

# SOFTWARE HOUSE

*From Tyco Security Products*

**C•CURE 9000**  
Version 2.70

## **BUILDING MANAGEMENT SYSTEM INTEGRATION USER GUIDE**

SOFTWARE HOUSE

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**Glossary**

# Preface

The *Building Management System Integration User Guide* is for new and experienced security system users who want to learn to use the C•CURE 9000 BMS integration. The manual describes the features of the C•CURE 9000 BMS Integration.

The manual assumes that the C•CURE 9000 BMS integration has been installed and is currently operating.

## In This Preface

- ◆ How to Use this Manual ..... viii
- ◆ Finding More Information..... x
- ◆ Conventions.....xi

## How to Use this Manual

This manual is divided into 8 chapters and one appendix. Turn to the section in this manual containing the information you need.

### **Chapter 1: Introduction**

This chapter provides Building Management System (BMS) integration overview.

### **Chapter 2: Installation**

This chapter provides installation/un-installation instructions for this product.

### **Chapter 3: BACnet Device Discovery**

This chapter describes how BMS integration automatically detects BACnet devices on the network and creates the corresponding devices and objects in C•CURE 9000.

### **Chapter 4: BACnet Device Editor**

This appendix describes how to use BACnet device editor.

### **Chapter 5: BACnet Object Editor**

This chapter describes how to use BACnet object editor.

### **Chapter 6: Acknowledge Ack-Required Event Notification**

This chapter describes how to acknowledge Ack-required Event Notification.

### **Chapter 7: Widget on Map**

This chapter describes how to set animation for BACnet objects by widget on map.

### **Chapter 8: BACnet Event Action**

This chapter describes BACnet object specific action.

### **Chapter 9: BACnet Gateway Template Editor**

This chapter describes How to maintenance BACnet Gateway Template.

### **Chapter 10: BACnet Gateway Device Editor**

This chapter describes BACnet Gateway Device Editor.

### **Chapter 11: BACnet Gateway Object Editor**

This chapter describes BACnet Gateway Object Editor.



## **Chapter 13: BACnet Journal Messages**

This chapter describes the Journal Messages of BMS integration.

## **Glossary**

The Glossary provides descriptions for the terminology used in the BMS Integration documentation.

## Finding More Information

You can access C•CURE 9000 manuals and online Help for more information about C•CURE 9000 .

### Manuals

C•CURE 9000 software manuals are available in Adobe PDF format on the C•CURE 9000 DVD.

You can access the manuals if you copy the appropriate PDF files from the C•CURE 9000 Installation DVD English\Manuals folder and install the Adobe Acrobat Reader. Adobe Acrobat Reader can be installed from the C•CURE 9000 Installation DVD English\Reader folder.

The available C•CURE 9000 and Software House manuals are listed in the C•CURE 9000 **Product Guide and Help** section, and appear as hyperlinks in online.pdf file on the C•CURE 9000 DVD in the English\Manuals folder.

These manuals are also available from the Software house Member Center website (<http://membercenter.swhouse.com/home/default.aspx>).

### Online Help

You can access C•CURE 9000 Help by pressing F1 or click **Help** from the menu bar in the Administration/Monitoring Station applications.

### Windows Help

You can get help for the Windows products by selecting Help from the specific Windows **Start** menu or by going to the Microsoft website at [www.microsoft.com](http://www.microsoft.com).

## Conventions

This manual uses the following text formats and symbols.

**Table 1:** Documentation conventions

Convention	Meaning
<b>Bold</b>	This font indicates screen elements, and also indicates when you should take a direct action in a procedure.  Bold font describes one of the following items: <ul style="list-style-type: none"> <li>▪ A command or character to type, or</li> <li>▪ A button or option on the screen to press, or</li> <li>▪ A key on your keyboard to press</li> <li>▪ A screen element or name</li> </ul>
<i>Regular italic font</i>	Indicates a new term.
<text>	Indicates a variable.

## Notes, Tips, Cautions, Warnings, and Dangers

The following items are used to indicate important information.

**NOTE** Indicates a note. Notes call attention to any item of information that may be of special importance.

**TIP** Indicates an alternate method of performing a task.



Indicates a caution. A caution contains information essential to avoid damage to the system. A caution can pertain to hardware or software.



Indicates a danger. A danger contains information that users must know to avoid death or serious injury.



Indicates a warning. A warning contains information that advises users that failure to avoid a specific action could result in physical harm to the user or to the hardware.



This is an info table that is used to focus on important information.



## Introduction

This chapter introduces the C•CURE 9000 BMS integration product.

In this chapter:

- ◆ Overview .....1-2
- ◆ Using the Building Automation Pane .....1-4
- ◆ BMS integration Tasks .....1-5

## Overview

This integration provides the generic integration between C•CURE 9000 and Building Management Devices based on BACnet protocol, allowing customers to configure and control BMS devices. It provides connectivity to equipment using the BACnet protocol over Ethernet (called "BACnet/IP" or "Annex J"). Devices on other BACnet network types may be accessed using BACnet gateway devices. If the device is based on other protocol(e.g. N2), a protocol converter to BACnet(e.g. BACnet - N2 router) is needed.

This integration also provides a gateway mechanism for wrapping objects in C•CURE 9000 to BACnet objects, so the third party system can monitor C•CURE 9000 object change through BACnet protocol if necessary.

BACnet, Building Automation and Control Networks, is a data communication protocol and an agreed-upon set of rules for creating interoperable networks of building systems. When using BMS integration, it is recommended that users be familiar with the standard BACnet objects and properties.

The BMS integration provides Device management, Alarm and Event management, and Action management features on C•CURE 9000, which works as Supervisory Controller and controls BACnet device directly. This integration also provide gateway function to map C•CURE 9000 objects to BACnet objects. It provides the default gateway templates and also provide the way to customize gateway template.

## Features

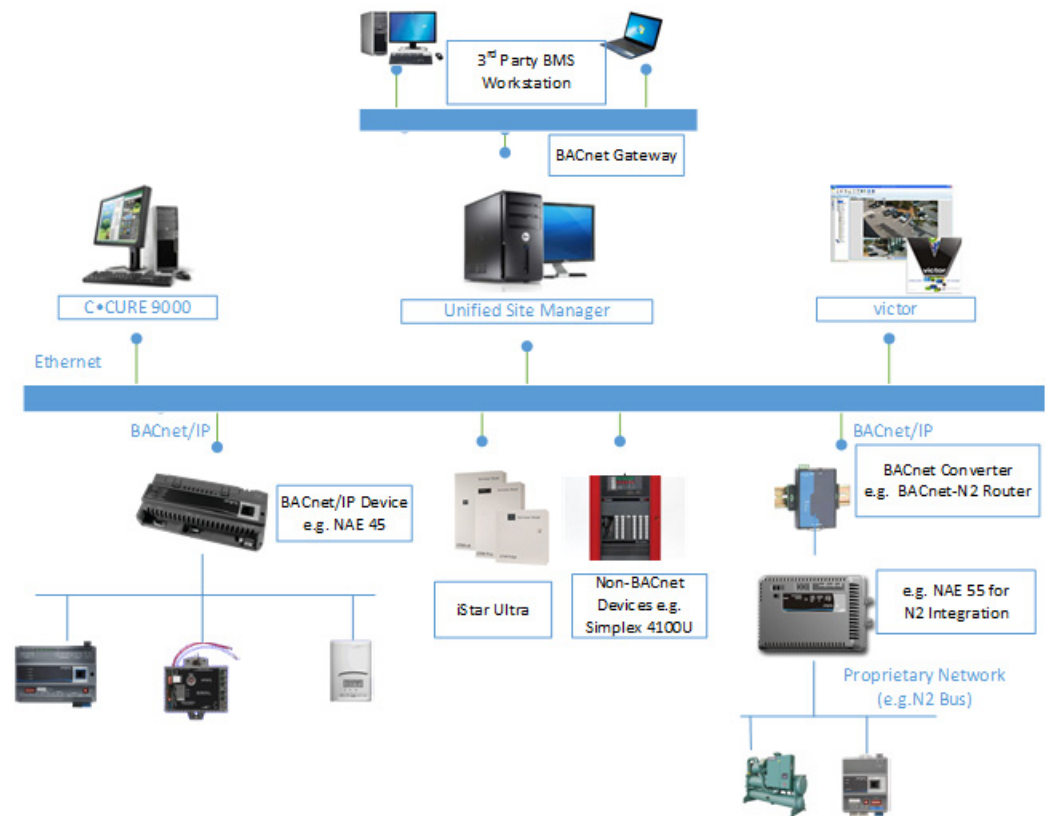
The following is a list of major features supported by BMS integration.

- Automatic Device Discovery
- Multi-condition triggers
- Interaction among devices (Non-BACnet and BACnet)
- View devices animation state on map
- All the changes of value are logged in the security journal for future investigative reporting
- Supports BACnet/IP(Annex J) protocol:
  - Supports subscription to the change of value (COV) event notification for many properties
  - Supports the following Objects, with most properties of the standard object types supported: Analog Input, Analog Output, Analog Value, Binary Input, Binary Output, Binary Value, Multi-state Input, Multi-state Output, Multi-state Value, Schedule and Device.
  - Supported Services: Who-Is, I-Am, ReadProperty, ReadPropertyMultiple, WriteProperty, WritePropertyMultiple, SubscribeCOV, SubscribeCOVProperty, ConfirmedCOVNotification, UnconfirmedCOVNotification.
- Acknowledge Event Notification in Alarm.
- BACnet gateway function - map C•CURE 9000 objects to BACnet objects.
- Default gateway templates: iStar people counting, Event gateway templates.
- Customized gateway template.

- View monitor objects summary.
- Supports BBMD: Manager BBMD: BACnet IP Communication across different networks.

## Architecture

Figure 1-1 on [page 1-3](#) shows a diagram that depicts the relationship between BACnet devices and BMS integration.



**Figure 1-1: Architecture**

## Using the Building Automation Pane

BACnet integration objects are created in the Building Automation pane on your C•CURE 9000 Administration Client Application.

When you install the BMS integration product, the building Automation Pane appeared on the navigation tree.



## BMS integration Tasks

You can perform the following tasks with BMS integration:

- “Auto Discovery BACnet Devices” on [page 3-3](#)
- “Importing Device Objects Manually” on [page 3-6](#)
- “Accessing the BACnet Device Editor” on [page 4-3](#)
- “Deleting a BACnet Device Object” on [page 4-5](#)
- “Configuring a BACnet Device Object” on [page 4-8](#)
- “Defining a Trigger for a BACnet Device” on [page 4-10](#)
- “Customizing State Images for a BACnet Device” on [page 4-13](#)
- “Accessing the BACnet Object Editor” on [page 5-3](#)
- “Deleting a BACnet Object” on [page 5-4](#)
- “Configuring a BACnet Object” on [page 5-7](#)
- “Defining a Trigger for a BACnet Object” on [page 5-10](#)
- “Customizing State Images for a BACnet Object” on [page 5-13](#)
- “Acknowledging Ack-required Event Notification” on [page 6-4](#)
- “Adding a Widget on Map” on [page 7-3](#)
- “Editing a Widget on Map” on [page 7-10](#)
- “Configuring BACnet Object Action” on [page 8-4](#)
- “Viewing the Available BACnet Gateway Template list” on [page 9-3](#)
- “Viewing the Mapping Definition of the BACnet Gateway Template” on [page 9-4](#)
- “Creating a New BACnet Gateway Template” on [page 9-5](#)
- “Removing a BACnet Gateway Template” on [page 9-7](#)
- “Accessing the BACnet Gateway Device Editor” on [page 10-3](#)
- “Adding a BACnet Gateway Device Object” on [page 10-4](#)
- “Deleting a BACnet Gateway Device Object” on [page 10-5](#)
- “Configuring a BACnet Gateway Device Object” on [page 10-8](#)
- “Creating Monitored Mapping for BACnet Gateway Device” on [page 10-9](#)
- “Viewing BACnet Gateway Monitored Objects” on [page 10-10](#)
- “Viewing the Mapping Reports for BACnet Gateway Device” on [page 10-11](#)
- “Accessing the BACnet Gateway Object Editor” on [page 11-3](#)
- “Deleting a BACnet Gateway Object” on [page 11-4](#)
- “Configuring a BACnet Gateway Object” on [page 11-6](#)
- “Viewing Monitor Object for this BACnet Gateway Object” on [page 11-7](#)
- “BMS Integration Journal Messages Definitions” on [page 13-2](#)



## Installation

This chapter provides instructions for installing and un-installing the BMS integration on a C•CURE 9000 server or client system.

In this chapter

◆ Overview .....	2-2
◆ Getting the BMS integration .....	2-4
◆ Installing the BMS integration.....	2-5
◆ Uninstalling the BMS integration .....	2-10

# Overview

Before installing the C•CURE 9000 BMS integration, you must first install C•CURE 9000 software on your target computer. For information on installing C•CURE 9000, refer to the *C•CURE 9000 Installation and Upgrade Guide*.

Similar to the C•CURE 9000 system, the BMS integration has Client and Server components. You must install the Client components on every computer that runs C•CURE 9000 client applications, and you must install the Server components on the C•CURE 9000 server computer. The BMS integration has the same hardware, software, and disk space requirements as C•CURE 9000; if the target computer can install C•CURE 9000, then it satisfies BMS integration requirements.

To install the BMS integration, you run the setup.exe from the BMS integration installation kit.

A wizard prompts you to install the C•CURE 9000 BMS integration. You need to perform the basic installation process described in the following pages on each computer in your C•CURE 9000 system. Be sure to close all C•CURE 9000 and virus-checking applications on client workstations before performing the installation.

