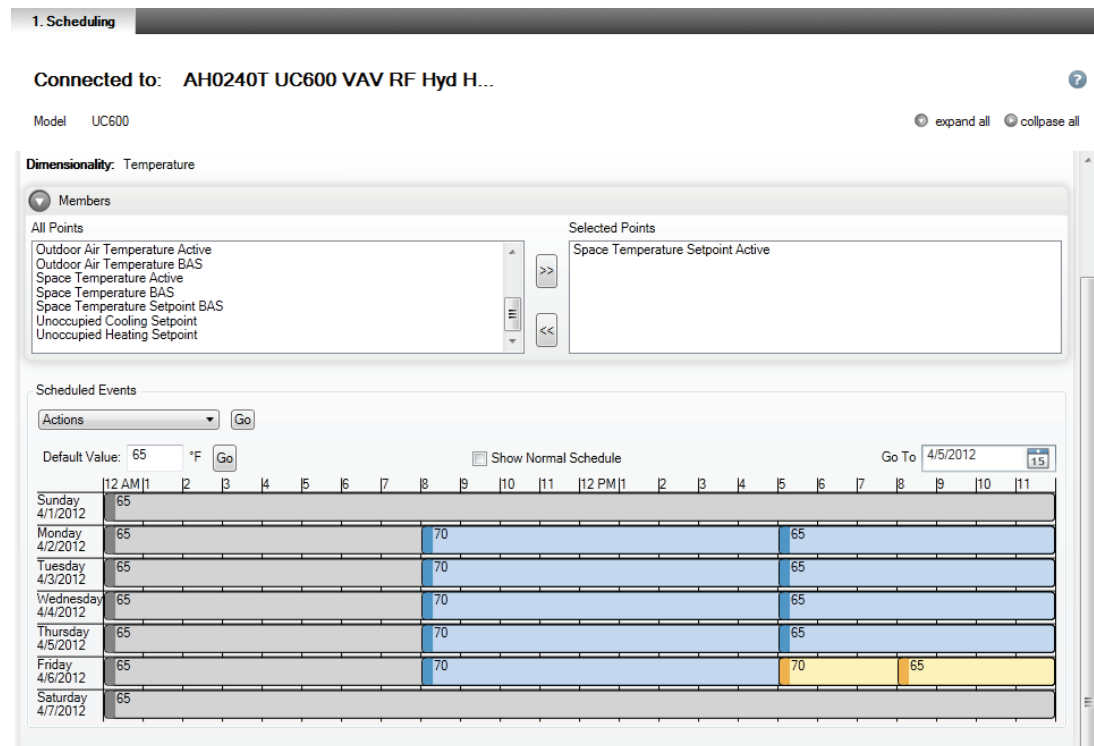
- Override an entire day
- Extend or change a schedule’s events over a normal daily schedule

Each schedule can control up to 10 points (members), which must be of the same type (analog, binary, or multistate) and, in the case of analog points, the same unit type (temperature, pressure, and so on). The UC600 can support up to 25 exceptions in a single schedule. Use of one exception per day is recommended, as each exception can have up to 10 of its own events.

See “Setting Up and Maintaining UC600 Schedules” in the *Tracer TU Help for Programmable Chillers* for more detailed information.

The following figure shows the Scheduling screen.

Figure 38. Equipment Utility - Scheduling screen



Custom Reports for Tracer™ TD7 Display (UC600)

You can configure three custom reports for the Tracer TD7 Display on the Equipment Utility Display Reports screen. Each report can include real time values for up to 27 data points. You can then view these reports either on the Tracer TD7 or from within Tracer TU.

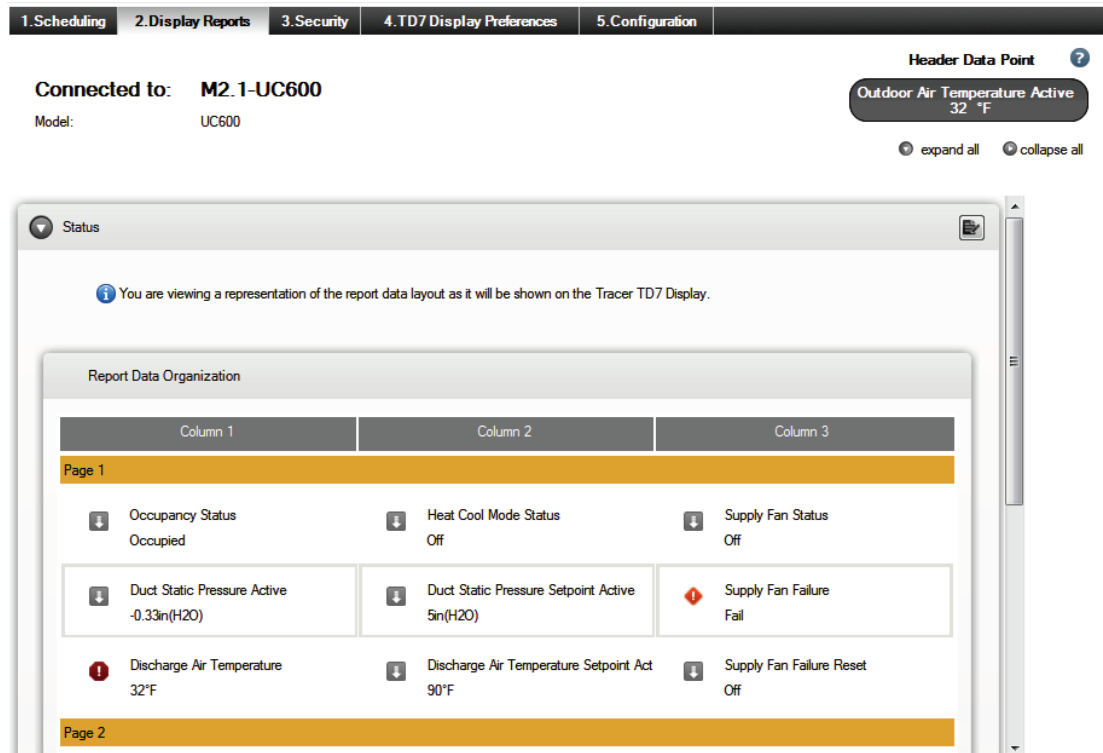
Note: To configure and view Custom Reports, the UC600 must have Version 2 or higher firmware loaded. If the UC600 is running on Version 1, you must first upgrade the firmware.

You can configure custom reports for the customer using the following capabilities:

- Specify a report name meaningful to your customer.
- Specify a high interest data point for display in a header area at the top of the report screen.
- Configure reports online or offline. (Dashes are substituted for values during offline configuration.)
- Configure reports using System Controller pass-through or Single Link Access.
- Save the report configuration to file or to the UC600.

You can also restrict access to report definitions by establishing access privileges for up to eight user-ids.

Figure 39. Equipment Utility - Display Reports screen



TD7 Display Preferences and Security Screens

Use the TD7 Display Preferences screen to specify a language preference, date and time format, display units, and a home page for the TD7 Display. Use the Security screen to restrict access to the TD7 Display to designated users.

Additional Tracer TU for Programmable Controllers Features

Tracer TU supports the following additional features on the UC210, UC400, and UC600.

Access to Devices on Wireless Networks

Trane wireless networking provides a wireless communication solution for Tracer building automation systems that saves planning, installation time, and the expense associated with fully wired systems. The Trane® Air-Fi™ Wireless Communications Interface (WCI) enables wireless communication between system controls, unit controls, and wireless sensors. The WCI replaces the need for communication wire in all system applications.