Table on [page 2-2](#) lists the steps to install and register the C•CURE 9000 BMS integration on each computer in your C•CURE 9000 system. Perform these steps in order.

Table 2-1: Standard Installation Tasks

Task	See...
1. Install C•Cure 9000.	<i>C•CURE 9000 Installation and Upgrade Guide</i>
2. Close any open application and disable virus checking software.	"Before you begin" on <a href="#">page 2-2</a> Note: Stop the Crossfire servers if C•CURE 9000 is already installed.
3. Perform the pre-installation steps.	
4. Start the BACnet driver installation program.	
5. Verify the license for the BACnet driver by running the License program on your C•Cure 9000 server.	<i>C•CURE 9000 Installation and Upgrade Guide</i>
6. When the Installation and registration are complete, restart the services	

## Before you begin

You may need to perform some pre-installation steps before you install the C•CURE 9000 BMS integration.

### Checking Networks Status

If you are installing C•CURE 9000 on a corporate network, be sure to coordinate with your corporate network administrator. Check that the network is working properly. According to BACnet protocol, the BACnet converter should receive broadcast. The C•Cure 9000 also should receive broadcast.

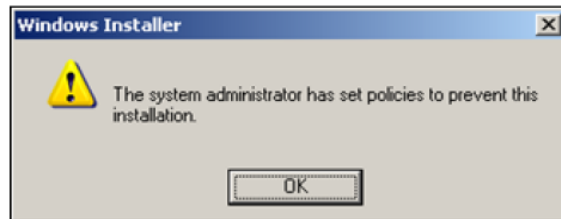
The default C•Cure 9000 BACnet port is UDP 47808.

## Checking System Privileges

To perform the installation, you must have appropriate Windows permissions. You must be in the local Administrators group, or have equivalent privileges. See the Microsoft Operating System documentation or your system administrator for more information.

If you do not have sufficient permissions, the following error message will appear as shown in Figure 2-1 on [page 2-3](#).

Figure 2-1: Error Message



## Database Installation

If you are installing server components of the C•Cure 9000 BMS integration, the C•Cure 9000 BMS integration will add some tables to the C•Cure 9000 database. Currently, the C•Cure 9000 BMS integration does not support installation with C•CURE 9000 on an Oracle Database. Therefore, you must install on a C•Cure 9000 system that is using SQL Server. The C•Cure 9000 BMS integration install program automatically finds the C•CURE 9000 database and adds tables and initial data to it.

## Getting the BMS integration

The BMS integration is located on the C•CURE 9000 2.4 DVD in the Integration\BMS folder, and can also be downloaded from the Software House website.

### To Download the BMS integration from the Software House Website

1. Open a browser and navigate to **www.swhouse.com**.
2. Select **Products**, and then select **Software Downloads** in the list.
3. When the login page opens, log in. If you do not have an account, you must create one.
4. Click the **Software Downloads** link.
5. On the **Software Downloads** page, select the "**Software House Connected**" link.
6. Select **Building Automation** from list.
7. When the **BMS integration Downloads** list is displayed on the right hand of the page, select the BMS integration link for the version of C•CURE 9000 that you have installed.
8. Unzip the files to a folder on your local computer, or to a shared drive on the network.

## Installing the BMS integration

This section provides the BMS integration installation procedure. You can install the software to a drive on a local computer or from a shared drive over the network.

This section assumes that you meet all the requirements described in Pre-installation Requirements.

You can install the C•CURE 9000 BMS integration on a local computer either from a local DVD drive or from a shared drive over a network.

---

### To Install BMS integration from a Local Driver (DVD or Download)

1. Log into the Server or Client with Windows administration privileges.
2. Insert the C•CURE9000 2.4 DVD into the system drive, or navigate to where you downloaded the software.
3. Navigate to the Integration\BMS folder.
4. Open the BMS folder, and right-click setup.exe, select run as administrator.
5. Follow the instructions, as described in “Running the Setup Program” on [page 2-5](#).

---

### To Install BMS integration from a Network Drive

1. Log into the server or client with the appropriate Windows privileges.
2. Map to the shared drive (download area or where you copied the BMS integration folder).
3. Open the BMS integration folder, right-click setup.exe, and select Run as administrator, as described in “Running the Setup Program” on [page 2-5](#).

## Running the Setup Program

To install the C•CURE 9000 BMS integration, run the setup.exe from the installation kit.

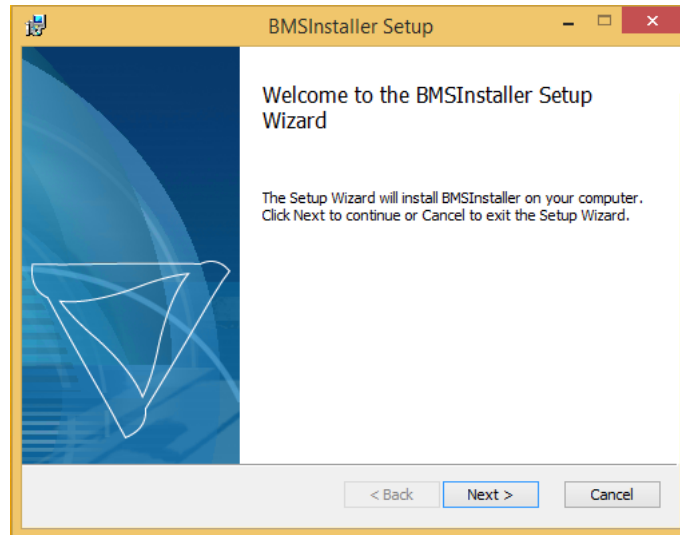
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### To Run the Setup Program

1. Navigate to the installation kit folder.

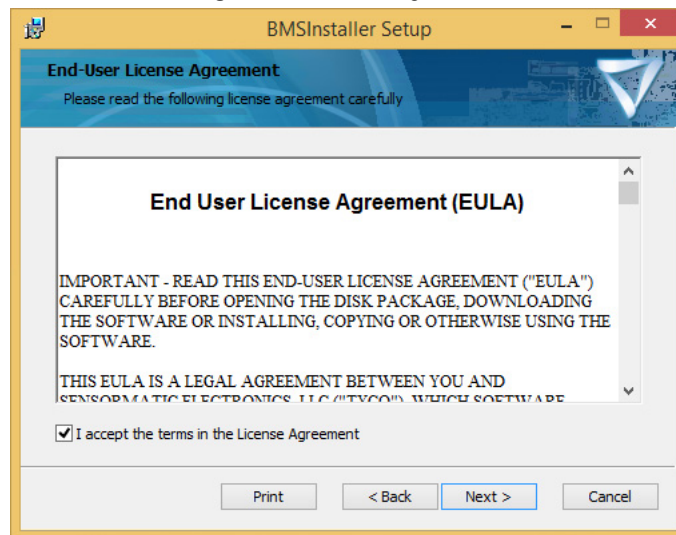
2. Right-click setup.exe, and select Run as administrator, the following welcome dialog box appears.

Figure 2-2: Confirmation Dialog Box



3. Click **Next** to continue the installation. A **License Agreement** dialog box opens.

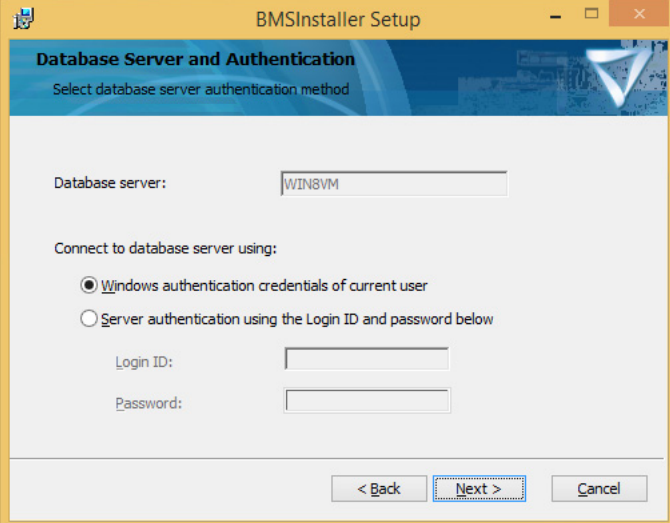
Figure 2-3: License Agreement





4. Select **I accept the terms in the license agreement** and click **Next**, a Database Server dialog box appears.

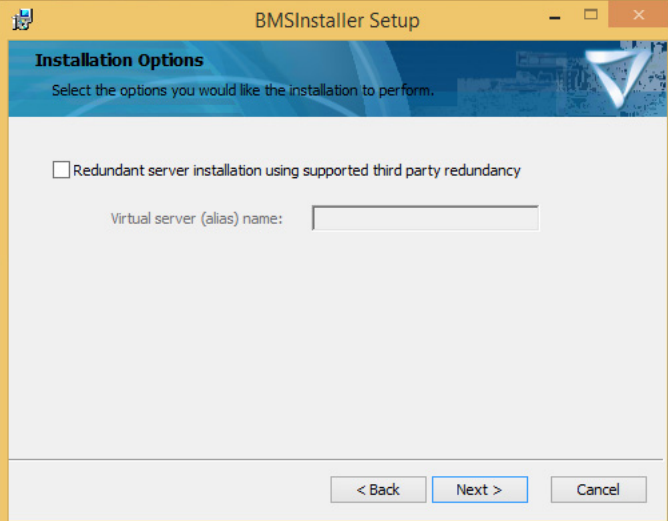
**Figure 2-4:** Database Server



The screenshot shows the 'Database Server and Authentication' window of the BMSInstaller Setup. The title bar reads 'BMSInstaller Setup'. The window has a blue header with the title and a subtitle 'Select database server authentication method'. Below the header, there is a text field for 'Database server:' containing the text 'WIN8VM'. Underneath, the text 'Connect to database server using:' is followed by two radio button options: 'Windows authentication credentials of current user' (which is selected) and 'Server authentication using the Login ID and password below'. Below these options are two text fields: 'Login ID:' and 'Password:'. At the bottom right, there are three buttons: '< Back', 'Next >' (which is highlighted with a blue border), and 'Cancel'.

5. Click **Next**, the **Redundant Server Setup** dialog box appears.

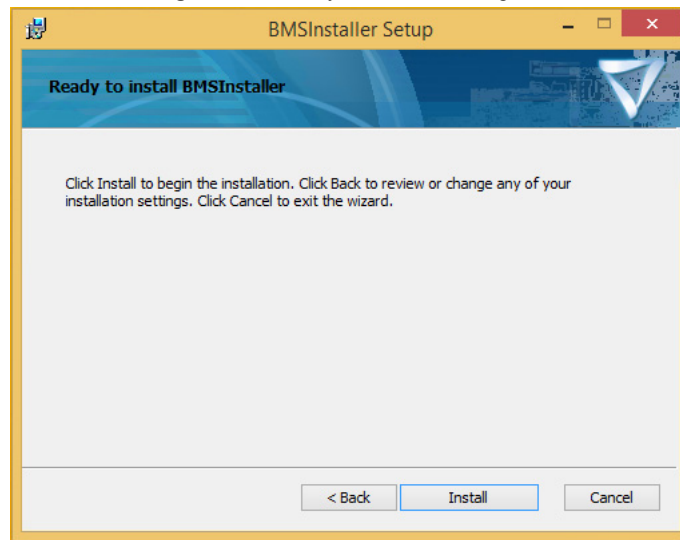
**Figure 2-5:** Redundant Server



The screenshot shows the 'Installation Options' window of the BMSInstaller Setup. The title bar reads 'BMSInstaller Setup'. The window has a blue header with the title and a subtitle 'Select the options you would like the installation to perform.'. Below the header, there is a checkbox labeled 'Redundant server installation using supported third party redundancy'. Below the checkbox is a text field labeled 'Virtual server (alias) name:'. At the bottom right, there are three buttons: '< Back', 'Next >' (which is highlighted with a blue border), and 'Cancel'.

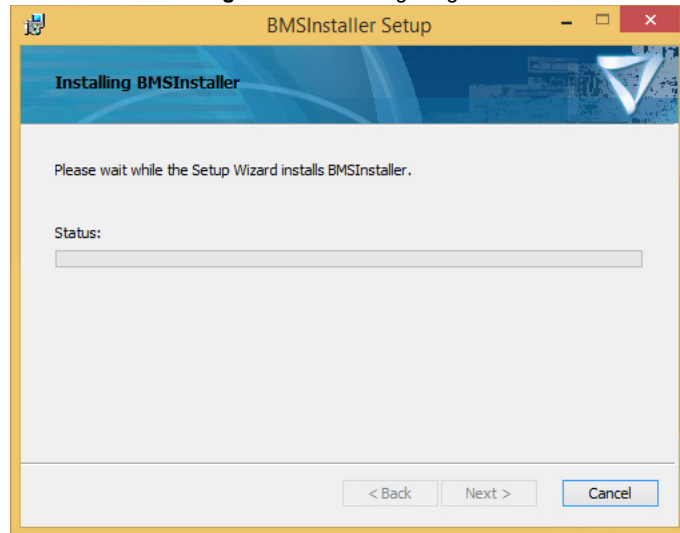
6. Click **Next** to open the **Ready to Install the Program** dialog box.

**Figure 2-6:** Ready to Install the Program

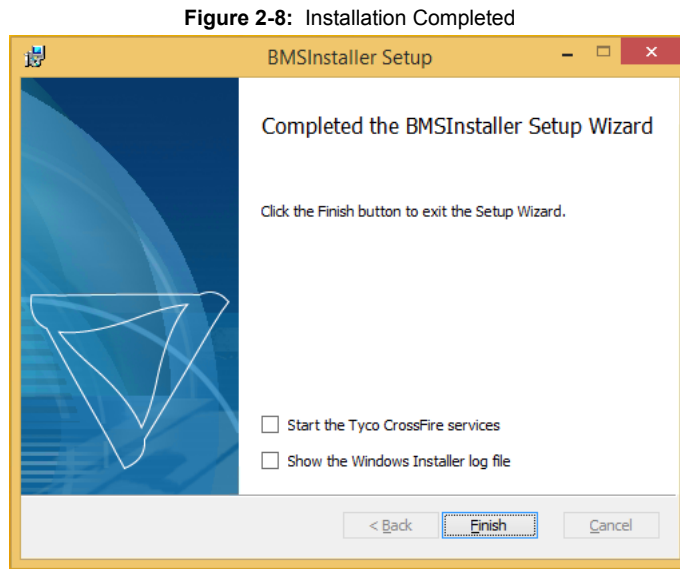


7. Click the **Install**, the installing progress dialog box appears.

**Figure 2-7:** Installing Progress



8. After finishing, the installation complete dialog box appears.



9. Click **Finish** to complete installing.

## Starting the BMS integration

Before you can import BACnet devices, you must start the BMS integration using the C•CURE 9000 Server Management Application Server Components tab.

1. From the Start Menu, select **Start>All Programs>Software House>Server Configuration**. The C•CURE 9000 Server Management Application opens.
2. Click the **Services** tab.
3. Select the **Enabled** check box for the SoftwareHouse CrossFire BACnet Driver Service and then start the service.
4. When the Crossfire Framework Service, CrossFire Server Component Service, and the SoftwareHouse CrossFire BACnet Driver Service displays a status of "**Running**" you can configure BMS integration objects in the C•CURE 9000.

## Uninstalling the BMS integration

This section describes how to uninstall the C•CURE 9000 BMS integration from the Server computer and from each Client computer in your security system.

The Uninstall process removes all software components that were installed on the computer by the C•CURE 9000 BMS integration program.



Please be advised that the BMS integration uninstall will shutdown and restart the C•CURE 9000 services. Therefore, the BMS integration uninstall should be planned accordingly.



Uninstalling this integration does not automatically remove objects that were configured in the C•CURE 9000 using it. Before you proceed with this uninstall, you **MUST** manually remove the objects from C•CURE 9000 to avoid potential issues with functions, such as partition deletion.

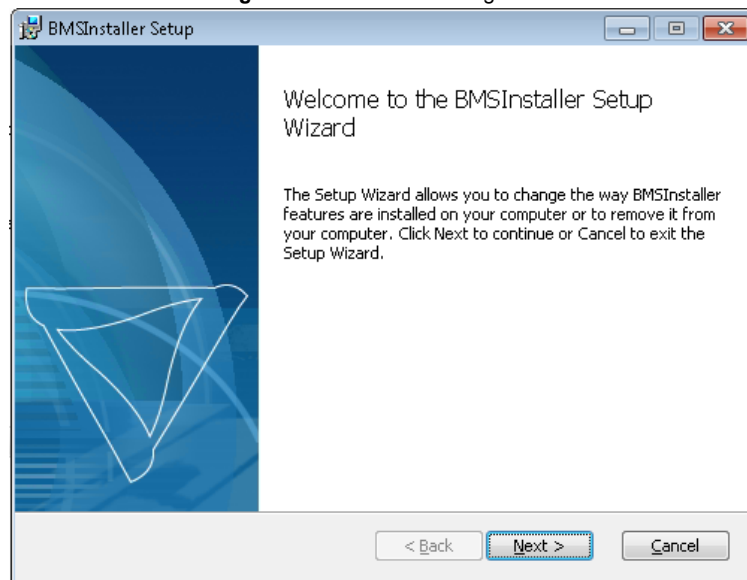
Unless you intend to reinstall the integration and continue using it, please ensure that the objects are deleted before removing the integration.

Once the uninstall process completes, the computer will be in a “clean” state.

### To Uninstall BMS integration

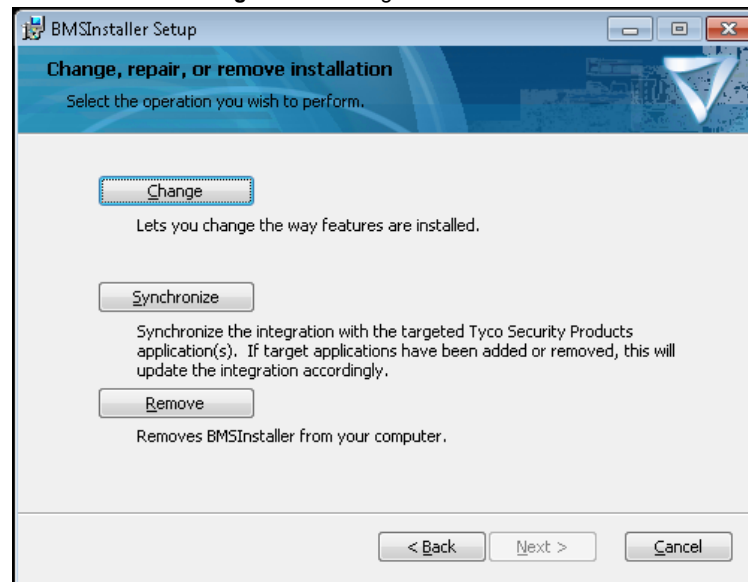
1. Navigate to the installation kit folder.
2. Right-click setup.exe, and select Run as administrator, the following welcome dialog box appears.

Figure 2-9: Welcome Dialog Box



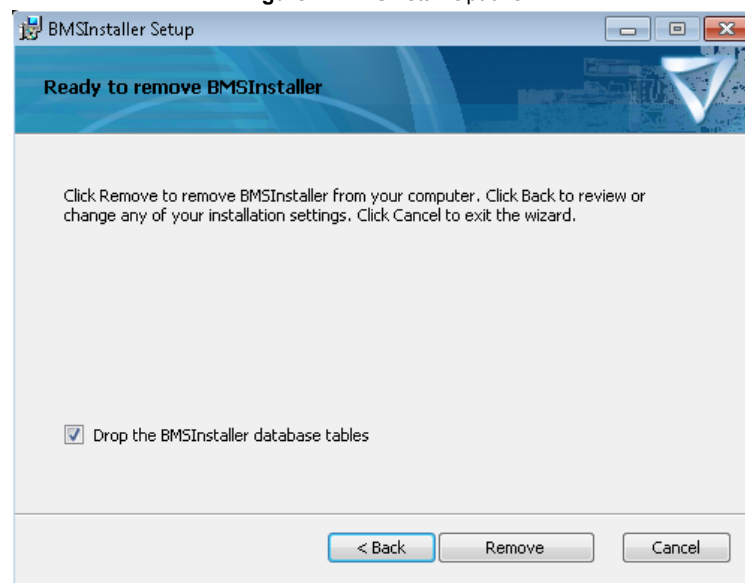
3. Click **Next**, open the **Program Maintenance** dialog box.

Figure 2-10: Program Maintenance



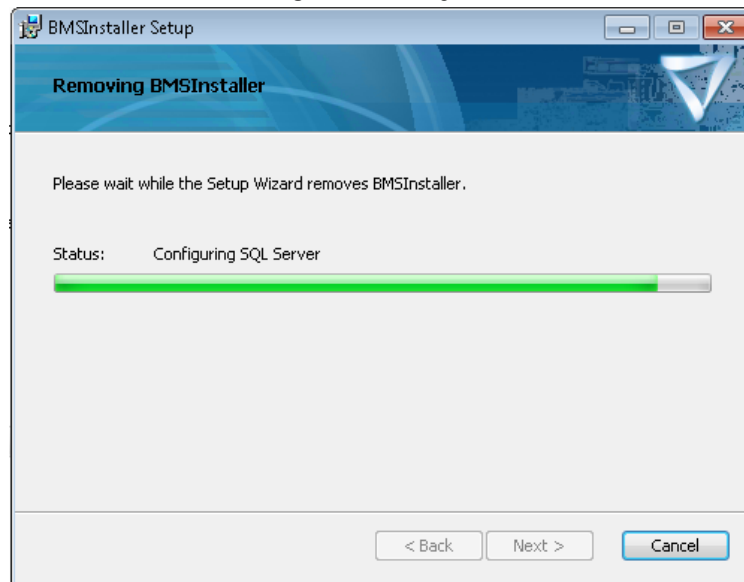
4. Select **Remove** and click **Next**. The Uninstall Options appears for you to choose whether or not to drop BMS Database. To drop the database, select the check box and then click **Remove**. To keep the database, click **Remove**.

Figure 2-11: Uninstall Options



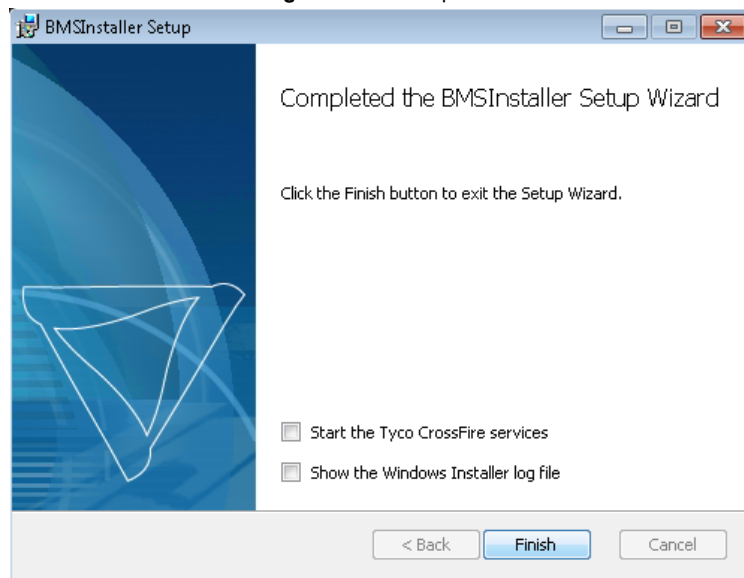
5. The **Removing BMSInstaller** dialog box opens showing the uninstalling progress.

Figure 2-12: Progress



6. After a few minutes, the **Completed the BMSInstaller Setup Wizard** dialog box appears.

Figure 2-13: Completed



7. Click **Finish** to complete uninstalling.

## BACnet Device Discovery

This chapter describes how BMS integration automatically detects BACnet devices on the network and creates the corresponding devices and objects in C•CURE 9000 and how manually import BACnet objects for the specific BACnet device.

In this chapter:

- ◆ Overview ..... 3-2
- ◆ Auto Discovery BACnet Devices ..... 3-3
- ◆ Importing Device Objects Manually ..... 3-6

## Overview


The integration can discover BACnet devices and its objects automatically by broadcasting WHO-IS and receiving I-AM message through BACnet protocol. And user is allowed to choose and save the devices and objects to be imported.

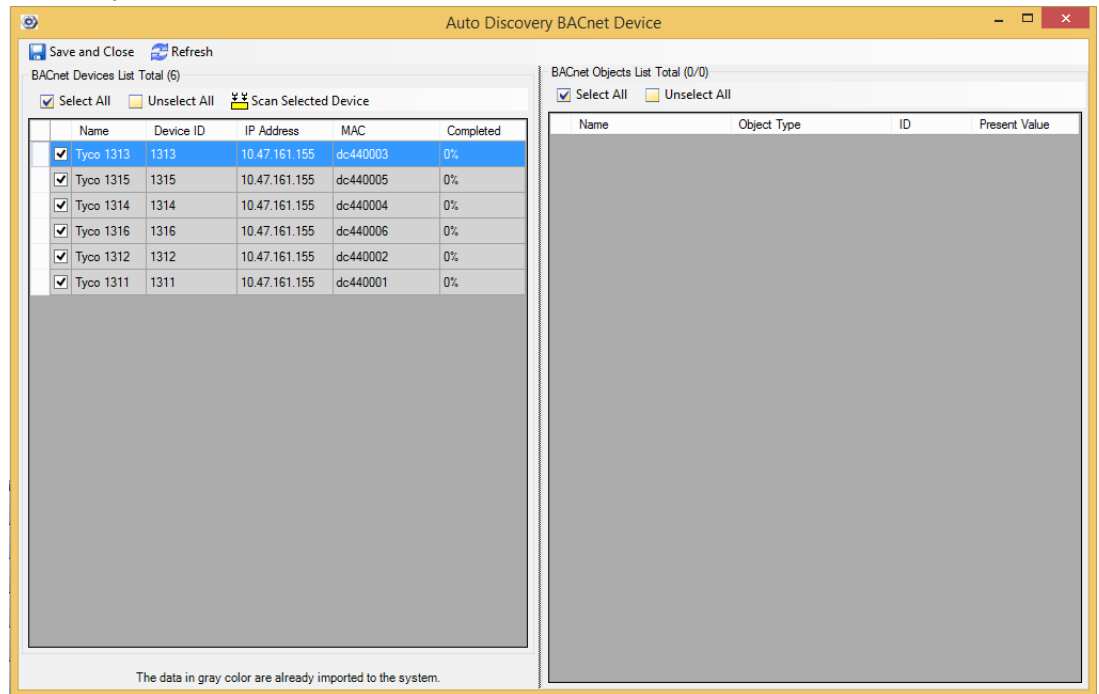
The integration also support manually import BACnet objects for the specific BACnet device.



## Auto Discovery BACnet Devices

Perform the following steps to auto discovery BACnet Devices on the network and create the corresponding devices and objects in C•CURE 9000.