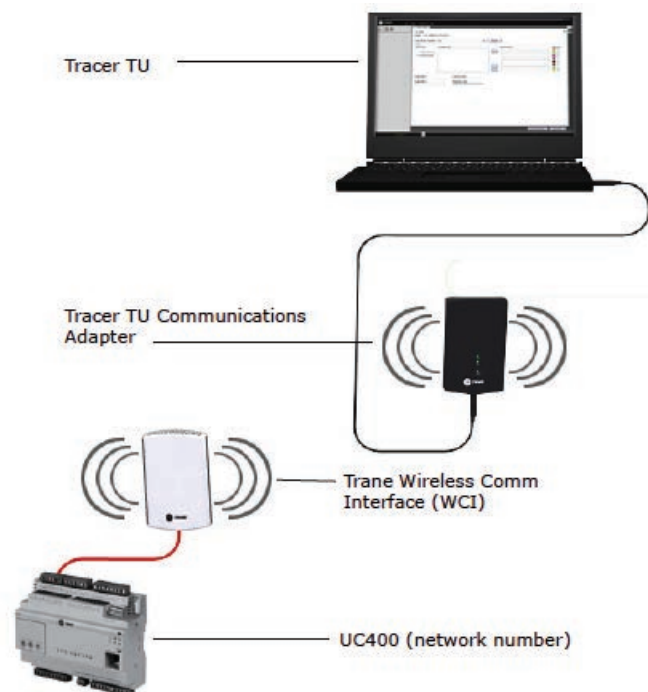
You can use Tracer TU to access the following devices that are members of a Trane wireless network:

- The Tracer® SC+ System Controller and the Tracer® SC system controller
- Tracer® UC210 programmable controller
- Tracer® UC400 programmable controller
- Tracer® UC600 programmable controller
- BCI-I: BACnet® Communications Interface for IntelliPak™ systems
- BCI-R: BACnet® Communications Interface for ReliaTel™ systems

Connection Components

From a servicing and maintenance standpoint, wireless networking allows you to use the Tracer TU service tool with the Tracer TU Adapter (Wired/Wireless) to communicate wirelessly from any controller to any other controller in a network. Using the Tracer TU Communication Adapter (Wired/Wireless) in wireless mode, you can connect to any wireless device in a network and then discover, access, and service that device or another member device in the network. This capability provides the flexibility and convenience you need to finish jobs in less time.

Figure 40. Wireless access through the Tracer TU Communication Adapter



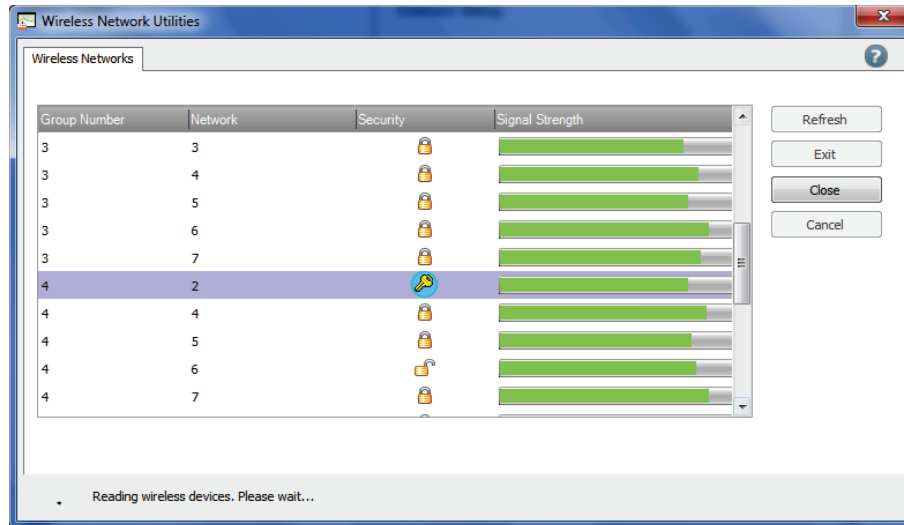
Accessing Wireless Networks

Perform the following steps to access devices on a wireless network:

1. Connect the Tracer TU Adapter (Wired/Wireless) to your PC with a USB cable.
2. Start Tracer TU and select the **TU Adapter -Wireless** option on the Startup Task Panel.
3. Click **Connect**.

Tracer TU displays the Wireless Networks dialog box shown in the following figure.

Figure 41. Wireless Network Utilities



You can then join one of the displayed networks. An open padlock indicates a network that has no System Controller and does not require log-in credentials. A closed padlock indicates a secure network coordinated by a WCI attached to a System Controller.

Tracer TU Wireless Networking Capabilities

You can use Tracer TU to perform many wireless network tasks:

- Creating a network
- Listing network devices
- Opening a network for joining
- Closing a network when joining is complete
- Viewing the Wireless Network Summary Report and a graphical map of the network to assess network health, connection strength, the number of hops between the coordinator and each member device, and to view sensor information on the graphical map including IDs, signal strength, and last reception time
- Viewing network details and advanced information
- Viewing sensor health status
- Removing a device from the network
- Disbanding the network

For detailed information see the following documents:

- The "Accessing Wireless Devices and Maintaining Networks" section of the *Tracer TU Help for Programmable Controllers*.)
- *Air-Fi™ Wireless Comm Installation, Operation, and Maintenance* (BAS-SVX40)
- *Air-Fi™ Wireless Comm Network Design Best Practices Guide* (BAS-SVX55)

Controller Configurations

A Controller Configuration is a complete device definition that includes everything in one package that is required to operate the controller and run the equipment: the points, TGP2 programs (.tgp2 and .bc files), data logs, alarms, a graphic, and internal template information. In addition, while you are connected to an operating controller, you can save the entire configuration contents as a Controller Configuration. Alternatively, you can create a Controller Configuration manually by (1) using the Equipment Utility Configuration screen in offline mode to create a factory configuration or (2) starting with existing programs and a points file to create a generic or custom configuration.

You can create a factory configuration for a variety of devices in offline mode including Trane blower coils, fan coils, VAV boxes, and water source heat pumps controlled by UC400s or UC210s. The standard configurations include points, programs, and a standard graphic.

You can use the normal Tracer TU and TGP2 Editor interface screens to assemble a new Controller Configuration or to edit a saved Controller Configuration. The internal template information is kept up to date. Changes you can make include:

- Changing TGP2 programs or adding new programs
- Adding, editing, or deleting standard or custom points (See "Adding Standard and Custom Keys to Controller Templates" in the *Tracer TU Help for Programmable Controllers* for information about adding keys for custom points to the System Controller template.)

Note: *Some locked points and "factory infrastructure" programs in standard configurations cannot be edited. However, you can break the "factory seal" on points for some equipment types. (See "Factory Equipment Configurations You Can Modify (UC210 and UC400)," p. 57.)*

- Configuring data logs using the Datalog tab on the Point Configuration Properties dialog box
- Configuring alarms using the Alarm Condition tab on the Point Configuration Properties dialog box
- Specifying a standard graphic for a custom configuration
- Editing TD7 graphics
- Creating or editing UC600 schedules

You can then transfer the Controller Configuration to one or more similar devices. The Controller Configuration does not overwrite identifying information on the target devices. (See "An Overview of Controller Configurations" in the *Tracer TU Help for Programmable Controllers* for more information.)

Note: *If you want to download a Controller Configuration to several similar devices, it is more efficient to first download the Controller Configuration to a single device, back up that device, and then download the backup file to the remaining devices. (See "Backup Utility," p. 67 for more information.*

Factory Equipment Configurations You Can Modify (UC210 and UC400)

Trane factory blower coils, fan coils, and unit ventilators initially use standard configurations created on the Tracer TU Configuration screen. However, these equipment types allow certain modifications to the factory configurations.

Important: *Modifying a factory configuration should be done only if absolutely necessary, and only if you are knowledgeable about the effects of the proposed changes. You are responsible for the proper operation of the equipment if any changes are made to factory configurations.*

Editable Points and Programs

Tracer TU allows you some freedom to open and edit the factory points and programs to suit job requirements. For example, you may need to make common modifications to a blower coil or fan coil configuration, such as adding valves to a blower coil.

When you make changes to factory programs or points, you must first explicitly acknowledge that you are modifying them. The programs and points are then transitioned to a "Factory-Field Modified" state, which enables the editing capability.

Note: Points with command locks cannot be unlocked. Command locks prevent you from overriding the point. However, you can safely override most points with command locks by using a request point, such as a Multistate Value.

Points and Programs That Cannot be Modified

You can make changes to programs and the points they reference that generate the I/O control signals to hardware terminations on the controller. You can edit only these "I/O programs." All other programs are considered "factory infrastructure programs" and edits to those are not allowed.

In addition, some programs include editable source code and others do not. The TGP2 Editor issues a message if source is not available for a program. For example, programs that handle functions other than I/O signals, do not include source code. (See "Editing a Trane Factory Program" in the *TGP2 Editor Help* for information about editing blower coil or fan coil programs.)

Default Data Logs

A set of default data logs is included with unit configurations shipped from the factory or as part of the standard configurations selected on the Tracer TU Equipment Utility Configuration screen. The set of data logs created for the blower coil, fan coil, or unit ventilator depend on the configuration selections. However, if the configuration is edited or if it is loaded on a UC210 or UC400 containing existing user-defined data logs, the results are as follows:

- The existing configuration is cleaned and the default data logs are deleted and replaced.
- During cleaning, if any uniquely named, user-created data logs exist, those data logs are not deleted.

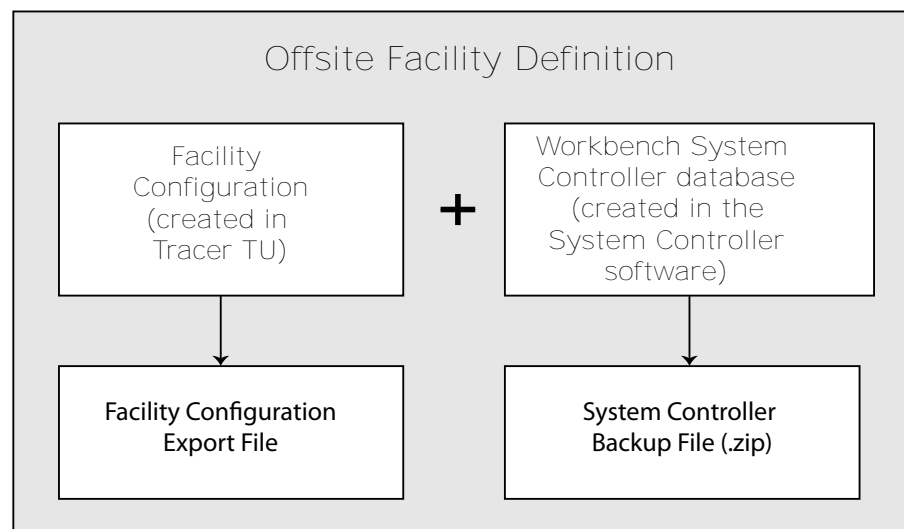
After updating or replacing a configuration, if you create a new custom data log for the same point referenced by an existing data log, and they have the same name, Tracer TU issues a conflict message. You must then resolve the conflict.

Offline Facility Configurations Used to Build Offsite Facility Definitions

Tracer TU and the System Controller provide offsite configuration and programming capabilities you can use to create an Offsite Facility Definition (also referred to as a Facility Definition). A Facility Definition is an entire pre-configured and pre-programmed facility that includes two main parts:

- An offline Facility Configuration, which is created in Tracer TU and backed up to a file
- All required System Controller database configuration and programming, which you can create offsite on a standalone System Controller (referred to as the "Workbench System Controller") and save to a backup file.

Figure 42. Two parts of an Offsite Facility Definition



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The combination of these two parts (files) creates a complete Facility when applied to installed devices at an actual jobsite.

The offline Facility Configuration created in Tracer TU defines the structure of an entire site controlled by a System Controller (Tracer SC/SC+ (app) controller) including the network devices it manages on its MS/TP links, its LON link(s), and up to eight (8) wireless links. A Facility Configuration can also include Tracer SC/SC+ (base) controllers and Comm3/4 Bridges as system devices that act as routers with all the network devices on their links. In addition, a single Facility Configuration can include more than one Tracer SC/SC+ (app) controller, each with its own devices, Tracer SC/SC+ (base) controllers, and Comm3/4 Bridges.

For complete coverage of the entire Offsite Facility Definition task sequence, see the *Offsite Facility Definition Configuration and Programming Guide* (BAS-SVP025) or the “Programming an Entire Facility Offsite” section of the *Tracer TU Help for Programmable Controllers*.

Methods Used to Create a Facility Configuration

You can create a Facility Configuration using one of the following methods.

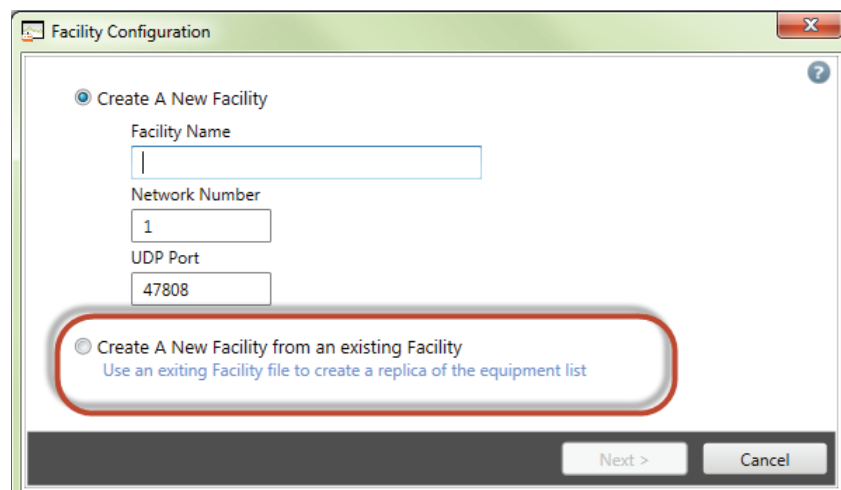
- Importing a CSET file into Tracer TU
- Duplicating an existing Facility Configuration
- Building a Facility Configuration manually using the Tracer TU Facility Configuration screens

Importing CSET file into Tracer TU

The ability to import a CSET (.csetx) file into Tracer TU reduces the cost associated with rework and errors when creating an Facility Configuration. You can import the CSET file and create the initial Facility Configuration file with minimal intervention on your part. This automated approach avoids the inconvenience of creating the Facility Configuration manually and eliminates the risk of data input errors. You can then edit or add devices, Controller Configurations, or Equipment Templates to the resulting Facility Configuration on the Facility Configuration screen shown in “Building a Facility Configuration Manually in Tracer TU” which follows. For the correct procedure, see “Using a CSET File to Create a Facility Configuration” in the *Offsite Facility Definition Configuration and Programming Guide* (BAS-SVP025) .

Duplicating an Existing Facility Configuration

You can quickly duplicate an existing Facility Configuration by using the Create a New Facility from an Existing Facility radio button on the Facility Configuration dialog box.

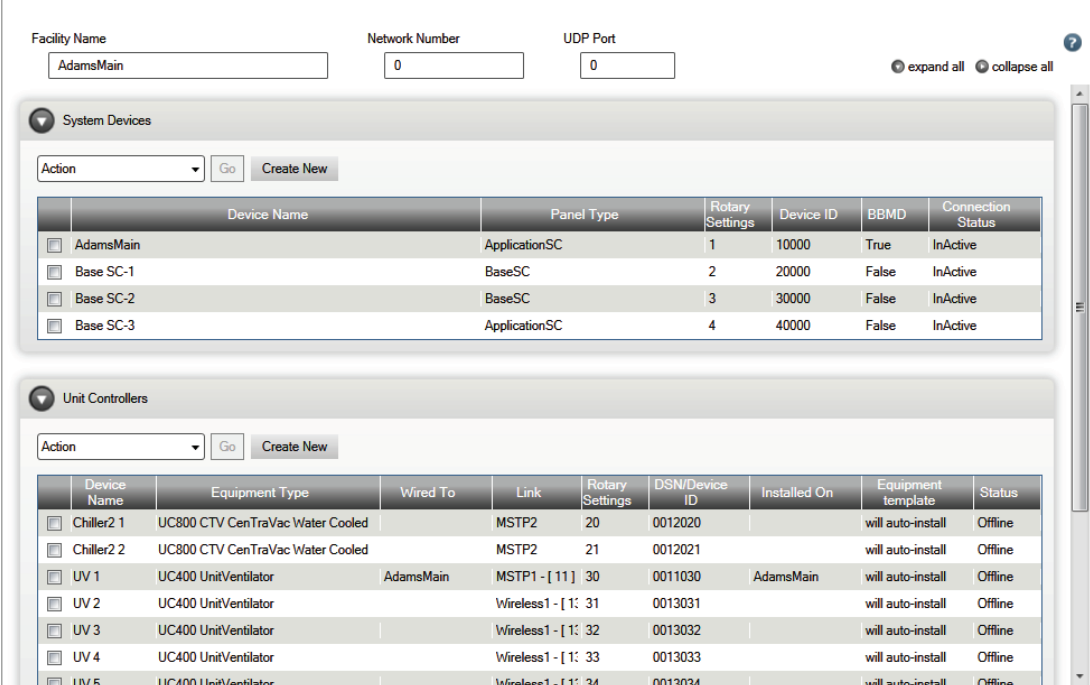


You can then rename and modify the new duplicate facility for use with similar facilities at your job sites. (See “Duplicating an Existing Facility Configuration” in the *Offsite Facility Definition Configuration and Programming Guide* (BAS-SVP025) .