1. On the navigation tree, select Building Automation to open Building Automation pane.
2. Right click BACnet Device folder, select  **Auto Discovery** from context menu, open **Auto Discovery BACnet Devices** window, as shown in Figure 3-1 on page 3-3. In this window, it will list the detected BACnet devices on the left grid, and show the total number of detected BACnet device right above this grid. The devices in gray are already imported into system.




**Figure 3-1:** Auto Discovery BACnet Devices - Device list

The BACnet Device list grid includes the fields described in Table 3-1 on page 3-3.

**Table 3-1:** BACnet Device List Grid Descriptions

Fields	Descriptions
Name	BACnet device name
Device ID	BACnet device ID, which must be unique on the network.
IP Address	IP address of BACnet device
MAC	MAC address of BACnet device
Completed	The completed percent of BACnet objects been detected on the specific device. The value will refresh during devices scan.

**NOTE** Auto discovery BACnet Devices may take a few seconds or minutes, which depends on the network speed and object amount on the device.

3. Tick the devices wanted to be imported, then click  **Scan Selected Device** , the BACnet objects on the selected devices will list on the right grid, as shown in Figure 3-2 on [page 3-4](#). By default, all BACnet objects are ticked. Untick the objects if you don't want to import. The objects in gray are already imported into system.

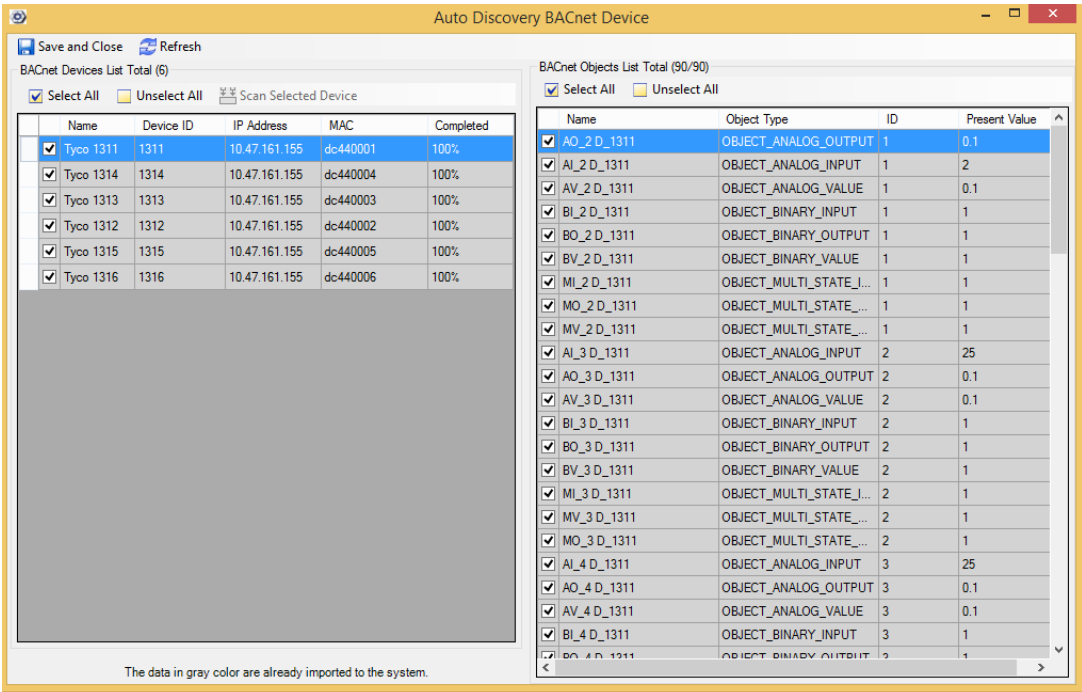



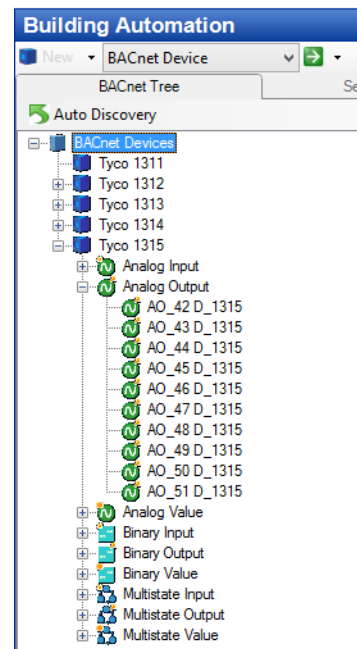
Figure 3-2: Auto Discovery BACnet Devices - Object list

The BACnet object list grid includes the fields described in Table 3-2 on [page 3-4](#).

Table 3-2: BACnet Object List Grid Descriptions

Field	Description
Name	Bacnet object name.
Object Type	Bacnet object type. Valid value: Binary Input, Binary Output, Binary value, Analog Input, Analog Output, Analog value, Mutistate Input, Multistate Output, Multistate Value and Schedule.
ID	Bacnet object ID.
Present Value	Present value of the specific object.

4. Click  **Save and Close** , all selected BACnet devices and objects display on the Building Automation navigation tree, as shown in Figure 3-3 on [page 3-5](#).





**Figure 3-3:** BACnet Tree

BACnet objects are categorized by object type on Building Automation navigation tree.

## Importing Device Objects Manually

Perform the following steps to import device objects for the specific BACnet device.

1. On the navigation tree, select Building Automation to open Building Automation pane.
2. Click on the  to the left of the BACnet Devices folder to expand the tree.
3. Right click the desired BACnet device, and select  Import Device Objects context menu, open **Auto Discovery BACnet Devices** window, as shown in Figure 3-4 on page 3-6, and start to retrieve BACnet objects in this device.

When retrieval BACnet objects 100% completed, all available BACnet objects listed on the right grid.

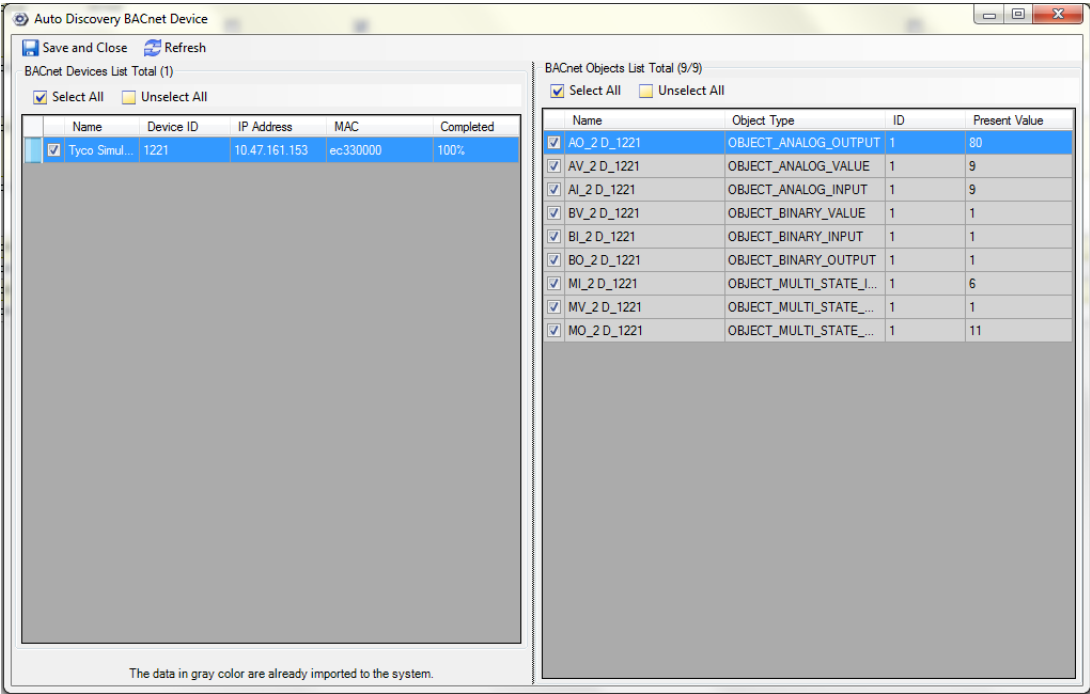



Figure 3-4: Import Device Objects

4. By default, all BACnet objects are ticked. Untick the objects if you don't want to import. The objects in gray are already imported into system.
5. Click  Save and Close , all selected BACnet devices and objects display on the Building Automation navigation tree.

## BACnet Device Editor

This chapter describes BACnet Device Editor.

In this chapter:

◆ BACnet Device Editor Overview .....	4-2
◆ Accessing the BACnet Device Editor .....	4-3
◆ Adding a BACnet Device Object .....	4-4
◆ Deleting a BACnet Device Object .....	4-5
◆ BACnet Device General Tab .....	4-6
◆ Configuring a BACnet Device Object .....	4-8
◆ BACnet Device Triggers Tab .....	4-9
◆ BACnet Device-Status Tab .....	4-12
◆ BACnet Device -State Images Tab .....	4-13

## BACnet Device Editor Overview


The BACnet device represents the BACnet device in the C•CURE 9000 database.

## Accessing the BACnet Device Editor

Perform the following steps to access the BACnet Device editor.

---

### To Access the BACnet Device Editor

1. In the Navigation pane of the C•CURE 9000 Administration Workstation, click Building Automation. The Building Automation pane opens.
2. Open the BACnet Device folder by clicking  to the left of folder.
3. To open the BACnet device editor to edit an existing BACnet device, double-click a BACnet device icon or name or right-click a BACnet device and select Edit from context menu.

The BACnet Device Editor opens with the General tab visible.

## Adding a BACnet Device Object

Perform the following steps to add a BACnet Device object.

### To Add a BACnet Device Object

1. In the Navigation pane of the C•CURE 9000 Administration Workstation, click Building Automation. The Building Automation pane opens.
2. Right click the BACnet Device folder, then select New from context menu, the BACnet device editor opens.
3. Type a unique name in the Name field.
4. Type a textual description for the BACnet device in the Description field.
5. See “BACnet Device General Tab” on [page 4-6](#) to configure communication information.

#### NOTE

If the Network ID of the BACnet device is 0, MAC Address is not necessary, but if Network ID is not 0, you must enter MAC Address to identify device.


6. Select the Data Update Mechanism used for all sub objects of this BACnet device.
7. Check the Enabled option to connect to BACnet physical device.
8. You can click the Triggers tab to configure Triggers for the BACnet device. See.
9. You can click the State Images tab to view the state images for the BACnet device, and optionally customize the state images. See.
10. If you are done editing the BACnet device, click to save the BACnet device configuration.

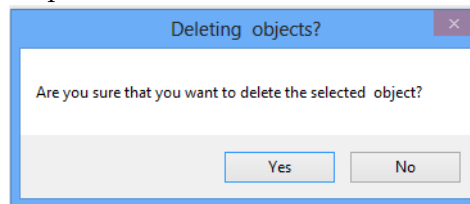


## Deleting a BACnet Device Object

You can delete a BACnet device from the Building Automation tree or from the dynamic view if you no longer need it.


### To Delete a BACnet Device Object from the Building Automation Tree

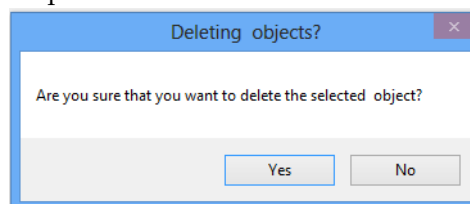
1. In the Navigation pane of the C•CURE 9000 Administration Workstation, click Building Automation. The Building Automation pane opens.
2. Open the BACnet Device folder by clicking  to the left of folder.
3. Right-click a BACnet device object to be deleted and select **Delete** from context menu. A confirmation dialog box opens.



4. Click Yes. After a while, this BACnet device object and all BACnet objects in this device are deleted from Building Automation tree and C•CURE 9000 database.

### To Delete a BACnet Device Object from the Dynamic View

1. In the Navigation pane of the C•CURE 9000 Administration Workstation, click Building Automation. The Building Automation pane opens.
2. Select BACnet Device from Building Automation pane drop-down list.
3. Click  to open a Dynamic View showing all BACnet Devices objects.
4. Right-click a BACnet device object to be deleted and select **Delete** from context menu. A confirmation dialog box opens.



5. Click Yes. After a while, this BACnet device object and all BACnet objects in this device are deleted from Building Automation tree and C•CURE 9000 database.

# BACnet Device General Tab

The BACnet Device General tab, shown in Table 4-1 on [page 4-6](#), lets you set the name and description for the BACnet device, and configure the communication settings for the device.

Figure 4-1: BACnet Device - General Tab

## BACnet Device General Tab Definitions

The BACnet Device General tab includes the fields described in Table 4-1 on [page 4-6](#).

Table 4-1: BACnet Device General Tab Definitions

Field	Description
Name	Enter a unique name up to 50 characters long for BACnet Device. If you enter the name of an existing object, the system will not save the object, and will display an error message indicating there is a conflict. Choose a different name.
Description	Enter a general comment about the BACnet device that will help you identify the device. This text is for information only.


Field	Description
Enabled	<p>Select the Enabled option to connect to BACnet device and update status if connecting successfully, or clear this option to disable the BACnet Device. The default value is enabled.</p> <p>You can change IP Address and UDP port when disabled BACnet device.</p>
<b>Configuration</b>	
BACnet Device ID	Bacnet device ID, which must be unique on the network. Read only.
MAC Address	MAC address of Bacnet device. Read only.
IP Address	BACnet IP address used to connect to the physical device, which must be unique on the network. Editable when BACnet device is disabled.
UDP Port	UDP port of BACnet device used to communicate with the physical device. Editable when BACnet device is disabled.
Network ID	Network ID of BACnet device. Read only.
Data Update Mechanism	<p>When BACnet device disabled, you can set data update mechanism for BACnet objects in this device. All BACnet objects' data update mechanism will change accordingly if you confirmed this change.</p> <p>Valid value: Subscribe COV/Event Notification, Polling, None. Please refer to Table 5-1 on <a href="#">page 5-5</a> to get the detailed description.</p>
<b>Poll Period</b>	
Poll Period	Set poll interval, at which the integration will automatically check if the physical device is online. The default value is 300 seconds. Please increase the poll period accordingly when BACnet object amount increases.
Comm Fail Delay	Set the comm fail delay time. The default value is 5 seconds.

## Configuring a BACnet Device Object

You can use the BACnet Device Editor to configure settings for BACnet device.

---

### To Configure a BACnet Device Object

1. In the Navigation pane of the C•CURE 9000 Administration Workstation, click Building Automation. The Building Automation pane opens.
2. Open the BACnet Device folder by clicking  to the left of folder.
3. Double-click a BACnet device icon or name or right-click a BACnet device and select Edit from context menu, the BACnet device editor opens.
4. Type a unique name in the Name field.
5. Type a textual description for the BACnet device in the Description field.
6. See “BACnet Device General Tab” on [page 4-6](#) to configure communication information and Data Update Mechanism.
7. Select the Data Update Mechanism used for all sub objects of this BACnet device.
8. Check the Enabled option to connect to BACnet physical device.
9. You can click the Triggers tab to configure Triggers for the BACnet device.
10. You can click the State Images tab to view the state images for the BACnet device, and optionally customize the state images. See “Customizing State Images for a BACnet Device” on [page 4-13](#)
11. If you are done editing the BACnet device, click to save the BACnet device configuration.

## BACnet Device Triggers Tab

C•CURE 9000 uses Triggers, which are configured procedures for activating events based on properties of an object. A Trigger automatically executes a specified Action when a particular predefined conditions occurs. Figure 4-2 on [page 4-9](#) shows the BACnet Device Triggers tab.

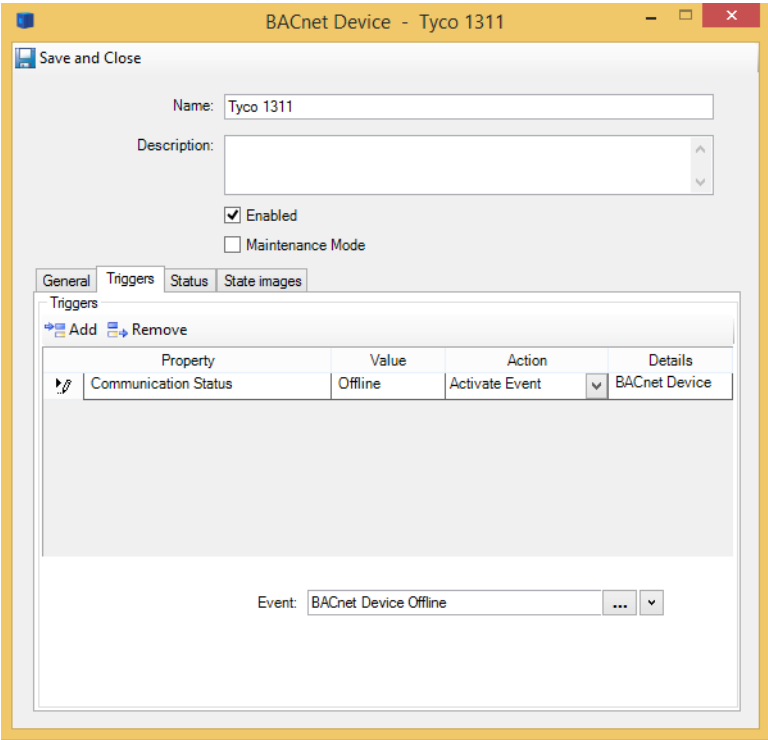


Figure 4-2: BACnet Device Triggers Tab

The following table contains an example of how a Trigger is configured.




Table 4-2: Trigger Tab Setting Example

The following Triggers tab settings				
Property	Value	Action	Details	Schedule
Online Status	Online	Activate Event	BACnet Device Event	Always
Would create the following Trigger:  Anytime (Always <b>Schedule</b> ) the Online Status ( <b>Property</b> ) equals Online ( <b>Value</b> ), activate the event ( <b>Action</b> ) named BACnet Device Event ( <b>Details</b> ).  BACnet Device Event is an event that you would need to create using the Event Editor.  For information about how to create and configure an event, see the <i>C•CURE 9000 User Software Configuration Guide</i>				

## BACnet Device Triggers Tab Definitions



Table 4-3 on [page 4-10](#) provides definitions of BACnet Device Triggers tab.

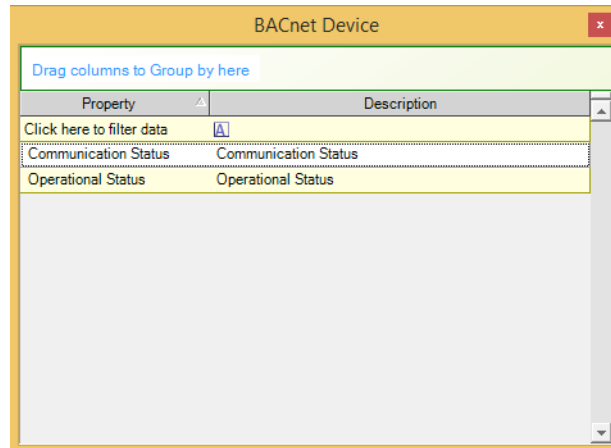
**Table 4-3:** BACnet Device Triggers Tab Definitions

Field	Description
Add	Click  in the Triggers tab to create a new trigger.
Remove	Click  in the Triggers tab to delete a new trigger.
Property	<p>Click within the Property column, and then click . The Property browser opens presenting properties available for the Panel. Click a Property to select it and add it to the column.</p> <p>The available properties are Communication Status and Operational Status.</p>
Value	<p>Click within the Value column to display a drop-down list of Values associated with the Property that you have selected. Click a Value you want to include as a parameter for the trigger to assign it to the column.</p> <p>The possible values are:</p> <ul style="list-style-type: none"> <li>• Communication Status: Online/Offline</li> <li>• Operational Status: Operational/Non-operational</li> </ul>
Action	Click within the Action column to display a drop-down list of valid actions. Click on Action that you want to include as a parameter for the trigger to add it to the column.
Details	Displays details about how the Action was configured.
Schedule	Only the <b>Always</b> Schedule is available for BACnet Device triggers.

## Defining a Trigger for a BACnet Device

### To Create a Trigger for BACnet Device

1. From the BACnet Device Editor, navigate to the Triggers tab.
2. Click  in the Trigger tab to create a new trigger.
3. Click  within the **Property** column to open the **BACnet Device** dialog box showing Properties available for the device.



4. Click a Property to select it and add it to the **Property** column.
5. Click within the **Value** column to display a drop-down list. Click the Value that you want to include as a parameter for the trigger to add it to the column.
6. Click within the Action column to display a drop-down list of valid actions. Now only **Activate Event** is available.




When you select an **Action**, the lower pane in the Trigger box displays an Event field for you to define the Action details.

Click  to open Event Dialog. Select an Event that you want to associate with the trigger.

Once you define the Action details, the Details column displays information about how the Action has been configured.

7. Click  Save and Close to save the BACnet Device with the Trigger you configured.

### To Remove a Trigger

1. From the BACnet Device Editor, navigate to the Trigger tab.
2. Use  to select the row in the Trigger table for the Trigger you want to remove.
3. Click .
4. Click  Save and Close to save and exit.

## BACnet Device-Status Tab

As shown in Figure 4-3 on [page 4-12](#), BACnet Device Status tab provides read-only status information about the BACnet Device.

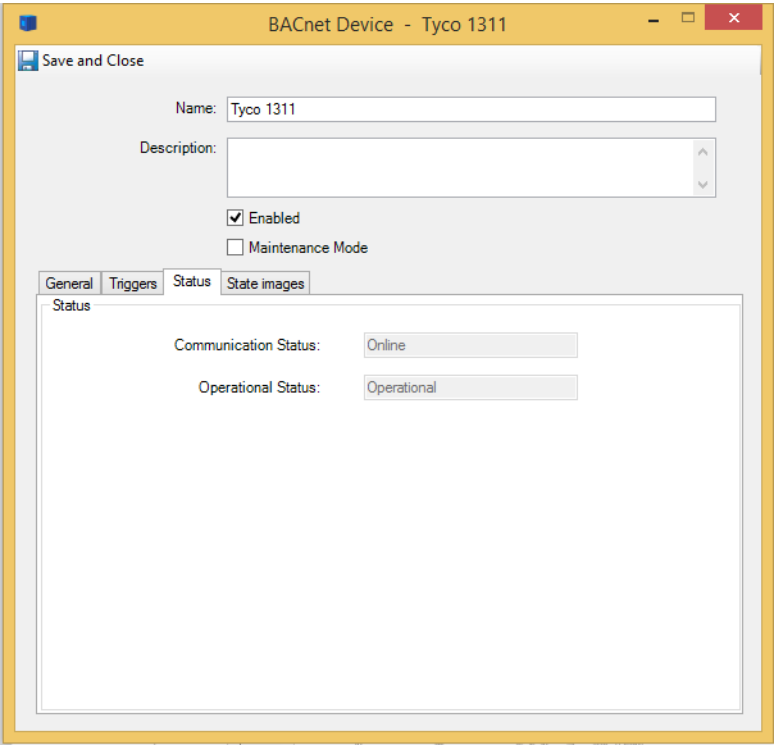


Figure 4-3: BACnet Device Status Tab

## BACnet Device Status Tab Definitions

Table 4-4 on [page 4-12](#) provides BACnet Device Status tab definitions.

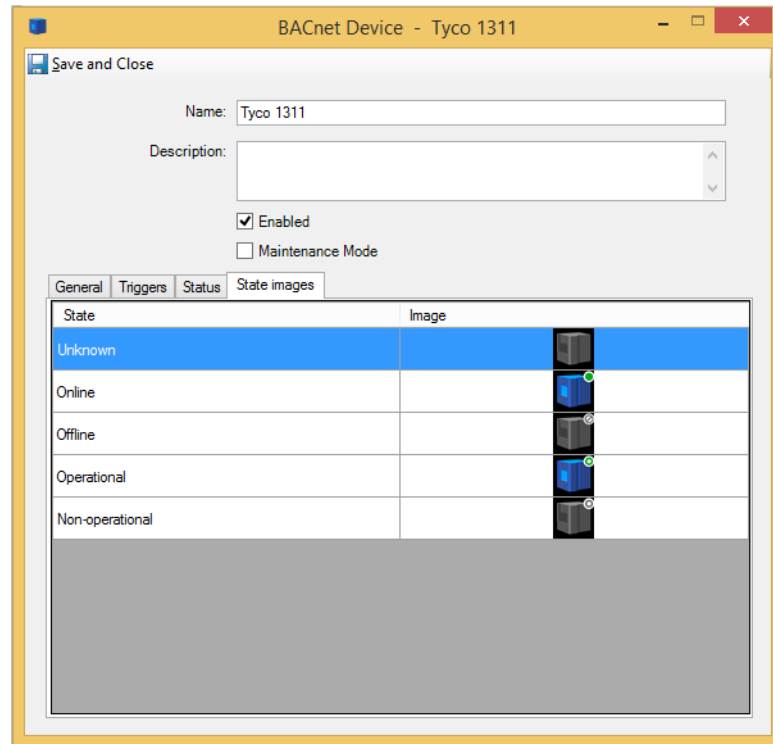
Table 4-4: BACnet Device Status Tab Definitions

Field	Value	Definition
Communication Status	Online	The server is successfully connected to the BACnet physical device.
	Offline	The server tries to connect to the BACnet physical device, but fails.
	Unknown	Server stops
Operational Status	Operational	The server can communicate with BACnet device successfully.
	Non-operational	The server can't communicate with BACnet device successfully.



## BACnet Device -State Images Tab

The BACnet Device State Images tab, shown in Figure 4-4 on [page 4-13](#), provides a means to change the default images used to indicate the BACnet Device states on the Monitoring Station.



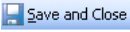
**Figure 4-4:** BACnet Device State Images Tab

You can replace the default images with JPG formatted files of your choice, to uniquely identify your objects when activities are displayed on the Monitoring Station Client.

### Customizing State Images for a BACnet Device

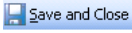
From the BACnet Device State Images tab, you can change the images that appear in the Monitoring Station to represent BACnet Devices.

#### To Customize BACnet Device State Images

1. From the BACnet Device State Images tab, double-click the existing image. A **Windows Open** dialog box appears allowing you to browse for a folder in which you have placed replacement images.
2. When you locate the replacement image, select it and click **Open** to replace the default image with this image.
3. When you are done editing the BACnet Device, click  **Save and Close** to save the device configuration.

---

### To Restore the Default State Image

1. From the BACnet device State Image tab, select an existing image.
2. Right-click the image and select the Restore Default.
3. Click  to save the device configuration.

## BACnet Object Editor

This chapter describes BACnet Object Editor.

In this chapter:

◆ BACnet Object Editor Overview . . . . .	5-2
◆ Accessing the BACnet Object Editor . . . . .	5-3
◆ Deleting a BACnet Object . . . . .	5-4
◆ BACnet Object General Tab. . . . .	5-5
◆ Configuring a BACnet Object . . . . .	5-7
◆ BACnet Object Triggers Tab . . . . .	5-9
◆ BACnet Object-Status Tab . . . . .	5-12
◆ BACnet Object -State Images Tab . . . . .	5-13
◆ BACnet Schedule Object - Object Configuration Tab . . . . .	5-15
◆ BACnet Schedule Object - Schedule Configuration Tab . . . . .	5-17

## BACnet Object Editor Overview


The BACnet Object represents the BACnet Object in the C•CURE 9000 database.