Building a Facility Configuration Manually in Tracer TU

To create a Facility Configuration manually, access the screens by selecting **File > New > Facility Configuration**. After entering the Facility Name, Tracer TU displays the Facility Configuration screen where you define the Tracer SC/SC+ (app) controller, Tracer SC/SC+ (base) controller, and Comm3/4 Bridges included in the facility as shown in the following figure.

Figure 43. Facility Configuration tab screen



Facility Name: Network Number: UDP Port:

expand all collapse all

System Devices

Action: Go Create New

	Device Name	Panel Type	Rotary Settings	Device ID	BBMD	Connection Status
<input type="checkbox"/>	AdamsMain	ApplicationSC	1	10000	True	InActive
<input type="checkbox"/>	Base SC-1	BaseSC	2	20000	False	InActive
<input type="checkbox"/>	Base SC-2	BaseSC	3	30000	False	InActive
<input type="checkbox"/>	Base SC-3	ApplicationSC	4	40000	False	InActive

Unit Controllers

Action: Go Create New

	Device Name	Equipment Type	Wired To	Link	Rotary Settings	DSN/Device ID	Installed On	Equipment template	Status
<input type="checkbox"/>	Chiller2 1	UC800 CTV CenTraVac Water Cooled		MSTP2	20	0012020		will auto-install	Offline
<input type="checkbox"/>	Chiller2 2	UC800 CTV CenTraVac Water Cooled		MSTP2	21	0012021		will auto-install	Offline
<input type="checkbox"/>	UV 1	UC400 UnitVentilator	AdamsMain	MSTP1 - [11]	30	0011030	AdamsMain	will auto-install	Offline
<input type="checkbox"/>	UV 2	UC400 UnitVentilator		Wireless1 - [1]	31	0013031		will auto-install	Offline
<input type="checkbox"/>	UV 3	UC400 UnitVentilator		Wireless1 - [1]	32	0013032		will auto-install	Offline
<input type="checkbox"/>	UV 4	UC400 UnitVentilator		Wireless1 - [1]	33	0013033		will auto-install	Offline
<input type="checkbox"/>	UV 5	UC400 UnitVentilator		Wireless1 - [1]	34	0013034		will auto-install	Offline

You can then add devices to the defined BACnet wired (MS/TP) and wireless links and the LON link(s). If you specify a factory configuration for any controllers, those controllers will auto-install when they are transferred to the System Controller. You can also assign custom Controller Configurations or Equipment Templates to devices, which will allow custom, generic, or some non-Trane devices to install as well. (See “Creating a New Facility Configuration Manually” in the *Offsite Facility Definition Configuration and Programming Guide* (BAS-SVP025) .

BCI-R Support

Tracer TU support for BCI-R includes the following components:

- **BCI-R Related Unit Summary and Equipment Utility Screens**
Key BCI-R related points are displayed on the Unit Summary screen. BCI-R setpoints and parameters are displayed on the Setpoints and Setup Parameters screens.
- **Point Configuration – Alarms and Data Logs**
You can configure alarm information and create a datalog for any of the nine point types: Analog Input, Analog Output, Analog Value, Binary Input, Binary Output, Binary Value, Multistate Input, Multistate Output and Multistate Value.
- **Controller Status**
The Controller Status tab screen provides you with a summary of BCI-R equipment type and module status information. The information is displayed in Configuration Summary and Module Status Summary boxes.
- **Step Test**
You can run the step test on equipment connected to a BCI-R ReliaTel™ controller from the Equipment Utility Commissioning tab screen. You can run the equipment test in an incremental fashion one test at a time. The summary of tests that are being performed is

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displayed in a dialog box. The tests can be terminated whenever you choose to do so. See “Running the BCI-R Step Test (Service Test)” in the “Configuring and Commissioning Equipment” section of the *Tracer TU Help for Programmable Controllers* for the correct procedure.

The screenshot displays the Tracer TU software interface with the following components:

- Navigation Bar:** 1. Unit Summary, 2. Analog, 3. Binary, 4. Multistate, 5. Alarms, 6. Controller Status, 7. Controller Settings
- Connected to:** M2.1-25-802-BCI-R
- Model:** BCI-R
- BAS Communication:** Comm. Up
- IMC Communication:** Comm Up
- Alerts:** 21 Points Out of Service, 170 Active Alarms, 0 Active Overrides
- Space Panel:**
 - Occupancy Status: **Occupied**
 - Heat Cool Mode Status: **Auto**
 - Space Temperature Active: **32 °F**
 - Space Temperature Setpoint Active: **32 °F**
 - Cooling Setpoint Source: **RTM Zone Sensor**
 - Heating Setpoint Source: **RTM Zone Sensor**
 - Space CO2 Concentration Active: **0 ppm**
 - Space Humidity Active: **— —**
- Operating Status Panel:**
 - Supply Fan Speed Command: **0 %**
 - Discharge Air Temperature: **32 °F**
 - Discharge Air Temperature Setpoint A...: **32 °F**
 - Discharge Air Reheat Setpoint Active: **— —**
 - Mixed Air Temperature: **32 °F**
 - Return Air Temperature: **32 °F**
 - Morning Warmup Termination Setpoint: **32 °F**
 - Duct Static Pressure Active: **0 in(H2O)**
- Ventilation and Economizing Panel:**
 - Outdoor Air Damper Position: **0 %**
 - Outdoor Air Damper Position Minimum: **0 %**
 - Outdoor Air Flow Active: **— —**
 - Outdoor Air Minimum Flow Setpoint Ac...: **— —**
 - Economizer System Status: **disabled**
 - Exhaust Fan Output: **Off**
 - Exhaust Damper Position: **— —**
 - Outdoor Air Temperature Active: **32 °F**
 - Outdoor Air Humidity Active: **0 %**
- Heat/Cool Output Status Panel:**
 - Chilled Water Valve Binary Output / C...: **Off**
 - Cool Output 2: **Off**
 - Heat Output 1: **Off**
 - Heat Output 2: **Off**
 - Heat Output 3: **Off**
 - Heat Output 4: **Off**
 - Compressor Lockout Status: **Normal**
- Buttons:** Save, Cancel

Facility View



You are working at a job that includes 50 VAV boxes on a single BACnet MS/TP link. All VAVs have been installed correctly and are fully commissioned. The System Controller has not yet been installed on the single water loop serving all 50 VAV boxes. You need to override all the water valves to the open position until the central water pump balancing task is complete. Access the Facility View by clicking the icon (shown at the upper left) to apply the override to all the VAVs you have selected on the Device Navigation Tree simultaneously in one operation. Applying overrides to groups saves time over a one-device-at-a-time approach.

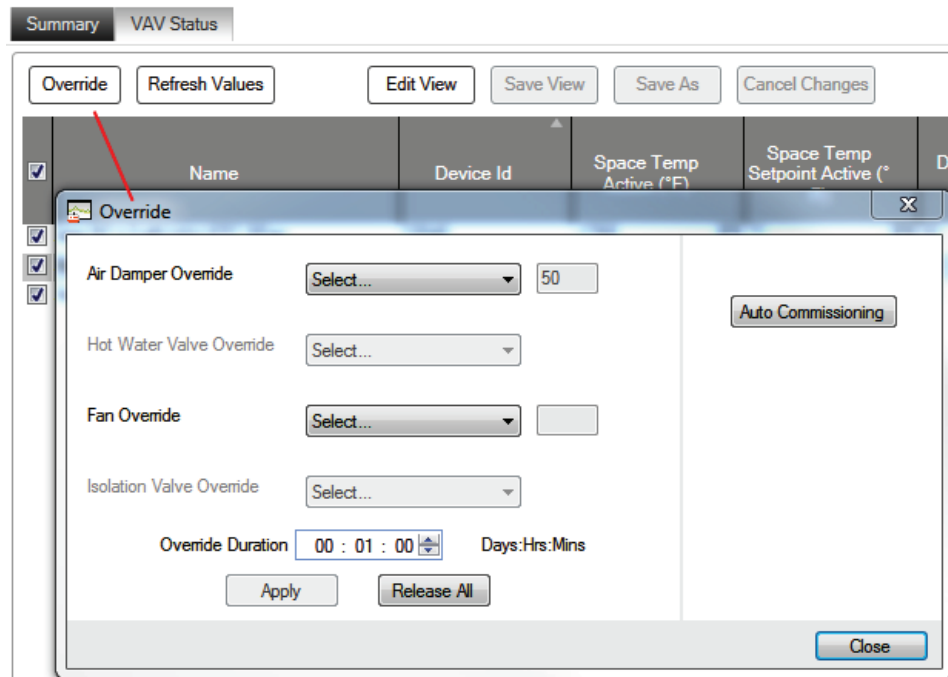
You can also use the Facility View to override air dampers, fans, and water valves on multiple instances of a single equipment type including BCs, FCs, UVs, and WSHPs.