## Accessing the BACnet Object Editor

Perform the following steps to access the BACnet Object editor.

---

### To Access the BACnet Object Editor

1. In the Navigation pane of the C•CURE 9000 Administration Workstation, click Building Automation. The Building Automation pane opens.
2. Open the BACnet Object folder by clicking  to the left of folder.
3. To open the BACnet Object editor to edit an existing BACnet Object, double-click a BACnet Object icon or name or right-click a BACnet Object and select Edit from context menu.


The BACnet Object Editor opens with the General tab visible.

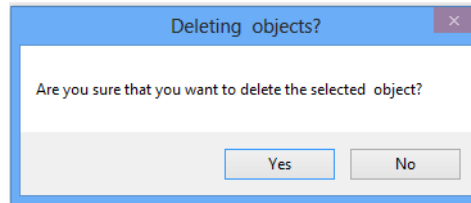
## Deleting a BACnet Object

You can delete a BACnet Object from the Building Automation tree or from the dynamic view if you no longer need it.

---

### To Delete a BACnet Object from the Building Automation Tree


1. In the Navigation pane of the C•CURE 9000 Administration Workstation, click Building Automation. The Building Automation pane opens.
2. Open the BACnet Object folder by clicking  to the left of folder.
3. Right-click a BACnet Object to be deleted and select **Delete** from context menu. A confirmation dialog box opens.

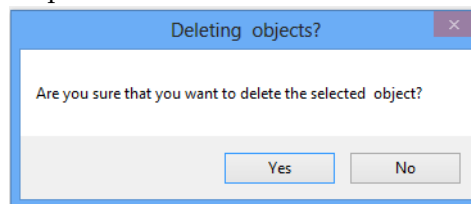


4. Click Yes. After a while, this BACnet Object is deleted from Building Automation tree and C•CURE 9000 database.

---

### To Delete a BACnet Object from the Dynamic View

1. In the Navigation pane of the C•CURE 9000 Administration Workstation, click Building Automation. The Building Automation pane opens.
2. Select BACnet Object from Building Automation pane drop-down list.
3. Click  to open a Dynamic View showing all BACnet Objects objects.
4. Right-click a BACnet Object to be deleted and select **Delete** from context menu. A confirmation dialog box opens.



5. Click Yes. After a while, this BACnet Object is deleted from Building Automation tree and C•CURE 9000 database.

## BACnet Object General Tab

The BACnet Object General tab, shown in Table 5-1 on [page 5-5](#), lets you set the name and description for the BACnet Object, and configure the communication settings for the device.

**Figure 5-1:** BACnet Object - General Tab

## BACnet Object General Tab Definitions

The BACnet Object General tab includes the fields described in Table 5-1 on [page 5-5](#).

**Table 5-1:** BACnet Object General Tab Definitions

Field	Description
Name	Enter a unique name up to 50 characters long for BACnet Device. If you enter the name of an existing object, the system will not save the object, and will display an error message indicating there is a conflict. Choose a different name.
Description	Enter a general comment about the BACnet device that will help you identify the device. This text is for information only.
Enabled	Click <b>Enabled</b> to allow the BACnet object to establish the communication with the physical device.
Object Type	Bacnet object type. Valid value: ANALOG_INPUT, ANALOG_OUTPUT, ANALOG_VALUE, BINARY_INPUT, BINARY_OUTPUT, BINARY_VALUE, MULTI-STATE_INPUT, MULTI-STATE_OUTPUT, MULTI-STATE_VALUE. Read only.

Field	Description
Device Type	Text description of the physical device connected to the bacnet object. It will typically be used to describe the type of sensor attached to the BACnet object type Bacnet object. Read only.
Present Value	The current value in engineering units of the BACnet object being measured. The present value is writable when Outofservice status is True. Read only.
High Limit	A limit that present value must exceed before an event is generated. Read only.
Low Limit	A limit that present value must fall below before an event is generated. Read only.
Units	The measurement units of this object. Read only.
<b>Data Update Mechanism</b>	
Subscribe COV/Event Notification	<p>← Use Subscribe COV: Update data by subscribing COV service.</p> <p>When Use Subscribe COV, the subscription period is 28800 seconds (8 hours) by default. BMS integration will automatically re-subscribe before subscription expires. You can change it by the following line in ConnectedPro.HardwareInterface.BACnet.DriverService.exe configuration file located under Installation path\Tyco\CrossFire\ServerComponents.</p> <pre>&lt;add key="COVLifeTimeValue" value="28800"/&gt;</pre> <p>← Use Subscribe COV Property: Update Present Value and /or Status Flag by subscribe Present Value and /or Status Flag COV Property service. For Analog object, when check Present value, user can define COV Increment.</p> <p>← Use Event Notification: Update status by subscribe Event Notification. To use this mechanism, Notification Class should be pre-configured on real BACnet Device, If subscribed Event Notification Class Required Ack, then BMS integration will list ACK-Required Event Notification.</p> <p>BMS integration uses 12505 network ID to communicate, you can change it by the following line in ConnectedPro.HardwareInterface.BACnet.DriverService.exe configuration file located under installation path\Tyco\CrossFire\ServerComponents.</p> <pre>&lt;add key="LocalBACnetNetworkID" value="12505"/&gt;</pre>
Polling	Update data by poling the value and status. The polling period share the value with BACnet device.
None	None of above mechanism.




## Configuring a BACnet Object

You can use the BACnet Object Editor to configure settings for BACnet Object.

---



### To Configure a BACnet Object

1. In the Navigation pane of the C•CURE 9000 Administration Workstation, click Building Automation. The Building Automation pane opens.
2. Open the BACnet Object folder by clicking  to the left of folder.
3. Double-click a BACnet Object icon or name or right-click a BACnet Object and select Edit from context menu, the BACnet Object editor opens.
4. Type a unique name in the Name field.
5. Type a textual description for the BACnet Object in the Description field.
6. Check the Enabled option to connect to BACnet physical device.
7. See “BACnet Object General Tab” on [page 5-5](#) to configure data Update Mechanism.
8. You can click the Triggers tab to configure Triggers for the BACnet Object.
9. You can click the State Images tab to view the state images for the BACnet Object, and optionally customize the state images.
10. If you are done editing the BACnet Object, click to save the BACnet Object configuration.

## Configuring Data Update Mechanism for a BACnet Object

You can use the BACnet Object Editor to configure Data Update Mechanism for a BACnet Object.

### To Use Subscribe COV/Event Notification to Update Data

1. In the Navigation pane of the C•CURE 9000 Administration Workstation, click Building Automation. The Building Automation pane opens.
2. Open the BACnet Object folder by clicking  to the left of folder.
3. Double-click a BACnet Object icon or name or right-click a BACnet Object and select Edit from context menu, the BACnet Object editor opens.
4. Check Subscribe COV/Event Notification radio button to use Alarm and Event services to update data. You can select one or more mechanisms to update data as needed.
  - Select Use Subscribe COV checkbox to use Subscribe COV service to update data.
  - Select Use Subscribe COV Property checkbox to use Subscribe COV Property service to update data, you can specify what properties should be subscribed. For now, only Present value and Status Flag properties supported.
  - Select Use Event Notification checkbox to use Unconfirmed Event Notification service to update data. Click  to retrieve the available Notification Class list, then select the Notification Class ID used to notify events. If there is no Notification class ID available, it means no Notification Class created in real BACnet device.

#### NOTE

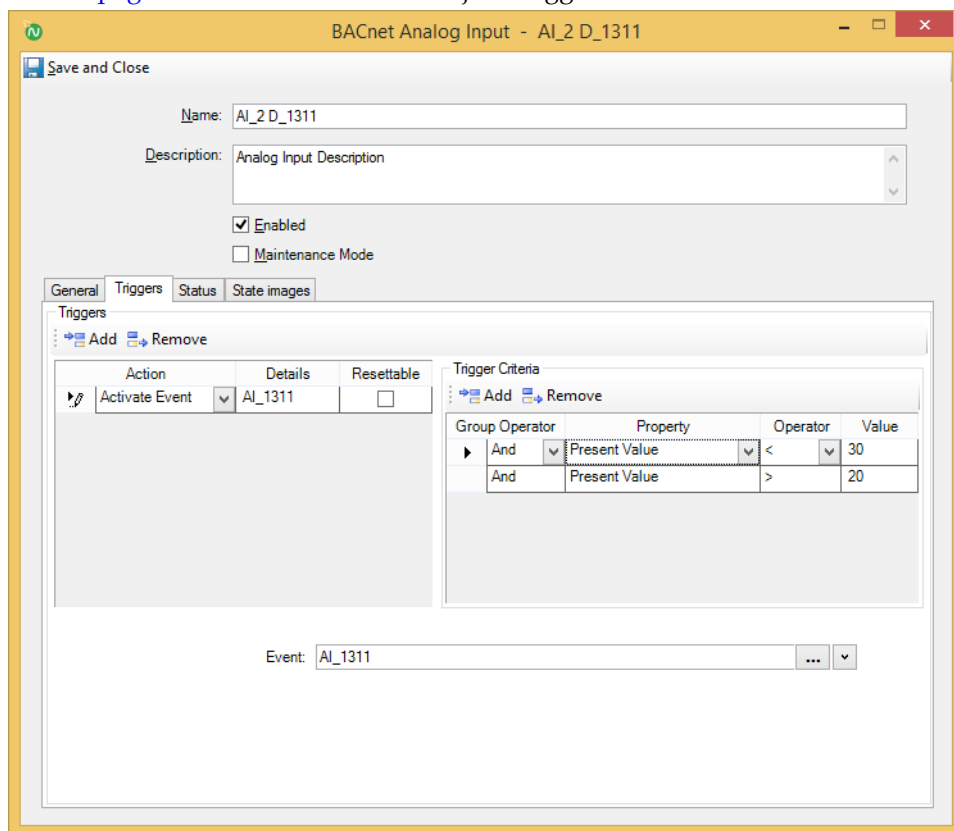
To use this mechanism, user should add the MAC Address and Network ID(12505 by default) of C•CURE 9000 server to the reception list of the subscribed Notification Class on real BACnet Device.

5. Click Save and Close.

## BACnet Object Triggers Tab

The trigger on BMS integration enhanced to support complex conditions. When the value change on BACnet object matches the particular pre-defined criteria, a trigger automatically executes a specified Action.

Figure 5-2 on [page 5-9](#) shows the BACnet Object Triggers tab.



**Figure 5-2:** BACnet Object Triggers Tab

The following table contains an example of how a Trigger is configured.





**Table 5-2:** Trigger Tab Setting Example

The following Triggers tab settings			
Trigger Criteria	Action	Details	Schedule
When the Present Value > 20 and the Present Value < 30	Activate Event	AI_1311	Always
<p>Would create the following Trigger:</p> <p>Anytime (Always <b>Schedule</b>) the Present Value (<b>Property</b>) &gt; 20 (<b>Value</b>) and the Present Value (<b>Property</b>) &lt; 30 (<b>Value</b>), activate the event (<b>Action</b>) named AI_1311 Event (<b>Details</b>).</p> <p>AI_1311 Event is an event that you would need to create using the Event Editor.</p> <p>For information about how to create and configure an event, see the <i>C•CURE 9000 User Software Configuration Guide</i></p>			

## BACnet Object Triggers Tab Definitions



Table 5-3 on [page 5-10](#) provides definitions of BACnet Object Triggers tab.

**Table 5-3:** BACnet Object Triggers Tab Definitions

Field	Description																
Add	Click  Add in the Triggers tab to create a new trigger.																
Remove	Click  Remove in the Triggers tab to delete a new trigger.																
Action	Click within the Action column to display a drop-down list of valid actions. Click on Action that you want to include as a parameter for the trigger to add it to the column.																
Details	Displays details about how the Action was configured.																
Resettable	Select this check box to indicate that an operator responding to the Event can reset an Action without acknowledging the Event. This allows Monitoring Station personnel to manually reset the action caused by the event. Used to turn off output, such as a siren, activated by the event. Reset actions do not require event acknowledgment.																
<b>Trigger Criteria</b>																	
Add	Click  Add in the Triggers tab to create a new condition.																
Remove	Click  Remove in the Triggers tab to delete a condition.																
Group Operator	<table><tr><th>Property</th><th>Operator</th><th>Value</th></tr><tr><td rowspan="4">Only support And operation among conditions. If Or is needed, the user can add another trigger instead.</td><td>Alarm Status</td><td>=, ≠</td><td>Alarm, Normal, Unknown</td></tr><tr><td>Fault Status</td><td>=, ≠</td><td>Fault, Normal, Unknown</td></tr><tr><td>Out of Service Status</td><td>=, ≠</td><td>True, False, Unknown</td></tr><tr><td>Present Value</td><td>&gt;, &gt;=, =, ≠, &lt;, &lt;= except that =, ≠ for binary input, binary output, binary value</td><td>User defined value, except that BinaryActive, BinaryInactive, BinaryNull for binary input, binary output, binary value</td></tr></table>	Property	Operator	Value	Only support And operation among conditions. If Or is needed, the user can add another trigger instead.	Alarm Status	=, ≠	Alarm, Normal, Unknown	Fault Status	=, ≠	Fault, Normal, Unknown	Out of Service Status	=, ≠	True, False, Unknown	Present Value	>, >=, =, ≠, <, <= except that =, ≠ for binary input, binary output, binary value	User defined value, except that BinaryActive, BinaryInactive, BinaryNull for binary input, binary output, binary value
Property	Operator	Value															
Only support And operation among conditions. If Or is needed, the user can add another trigger instead.	Alarm Status	=, ≠	Alarm, Normal, Unknown														
	Fault Status	=, ≠	Fault, Normal, Unknown														
	Out of Service Status	=, ≠	True, False, Unknown														
	Present Value	>, >=, =, ≠, <, <= except that =, ≠ for binary input, binary output, binary value	User defined value, except that BinaryActive, BinaryInactive, BinaryNull for binary input, binary output, binary value														

## Defining a Trigger for a BACnet Object

### To Create a Trigger for BACnet Object

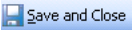
1. From the BACnet Object Editor, navigate to the Triggers tab.
2. Click  Add in the Trigger tab to add a new row, and the **Trigger Criteria** grid is available to define trigger criteria.
3. Click  Add button on the right grid to add a condition.
4. Select a desired property from Property dropdown list, select the proper operator from Operator dropdown list, then select target value from Value dropdown list to create a condition.
5. If the trigger criteria are complex conditions, repeat step 3~4 to create other condition(s). Now the Group Operator only support And, so the trigger criteria is true only when all conditions are met.

6. Click within the Action column to display a drop-down list of valid actions. Now only **Activate Event** is available.

When you select an **Action**, the lower pane in the Trigger box displays an Event field for you to define the Action details.



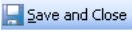
Click  to open Event Dialog. Select an Event that you want to associate with the trigger.

Once you define the Action details, the Details column displays information about how the Action has been configured.

7. Click  to save the BACnet Object with the Trigger you configured.

---

### To Remove a Trigger

1. From the BACnet Object Editor, navigate to the Trigger tab.
2. Use  to select the row in the Trigger table for the Trigger you want to remove.
3. Click .
4. Click  to save and exit.

## BACnet Object-Status Tab

As shown in Figure 5-3 on [page 5-12](#), BACnet Object Status tab provides read-only status information about the BACnet Object.

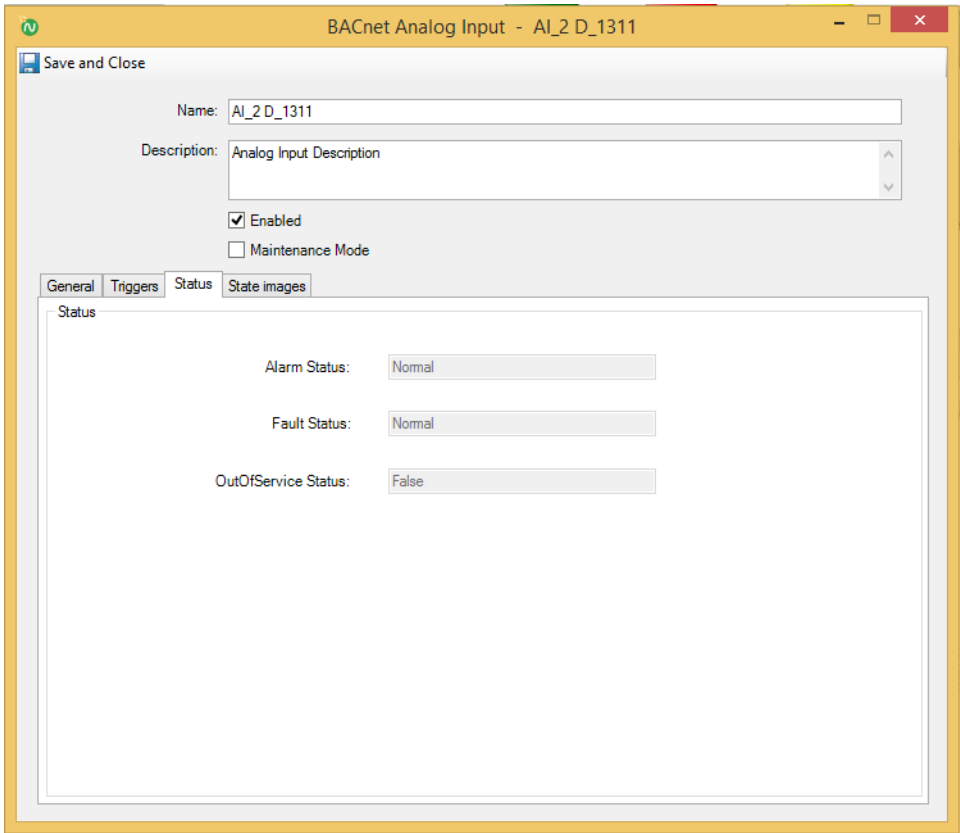


Figure 5-3: BACnet Object Status Tab

### BACnet Object Status Tab Definitions

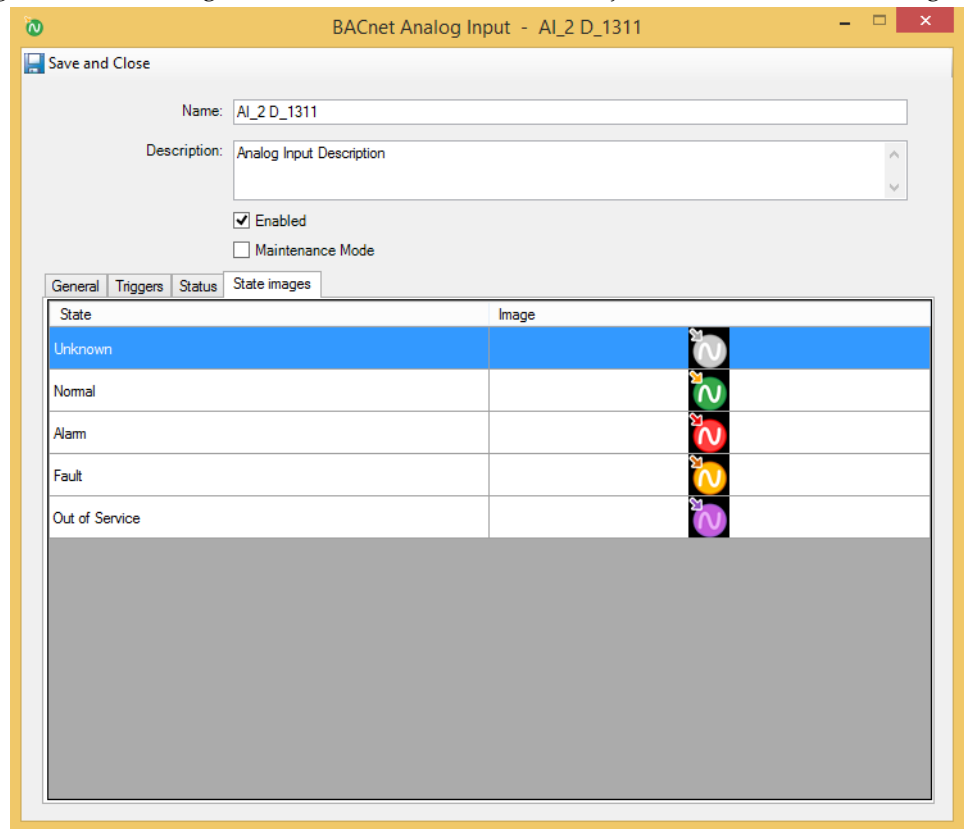
Table 5-4 on [page 5-12](#) provides BACnet Object Status tab definitions.

Table 5-4: BACnet Object Status Tab Definitions

Field	Definition
Alarm Status	Indicate the object is in alarm status. Valid value: Alarm or Normal.
Fault Status	Indicate the object is in fault status. Valid value: Fault or Normal
Outof service Status	Indicates the object is in service or not. Valid value: True or False.

## BACnet Object -State Images Tab

The BACnet Object State Images tab, shown in Figure 5-4 on [page 5-13](#), provides a means to change the default images used to indicate the BACnet Object states on the Monitoring Station.



**Figure 5-4:** BACnet Object State Images Tab

You can replace the default images with JPG formatted files of your choice, to uniquely identify your objects when activities are displayed on the Monitoring Station Client.

### Customizing State Images for a BACnet Object

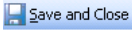
From the BACnet Object State Images tab, you can change the images that appear in the Monitoring Station to represent BACnet Objects.

#### To Customize BACnet Object State Images

1. From the BACnet Object State Images tab, double-click the existing image. A **Windows Open** dialog box appears allowing you to browse for a folder in which you have placed replacement images.
2. When you locate the replacement image, select it and click **Open** to replace the default image with this image.
3. When you are done editing the BACnet Object, click **Save and Close** to save the device configuration.

---

### To Restore the Default State Image

1. From the BACnet device State Image tab, select an existing image.
2. Right-click the image and select the Restore Default.
3. Click  to save the device configuration.



## BACnet Schedule Object - Object Configuration Tab

The BACnet Schedule Object - Object Configuration tab, shown in Figure 5-5 on [page 5-15](#), lets you set the name and description for the BACnet Schedule Object and configure the Object Property Reference settings for the device.

Bacnet Schedule Object - schedule obj 0

Save and Close Sync

Name: schedule obj 0

Description:

Object Configuration Schedule Configuration

Object Property Reference

Add Remove

BACnet Device	BACnet Object	Property
(OBJECT_DEVICE:1)	(OBJECT_BINARY_VALUE:0)	PROP_PRESENT_VALUE


**Figure 5-5:** BACnet Schedule Object - Object Configuration Tab

## BACnet Schedule Object - Object Configuration Tab Definitions

The BACnet Schedule Object - Object Configuration tab includes the fields described in Table 5-5 on [page 5-15](#).

**Table 5-5:** BACnet Schedule Object - Object Configurations Tab Definitions

Field	Description
Name	Schedule Name is imported from BACnet device, user can update the Name with up to 50 characters and Name cannot be duplicated with the existing one.
Description	Enter a general comment about the BACnet device that will help you identify the device. This text is for information only.
Object Property Reference	This property specifies the Device Identifiers, Object Identifiers and Property Identifiers of the properties to be written with specific values at specific times on specific days.
BACnet Device	Display device name of the Schedule Objects.

Field	Description
Default Value	<p>This property specifies the Device Identifiers, Object Identifiers and Property Identifiers of the properties to be written with specific values at specific times on specific days.</p> <p>The value must be comply with the object type in object property reference.</p>
Sync Button 	<p>Click the sync button: The Object configuration via victor synchronizes to BACnet Device.</p> <p>Note: If you click the save button not the sync button, the schedule date will only be saved to victor database.</p>

## BACnet Schedule Object - Schedule Configuration Tab

The BACnet Schedule Object - Schedule Configuration tab, shown in Figure 5-6 on [page 5-17](#), lets you set the name and description for the BACnet Schedule Object, and configure the Period and Schedule settings for the device.


**Figure 5-6:** BACnet Schedule Object - Schedule Configuration Tab

### BACnet Schedule Object - Schedule Configuration Tab Definitions

The BACnet Schedule Configuration tab includes the fields described in Table 5-1 on [page 5-5](#).

**Table 5-6:** BACnet Schedule Configurations Tab Definitions

Field	Description
Name	Schedule Name is imported from BACnet Device, user can update the Name with up to 50 characters and Name cannot be duplicated with the existing one.
Description	Enter a general comment about the BACnet Device that will help you identify the device. This text is for information only.
Effective Period	This property specifies the range of dates when the Schedule Object is active.
Weekly Schedule	This field corresponds to the days Monday – Sunday. Each day consists of a list of BACnet Time and Value pairs, which describe the sequence of schedule actions on one day of the week when no Exception Schedule is in effect.  The value must be comply with the object type in object property reference.

Field	Description
Exception Schedule	<p>This field describes a sequence of schedule actions that takes precedence over the normal day's behavior on a specific day or days.</p> <p>The value must be comply with the object type in object property reference.</p>
Sync button 	<p>Click the sync button: the Schedule configuration via victor synchronizes to BACnet Device.</p> <p>Note: If you click save button, not sync button, the schedule date will only be saved to victor database.</p>

## Acknowledge Ack-Required Event Notification

This chapter describes how to acknowledge ack-required event notification.

In this chapter:

- ◆ Acknowledge Ack-Required Event Notification Overview .....6-2
- ◆ Accessing the Ack-Required Event Notification List .....6-3
- ◆ Acknowledging Ack-required Event Notification.....6-4


## Acknowledge Ack-Required Event Notification Overview

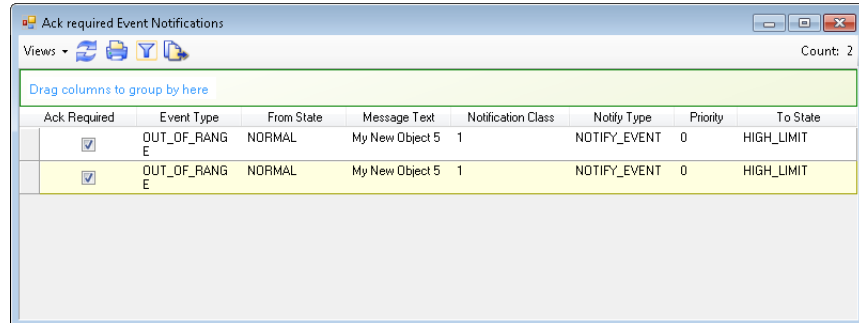
If BACnet objects use Event Notification mechanism to update data, and the subscribed Event Notification Class Required Acknowledgment, BMS integration can acknowledge ack-required event notifications from real BACnet device.

## Accessing the Ack-Required Event Notification List

Perform the following steps to access ack-required event notification list.