The Facility View operates using all types of communication: wired or wireless via Single Link Access, System Controller pass-through, and BACnet/IP. While the presence of a System Controller improves performance, the Facility View grouping feature can also function independently of a System Controller.

The Override Dialog Box

Use the Override dialog box accessed with the Override button on the Facility View to drive air valves and water valves over the entire communication link to specific positions. Once you activate an override for a group of similar devices, you can then check the status of all selected devices to be sure they are acting in the expected manner. You are then free to turn to other tasks while the override is in effect for the specified duration (seven days maximum).

Figure 44. Override dialog box launched from the Facility View



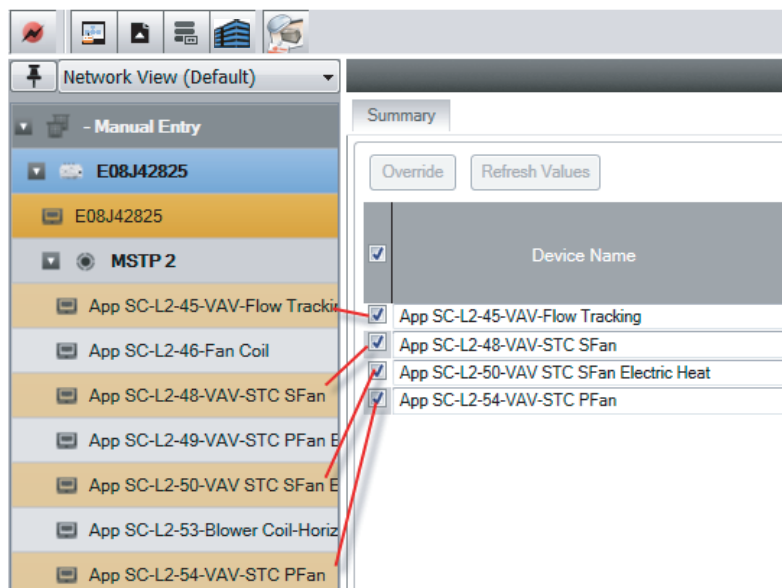
Note: Trane standard programs are required to perform group operations.

Select or Add Devices and Objects

More specifically, you can use the Facility View to perform the following tasks:

- Select the devices to be included in the override operation on the Device Navigation Tree and transfer them to the Facility View. (See “Specifying a Device Group on the Navigation Tree” and “Overriding Multiple Air or Water Valves” in the *Tracer TU Help for Programmable Controllers*.)

Figure 45. Group selection and transfer to the Facility View



- Use the check boxes on the Facility View to deselect or reselect items to control which devices are included in an action.

A Brief Tour of Tracer TU for Programmable Controllers

- Connect/navigate to a specific controller from the Facility View by clicking the device name on the view grid.
- View specific product views for VAVs, fan coils, blower coils, unit ventilators, and water source heat pumps on the Facility View.
- Drag and drop a point instance (with number) so that a custom programmed device can show values based on the instance number selected.
- Add or edit alarm conditions to points on the Alarm Condition View.
- Create and update views in offline mode.

Perform Overrides

- Override hot and chilled water valves, economizer valves, or isolation valves to Full Open or Full Closed.

Note: *This water valve override applies only to equipment with reheat coils, such as VAVs, fan coils, and blower coils. It excludes air handling units.*

- Override air valves to any of the following positions: Full Open, Full Closed, Maximum Flow, Minimum Flow, or a user-defined position.

Example: Enter a percentage open value that the air valve will drive to, such as 50% open.

Note: *This air valve override applies only to VAV equipment types.*

- Override fans in the following ways:
 - To On or Off
 - To a selected speed as a percentage (ECM fans)
 - To a selected stage (Auto, Low, Medium, or High) (fans with PSC motors)
- Override, change service, or change the value of some individual points.
- Override the ventilation damper on blower coils, fan coils, and unit ventilators configured with modulating Outside Air Dampers. The damper can be opened to an adjustable percent.

Notes:

- *When viewing and working with dual duct VAV units in the Facility View, be aware that Air Flow Setpoint Active cannot be overridden due to a priority conflict.*
- *These point and property selections and overrides apply to the following controllers (UC400, UC210, UC600, BCI-I, and BCI-R).*
- *Overrides have the owner 'TU Grouping', a priority of '4', a default duration of 1 hour, a minimum duration of 1 minute, and a maximum duration of 7 days.*
- *You cannot override locked points.*

Calibrate and Auto Commission VAVs

- Calibrate the air valves of all selected VAV boxes using the Balancing View.
- Auto commission all selected VAV boxes with the Auto-Commissioning tool accessed on the Override dialog box in the Facility View. You can perform other tasks while auto-commissioning is in process, and then return to the Auto-Commissioning Status dialog box to view the status of all VAVs.
- Generate and view an Auto Commissioning Report covering all devices in the group.

Other Operations

In addition, the Facility View performs the following operations:

- Releases overrides to automatic control for all override cases.
- Displays information pertaining to all members of a group on a status page.
- Saves the Facility View layout so each time Facility View is opened the existing views are displayed.



BACnet Discovery



BACnet discovery is a rapid device discovery method supported on UC210s, UC400s, BCIs, UC600s, and System Controllers that have Tracer TU V8.6 firmware or higher levels installed. (See “Current Firmware Levels” in the *Tracer TU Help for Programmable Controllers*.) Device discovery occurs in a much shorter time compared with the existing Single Link Access feature.

Start BACnet Discovery by clicking the **Tools** menu and selecting the **BACnet Network/Device Discovery** option.

Features

BACnet discovery includes the following unique features:

- Ability to discover all other Tracer SC/SC+ (app) controllers and their installed devices on a BACnet/IP network when Tracer TU is connected to one of the Tracer SC/SC+ (app) controllers in the same BACnet/IP network
- Automatic discovery of all devices on a link when Tracer TU is connected to a unit controller on that same BACnet link
- Ability to specify which BACnet links (networks) and routers (Tracer SC/SC+ (base) controllers and Comm3/4 Bridges) you want to discover on the BACnet Discovery dialog box
- Display of uninstalled devices under a separate heading in the Device Navigation Tree
Note: If a device is later installed on a System Controller, it is displayed under the proper node and network.
- Discovery of uninstalled BACnet/IP devices, including UC600s and Base SCs

The Discovery Process

As devices on the networks are discovered, they appear in the Device Navigation Tree with their rotary numbers and device IDs displayed. All Tracer SC/SC+ (base) controllers and Comm3/4 Bridges (routers) that exist on the selected Tracer SC/SC+ (app) controller links are included. The Device Tree displays the router device instance, router name, local data link name, and router address. A progress indicator displays the approximate completion rate of discovery processing. When all devices have been discovered, Tracer TU performs a final update of all device information.

UC800 updates take more time than the programmable controllers. As in previous versions of this feature, UC800s are visible in the Device Tree. However, you can access them only for viewing and reporting purposes.

Accessing the Tracer TU Help for Programmable Controllers



As you work with Tracer TU, you can refer to the Tracer TU Help for Programmable Controllers for screen descriptions and relevant procedures.

Access Methods

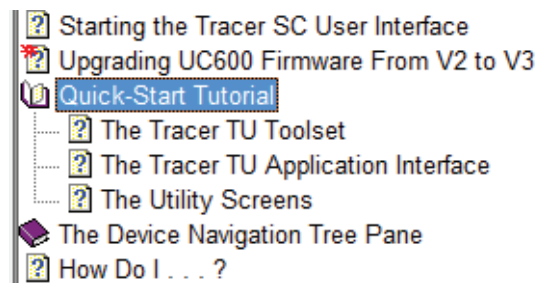
You can access Help in several ways:

- Clicking the Help icon (the question mark in a blue circle shown above), which is located in the upper right portion of the screen
- Clicking the Help button on many dialog boxes.
- Clicking the Help menu at the top of the application window and selecting the Help option.
- Moving your cursor over various tabs and buttons to view “tool tip” text.

Quick Start Tutorial

The Quick-Start Tutorial topics provide more detail on the Tracer TU interface features. (The Quick-Start Tutorial book is highlighted in the following figure).

Figure 46. Tracer TU Help for Programmable Controllers table of contents





Features Included In Both Versions of Tracer TU

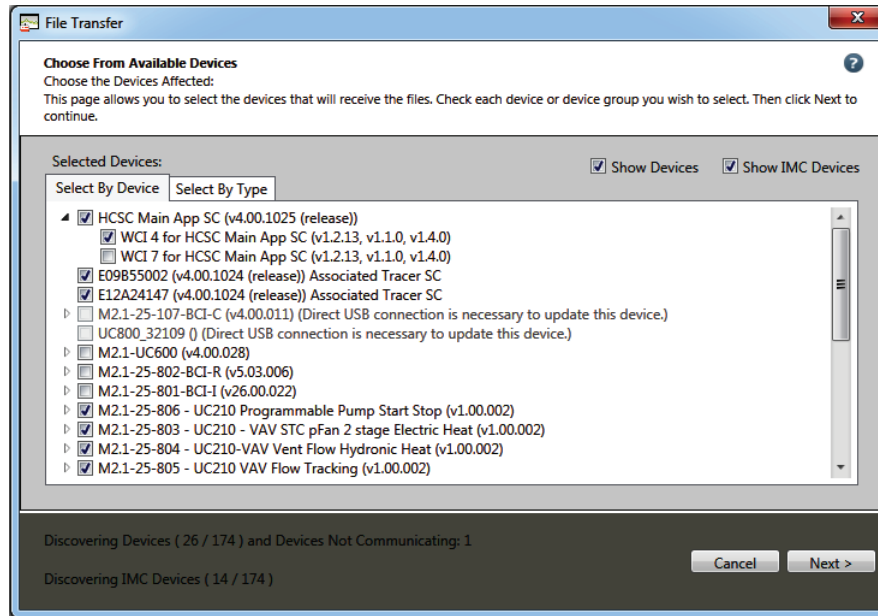
The following features are included in both Tracer TU for Chillers and Tracer TU for Programmable Controllers.

File Transfer Utility



You can use the File Transfer Utility to download TGP2 program files, firmware, Controller Configurations, or configuration backup files to one or more controllers in a network. In addition, the mass download capability enables transfer of files to multiple networks (Tracer SC/SC+ (app) controllers, Tracer SC/SC+ (base) controllers, and their devices) and updates to Air-Fi™ Wireless Communications Interface and Wireless Communications Sensor firmware on multiple networks. File Transfer takes you through a simple series of steps to accomplish the transfer operation. If the transfer operation is successful, Tracer TU issues a success message. If the transfer fails for any or all devices, Tracer TU issues an error message report.

Figure 47. File Transfer Utility – Choose From Available Devices dialog box



Note: The UC800 is not a programmable controller. Therefore, you cannot transfer TGP2 programs to a UC800. However, you can use the File Transfer Utility to load or restore a chiller configuration and setpoints to a UC800. During the transfer, the chiller must be shut down.

Note: Device identification parameters are overwritten when a backup file is downloaded to a device. However, you can preserve the Device Name, Device ID, Unit Tag, Unit Model Number, Unit Serial Number, and the Unit Sales Order Number that currently exist on the device to which you are transferring files if your backup file contains different values by selecting the "Retain device communication settings and unit tag information" check box on the File Transfer Utility dialog box. (See "Transferring Files From Tracer TU to One or More Devices" in the Tracer TU Help for Programmable Controllers.)

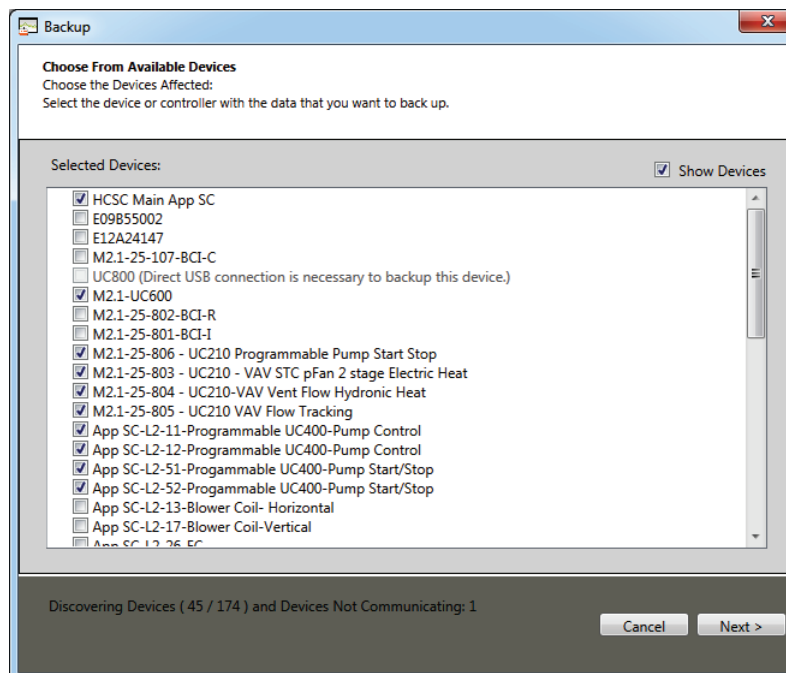
Backup Utility



The Backup Utility zips all files on a controller, such as configuration information, setpoints, programs, and points, into a single zip file and stores it at a specified location on your hard drive. You can also back up files on multiple controllers in one backup session. If the backup operation is successful, Tracer TU issues a success message. If the backup fails for any or all devices, Tracer TU issues an error message report.

Creating a backup file of the initial configuration settings when you commission equipment is strongly recommended. You can then recover the original settings at a later time, if necessary. (You can also make periodic backups as changes and adjustments are made to the equipment configuration, setpoints, or programs.)

Figure 48. Backup Utility – Choose From Available Devices dialog boxes



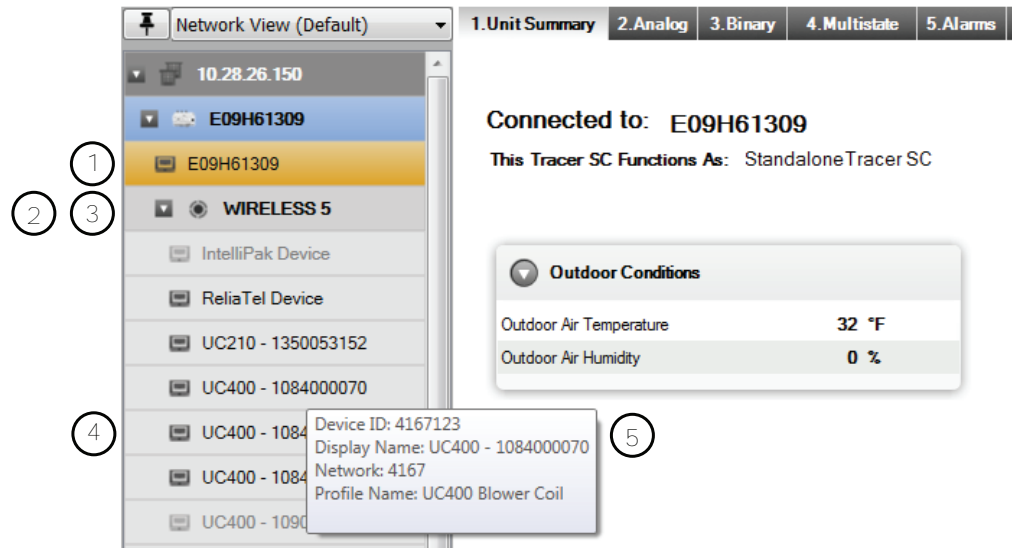
The Device Navigation Tree

Tracer TU for Programmable Controllers includes the Device Navigation Tree, which provides a view of all linked devices. You can access a System Controller with all its network devices on its two MS/TP links or Modbus links, the LON link, and up to eight wireless networks. In addition, if a facility uses a manager System Controller (Tracer SC/SC+ (app) controller) with other System Controllers that act as routers (Tracer SC/SC+ (base) controllers), the network BACnet devices (MS/TP or wireless) of the Tracer SC/SC+ (base) controllers are also visible and accessible. Legacy Comm3 and Comm4 devices that are wired to Comm3/4 Bridges are also displayed in the Device Tree. You can also view and override selected points of legacy Comm3/4 devices.

However, to be visible on the tree, all devices on Tracer SC/SC+ (base) controllers and Comm3/4 Bridges must be installed on the Tracer SC/SC+ (app) controller. (For detailed information, see The "Device Navigation Tree Pane" section of the *Tracer TU Help for Programmable Controllers*.)

Use the Device Navigation Tree to locate, and verify the status of a device. You can select a device, such as a UC600, UC400, or UC210 to make modifications to its settings or to troubleshoot it.

Figure 49. The Device Network Tree pane



- 1 System Controller node and icon
- 2 System Controller expanding and collapsing link node (This is Wireless Link 5. Wireless links are labeled as "Wireless". MS/TP links are labelled as "MS/TP 1" or "MS/TP 2".)
Note: Modbus links replace MS/TP links. For example, when present, Modbus 2 replaces MS/TP 2.
- 3 Link icon
- 4 Device icon (These devices are members of Wireless 5.)
- 5 "Hover" text displaying device information

The Device Navigation Tree displays the following information for each device:

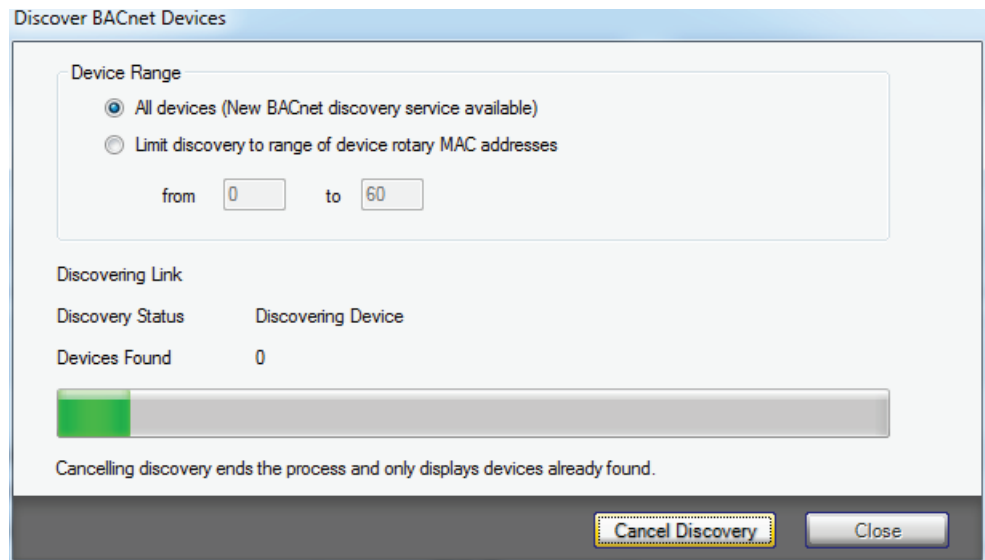
- Place in the network hierarchy under the network type and number
- Tool tip (“hover”) text identifying the device. The text items displayed depend on the protocol and connection type.
- A single device installed in a System Controller as multiple pieces of equipment is displayed as separate virtual device nodes in the Equipment and Network views. However, it appears as a single device in the Device view. Each node displays the information for the entire device.

Single Link Access

You can connect to a Trane BACnet device on a single MS/TP link and then from that connection point, discover, access, and perform service on other Trane BACnet devices on that same link. The BACnet device accessed from the connection point is termed the “target” device.

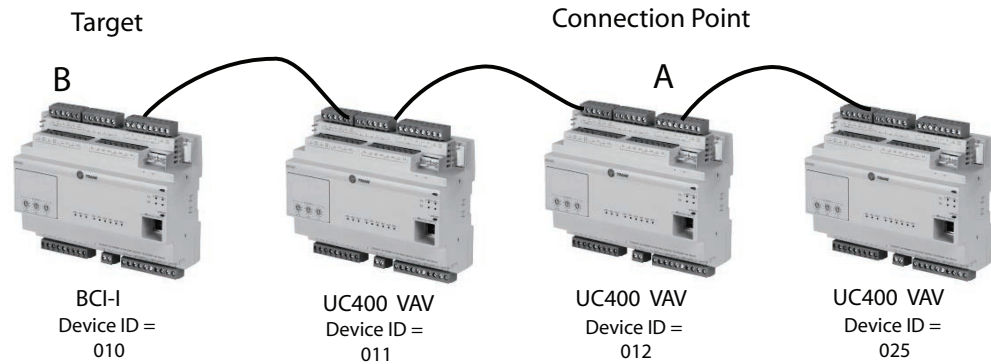
When you direct connect to a network UC210, UC400, or UC600 with a USB cable, select the **Discover other devices on the same link** option on the Startup Task Panel to start device discovery. (See “[The Startup Task Panel](#),” p. 21.) Each discovered device is displayed on the Device Navigation Tree. Click the controller name to connect to the device.

Figure 50. The Discover BACnet Devices dialog box



Example

For example, you can connect to a UC400 on a link (A) shown in the following figure, discover the other devices on the link, and then access a BCI-I on that link (B). The UC400 is the connection point and the BCI-I is the target.

Figure 51. Single Link Access connection point and target

Notes:

- To use a UC800 as a Connection Point through which you can access a UC or BCI on the same link, the UC800 must have the following firmware installed: CTV: 9.07 or higher; CTVD: 5:13 or higher.
- CVR does not provide Single Link Access capability.
- Single Link Access capability is not available in the Tracer TU for Chillers (Chiller Only) version of Tracer TU.

Considerations

Here are a few facts about Single Link Access to keep in mind:

- For reasons of human and machine safety UC800 content is not viewable on Tracer TU screens through Single Link Access. However, UC800s with supporting firmware can serve as connection points or can be discovered and displayed in the Device Navigation Tree. UC800s without firmware build 5.24 or higher cannot be used as connection points and cannot be discovered.
- If you connect to a UC400 or BCI within a link controlled by a System Controller and discover the other devices on that link, the System Controller is also discovered and appears in the Device Navigation Tree. However the System Controller is not accessible for reasons of security. To access the System Controller, you must log into it directly.
- Third-party BACnet controllers in the network are not discovered and are not displayed in the Device Navigation Tree.
- Viewing Trane BACnet devices with the existing System Controller pass-through feature remains available and unchanged. No new discovery capability has been added to the System Controller.
- While it is possible to use a zone sensor as a connection point, performance may be quite slow. It is best to use a UC400 or BCI for this purpose.

See the "Accessing Devices on a Single Link" section of the *Tracer TU Help for Programmable Controllers* for detailed examples.

Applications Included with Tracer TU

You can launch and use the following applications from within Tracer TU for Programmable Controllers:

- The Tracer Graphical Programming (TGP2) Editor
- The System Controller User Interface (either Tracer Synchrony or the Tracer SC User Interface)
- The Tracer Graphics Editor (TGE)

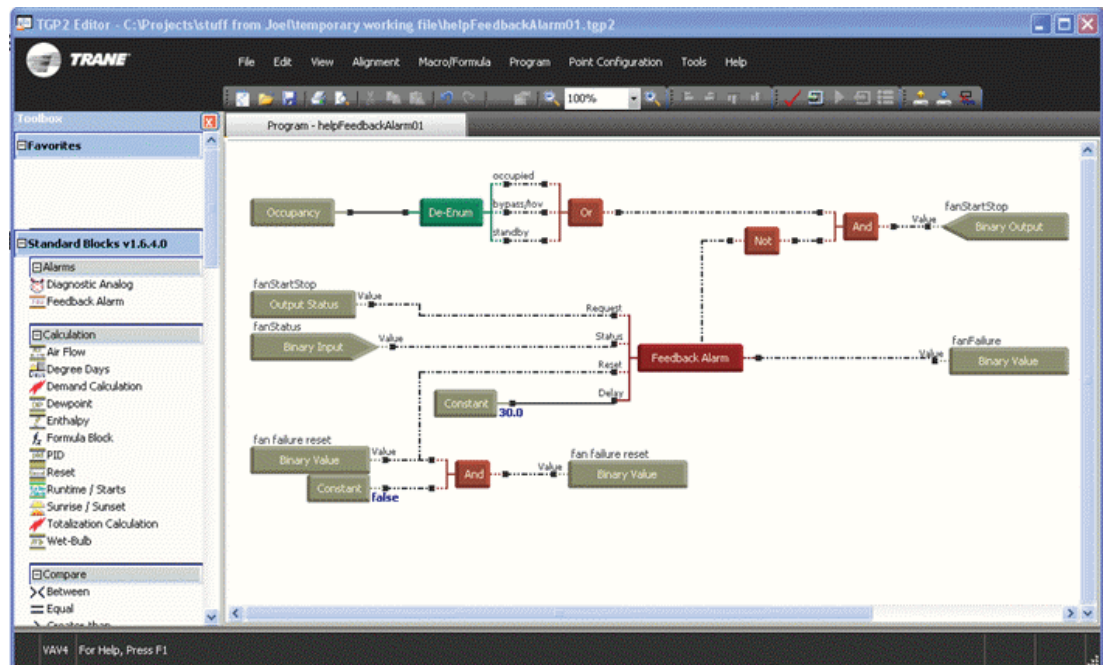
While these applications operate independently, they also take advantage of Tracer TU features, such as the File Transfer Utility and the Backup Utility.

The Tracer Graphical Programming (TGP2) Editor

You can visually construct the flow and logic of your custom programs with the updated Tracer Graphical Programming Language (TGP2) Editor. The TGP2 Editor is available from within Tracer TU for Programmable Controllers in either online or offline modes.

TGP2 has several powerful blocks including a Macro block and a Formula block that you can use to build custom, reusable code. Other blocks perform commonly used calculations, such as the Demand Calculation block and the Totalization Calculation block. In addition, a set of Equipment/ Application blocks can reference System Controller Area and Variable Air System (VAS) application objects. You can also take advantage of System blocks, which contain algorithms specific to Trane systems and equipment. They provide a convenient and consistent means of calculating common pieces of information. Finally, the TGP2 Editor simplifies your workflow. You can configure points and use them in constructing programs entirely within the TGP2 Editor user interface.

Figure 52. The TGP2 Editor window



System Controller User Interface

Tracer Synchrony and the Tracer SC User Interface are Web applications you can use to configure, install, and manage all the devices on the System Controller MS/TP links (networks), Modbus links, one or more LON links, and any wireless links coordinated by a System Controller. (The System Controller and all of its various networks, including any Tracer SC/SC+ (base) controllers (acting as routers) or Comm3/4 Bridges supporting Trane Legacy devices are referred to as a “facility”.) You can define Areas, Variable Air Systems, and Chiller Plant Control applications and control lighting, scheduling, energy consumption, and other features of a facility in the System Controller User Interface.

Figure 53. The Tracer Synchrony Spaces page

The screenshot shows the Tracer Synchrony Spaces page. On the left is a tree view showing a hierarchy of spaces under 'E09H61309'. The main area displays a table of HVAC units with the following columns: Name, Space Temperature, Active Setpoint, Discharge Air Temperature, Air Flow, Air Valve Position, Heat Cool Mode Status, and Occupancy. The table contains 15 rows of data, including units like AH540 03 2.0.200, Honeywell VAV, and various MP580 and VV550 units.

Name	Space Temperature	Active Setpoint	Discharge Air Temperature	Air Flow	Air Valve Position	Heat Cool Mode Status	Occupancy
AH540 03 2.0.200	76.9 °F	74.0 °F	78.1 °F			Cool	Occupied
Honeywell VAV	---	73.5 °F	---	0.0 cfm	0.0 %	Off	Occupied
MP580 green 2.2.6 SCC	---	---	---			---	Occupied
MP580 left 4.0.9 SCC	---	---	---			---	Occupied
MP580 right 4.0.9 SCC	---	---	---			---	Occupied
ReliaTel Device	79.3 °F	79.4 °F	70.1 °F			Off	Occupied
TCT LonTalk Rooftop	78.7 °F	73.5 °F	---			Cool	Occupied
UC210 - 1350053152	28.7 °F	24.3 °F	24.3 °F	0.0 cfm	30.0 %	Cool	Occupied
UC400 - 1084000070	79.7 °F	73.2 °F	81.5 °F			Cool	Occupied
UC400 - 1084900066	74.8 °F	75.5 °F	64.7 °F	0.0 cfm	12.0 %	Cool	Occupied
UC400 - 1084900264	70.5 °F	85.0 °F	---			Off	Occupied
UC400 - 1090900532	---	---	---			---	---
VV550 02 1.6.3 Wall	77.6 °F	75.0 °F	61.4 °F	---	88.0 %	Cool	Occupied
VV550 02 1.6.4 Desk	77.6 °F	73.5 °F	---	---	60.0 %	Cool	Occupied

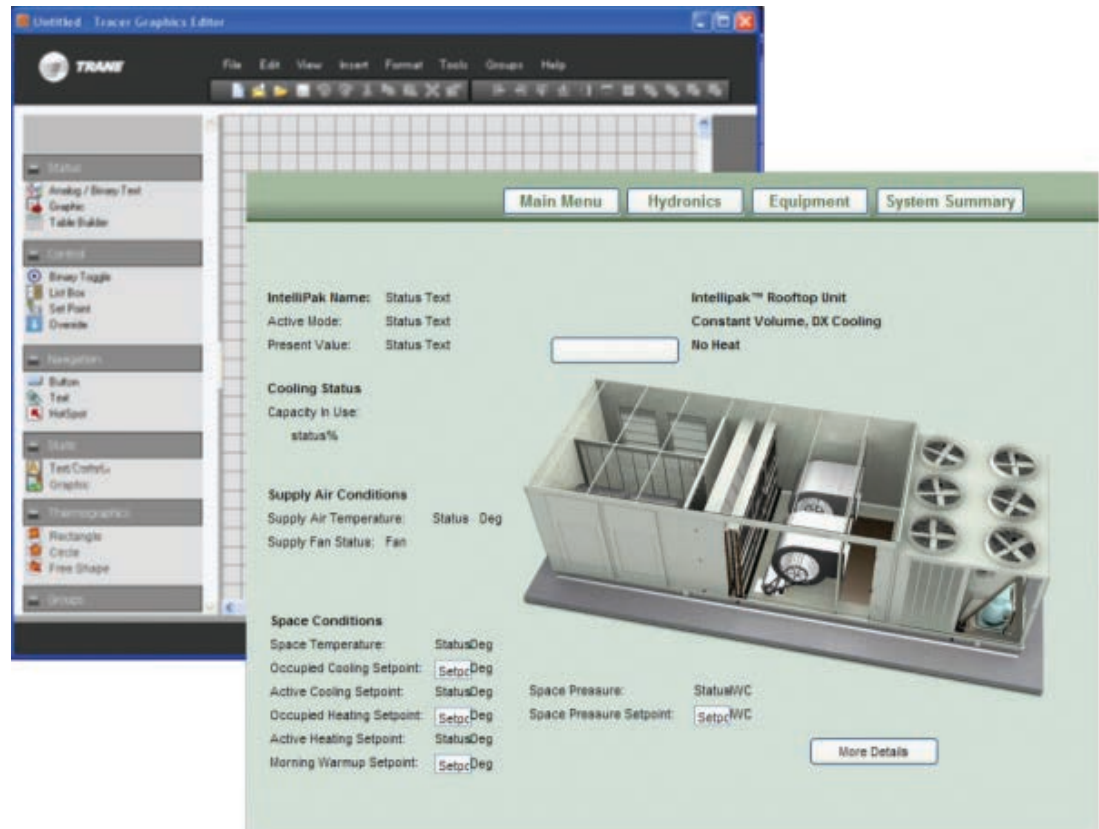
Note: The Tracer SC User Interface is similar to Tracer Synchrony , but its pages have a slightly different look and feel.

See “[Launching the System Controller User Interface,](#)” p. 25 to learn how to launch the System Controller software from within Tracer TU.

The Tracer Graphics Editor

Use the Tracer® Graphics Editor (TGE) to add live information to customized representations of your building, facility, or equipment for use on the System Controller User Interface and within Tracer Ensemble. You can build interactivity into these graphical representations that contain readouts of data points and other system information. (See the *Tracer® Graphics Editor Version 10.0 For Tracer Synchrony* (Online Help) for detailed information and procedures.)

Figure 54. The Tracer Graphics Editor





Appendix A. Appendix A. Tracer TU Installation and Connection Error Conditions

During installation or initial connection to a controller, you may encounter an error message or error condition. The messages with corrective actions are listed in the following table.

Table 1. Tracer TU installation and connection error conditions

Error Message/Condition	Corrective Action
Does not recognize USB hardware.	Respond as follows: <ul style="list-style-type: none">• Install correct USB drivers by reinstalling Tracer TU using Tracer TU Setup.exe.• If you get this message and have the correct USB drivers installed, make sure to wait for the controller to completely boot before attaching the USB cable.
Tracer TU does not respond, or the screen is blank.	The phrase "Connected Local USB" should appear in the lower left hand corner of the Tracer TU screen. If it does not, the connection has been lost. Restart Tracer TU by clicking the Connection icon (lightning bolt) in the upper left of the application window.
Found New Hardware popup message (Windows 7)	If the popup message does not appear, run the Tracer TU installation file: Tracer TU Setup_x.x.xxx.exe.

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