### To Access the Ack-Required Event Notification

1. In the Navigation pane of the C•CURE 9000 Administration Workstation, click Building Automation. The Building Automation pane opens.
2. Right click BACnet Devices folder, select  Ack Required from context menu to open the Ack Required Event Notification window.





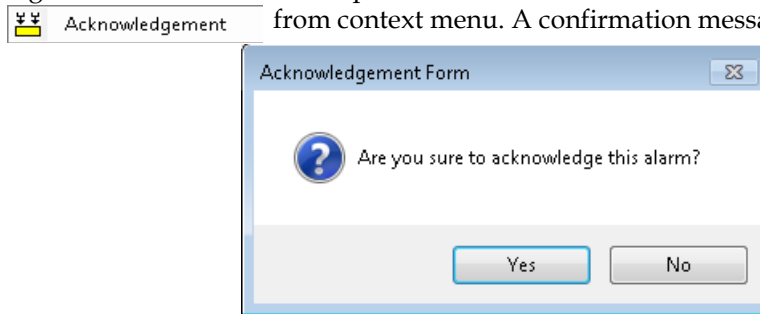
Ack Required	Event Type	From State	Message Text	Notification Class	Notify Type	Priority	To State
<input checked="" type="checkbox"/>	OUT_OF_RANGE	NORMAL	My New Object 5	1	NOTIFY_EVENT	0	HIGH_LIMIT
<input checked="" type="checkbox"/>	OUT_OF_RANGE	NORMAL	My New Object 5	1	NOTIFY_EVENT	0	HIGH_LIMIT

## Acknowledging Ack-required Event Notification

Perform the following steps to acknowledge ack-required event notification .

### To Acknowledge the Ack-Required Event Notification

1. In the Navigation pane of the C•CURE 9000 Administration Workstation, click Building Automation. The Building Automation pane opens.
2. Right click BACnet Devices folder, select  Ack Required from context menu to open the Ack Required Event Notification window.
3. Right click the desired ack-required event notification record, select  Acknowledgement from context menu. A confirmation message box is displayed.



4. Click Yes to acknowledge. After that, the selected record removed from the list.



## Widget on Map


This chapter describes how to set animation for BACnet objects by widget on map.

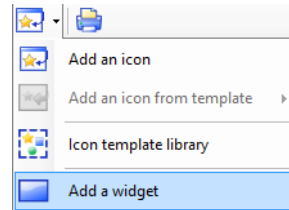
In this chapter:

- ◆ Overview .....7-2
- ◆ Adding a Widget on Map .....7-3
- ◆ Editing a Widget on Map.....7-10

## Overview




The integration support Fan, Boiler, Chiller, Cooler, Damper, Heater, Humidifier, Meter, Motor, Bargraph, Bulb Light, Green Pilot Light, Red Pilot Light, Yellow Pilot Light, Pump, Push Button, Sensor Controller, Sensor Display, Slider, Switch, Tank, Label, Multiple State, Text, Valve widgets.

After installed BMS integration, on map editor, there is an additional menu item on the  dropdown list, as shown in Figure 7-1 on [page 7-2](#).



**Figure 7-1:** Add a widget menu

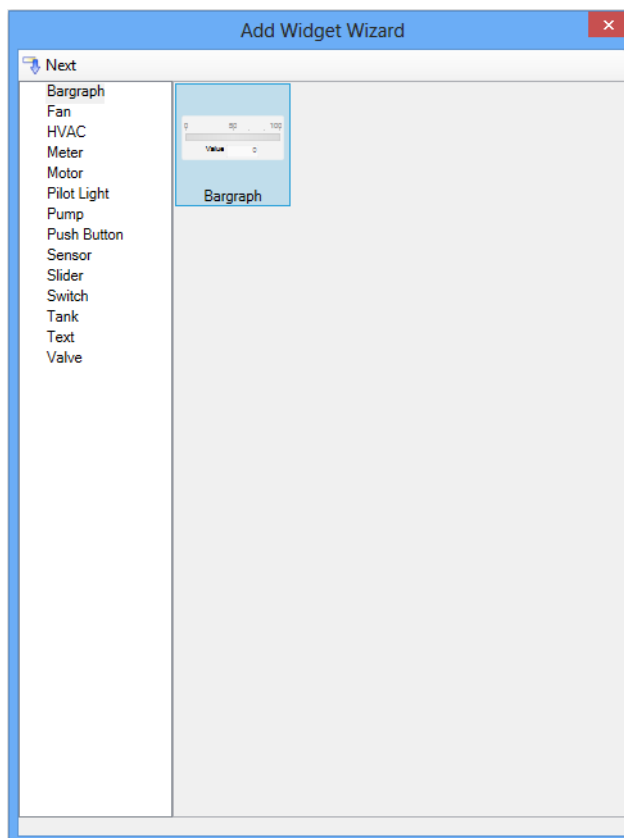
You can associate a C•CURE 9000 object with a widget, then the widget is able to display the realtime value, different animations for different state (refer to Animation column on Table 7-1), additional alarm/fault/disable markup for alarm/fault/disable state.

Alarm markup is , Fault markup is , Disable markup is . The priority of these state is Disable > Alarm > Fault.

## Adding a Widget on Map

Perform the following steps to add a Widget on map.

1. On a map editor, click the arrow on . The context menu for the button appears.
2. Select Add a Widget menu, open Add a Widget Wizard window, as shown in Figure 7-2 on [page 7-3](#).





**Figure 7-2:** Add Widget Wizard - Widget List

3. Select one Widget type from the list on the left, the available widgets will list on the right.

All widgets can be binding to input/value object. The widget is recommended to bind to output object if it can be operated, such as Sensor Controller, Switch, Tank, BulbLight, PushButton, Bargraph, Slider, Text.

**Table 7-1:** Widget Descriptions

Name	Description	Properties	Options	Animation
Heater	The widget reflects heating output percent (0~100%).	Alarm Status Enabled Fault Status Object Name Present Value	Alarm Annunciation: Blink, Normal, Hide Fault Annunciation: Blink, Normal, Hide Show Present Value: True or False. True means to display the present value in view mode. Default value is false.	 Heater is off.
				 Heater is on, and the red frame size will adjust according to the heating output.

**Table 7-1:** Widget Descriptions

Name	Description	Properties	Options	Animation
Cooler	The widget reflects cooling output percent (0~100%).	Alarm Status Enabled Fault Status Object Name Present Value	Alarm Annunciation: Blink, Normal, Hide Fault Annunciation: Blink, Normal, Hide Show Present Value: True or False. True means to display the present value in view mode. Default value is false.	 Cooler is off.
				 Cooler is on, and the blue snowflake size will adjust according to the cooling output.
Boiler	The widget reflects boiler output percent (0~100%).	Alarm Status Enabled Fault Status Object Name Present Value	Alarm Annunciation: Blink, Normal, Hide Fault Annunciation: Blink, Normal, Hide Show Present Value: True or False. True means to display the present value in view mode. Default value is false.	 Boiler is off.
				 Boiler is on and the red flame size will adjust according to the boiler output.
Chiller	The widget reflects chiller output percent (0~100%).	Alarm Status Enabled Fault Status Object Name Present Value	Alarm Annunciation: Blink, Normal, Hide Fault Annunciation: Blink, Normal, Hide Show Present Value: True or False. True means to display the present value in view mode. Default value is false.	 Chiller is off.
				 Chiller is on.
Humidifier	The widget reflects humidifier output percent (0~100%).	Alarm Status Enabled Fault Status Object Name Present Value	Alarm Annunciation: Blink, Normal, Hide Fault Annunciation: Blink, Normal, Hide Show Present Value: True or False. True means to display the present value in view mode. Default value is false.	 Humidifier is off.
				 Humidifier is on.
Fan	The widget reflects fan output percent (0~100%).	Alarm Status Enabled Fault Status Object Name Present Value	Alarm Annunciation: Blink, Normal, Hide Fault Annunciation: Blink, Normal, Hide Rotation: 0~360 Show Present Value: True or False. True means to display the present value in view mode. Default value is false.	 Fan is off.
				 When fan output is higher than 0, the fan leaf will go round. The speed will adjust according to the fan output.
Pump	The widget reflects pump output percent (0~100%).	Alarm Status Enabled Fault Status Object Name Present Value	Alarm Annunciation: Blink, Normal, Hide Fault Annunciation: Blink, Normal, Hide Rotation: 0~360 Show Present Value: True or False. True means to display the present value in view mode. Default value is false.	 Pump is off.
				 When pump output is higher than 0, the pump leaf will go round. The speed will adjust according to the pump output.

Table 7-1: Widget Descriptions










Name	Description	Properties	Options	Animation
Damper	The widget reflects damper output percent (0~100%).	Alarm Status Enabled Fault Status Object Name Present Value	Alarm Annunciation: Blink, Normal, Hide Fault Annunciation: Blink, Normal, Hide Show Present Value: True or False. True means to display the present value in view mode. Default value is false.	 Damper is off.
				 When damper output is higher than 0, the grid of damper will sway. The speed will adjust according to the damper output.
Valve	The widget reflects valve position range of 0~100%.	Alarm Status Enabled Fault Status Object Name Present Value	Alarm Annunciation: Blink, Normal, Hide Fault Annunciation: Blink, Normal, Hide Rotation: 0~360 Show Present Value: True or False. True means to display the present value in view mode. Default value is false.	 Valve is closed.
				 When valve output is higher than 0, the valve will open. The valve position will adjust according to the valve output
Motor	The widget reflects motor on/off state, and provides motor speed value, e.g. 1,800 rpm.	Alarm Status Enabled Fault Status Object Name Present Value	Alarm Annunciation: Blink, Normal, Hide Fault Annunciation: Blink, Normal, Hide Show Present Value: True or False. True means to display the present value in view mode. Default value is false.	 Motor is off.
				 Motor is on.
Tank	The widget reflects how many percent have been filled in tank (1~100%).	Alarm Status Enabled Fault Status Object Name Present Value	Alarm Annunciation: Blink, Normal, Hide Fault Annunciation: Blink, Normal, Hide Large Change: the value to be changed when presses the PAGE UP or PAGE DOWN key or clicks the track bar. Default value is 1. Maximum Valve:100 Minimum Value: 0 Show Present Value: True or False. True means to display the present value in view mode. Default value is false. Small Change: the value to be changed when presses arrow key. Default value is 0.1.	 Tank is off.
				 Tank is on and the scale will adjust according to the tank output
Meter	The widget displays an analog value.	Alarm Status Enabled Fault Status Object Name Present Value	Alarm Annunciation: Blink, Normal, Hide Fault Annunciation: Blink, Normal, Hide Maximum Valve:180 Minimum Value: 0 Show Present Value: True or False. True means to display the present value in view mode. Default value is false.	

Table 7-1: Widget Descriptions











Name	Description	Properties	Options	Animation
Sensor Controller	The widget displays the sensor analog value together with its unit. E.g. 72.9°F.	Alarm Status Enabled Fault Status Object Name Present Value	Alarm Annunciation: Blink, Normal, Hide Fault Annunciation: Blink, Normal, Hide Maximum Valve:100 Minimum Value: 0 Step Value: the increase or decrease step value. Default value is 1. Unit: the unit of value	 Click up arrow button to increase sensor value by one step, click down arrow button to decrease sensor value by one step.
Sensor Display	The widget displays the sensor analog value together with its unit. E.g. 72.9°F.	Alarm Status Enabled Fault Status Object Name Present Value	Alarm Annunciation: Blink, Normal, Hide Fault Annunciation: Blink, Normal, Hide Maximum Valve:100 Minimum Value: 0 Step Value: 1 Unit: the unit of value	
Switch	The widget reflects on/off state of binary input/value. Click this widget is change the binary input/value status.	Alarm Status Enabled Fault Status Object Name Present Value	Alarm Annunciation: Blink, Normal, Hide Fault Annunciation: Blink, Normal, Hide	 Switch is off.
				 Switch is on.
BulbLight	The widget reflects on/off state of binary input/value. Click this widget is change the binary input/value status.	Alarm Status Enabled Fault Status Object Name Present Value	Alarm Annunciation: Blink, Normal, Hide Fault Annunciation: Blink, Normal, Hide Rotation: 0~360	 Bulb is off.
				 Bulb is on.
Polit Light	The widget reflects on/off state of binary output/ value.	Alarm Status Enabled Fault Status Object Name Present Value	Alarm Annunciation: Blink, Normal, Hide Fault Annunciation: Blink, Normal, Hide	 Polit light is off.
				 Green polit light is on.
				 Yellow polit light is on.
				 Red polit light is on.

Table 7-1: Widget Descriptions





Name	Description	Properties	Options	Animation
Push Button	The widget reflects on/off state of binary input/value. Click this widget is change the binary input/value status.	Alarm Status Enabled Fault Status Object Name Present Value	Alarm Annunciation: Blink, Normal, Hide Fault Annunciation: Blink, Normal, Hide	 Push button is off.
				 Push button is on.
Bargraph	The widget displays an analog value together with Name. The user can change the value in text box.	Alarm Status Enabled Fault Status Object Name Present Value	Alarm Annunciation: Blink, Normal, Hide Fault Annunciation: Blink, Normal, Hide Maximum Valve:100 Minimum Value: 0 Unit: the unit of value The unit/maximum/minimum is configurable.	
Slider	The widget displays an analog value. The user can change the value by slider or input the value in text box directly.	Alarm Status Enabled Fault Status Object Name Present Value	Alarm Annunciation: Blink, Normal, Hide Fault Annunciation: Blink, Normal, Hide Large Change: the value to be changed when presses the PAGE UP or PAGE DOWN key or clicks the track bar. Default value is 1. Maximum Valve: 100 Minimum Value: 0 Small Change: the value to be changed when presses arrow key. Default value is 0.1. Unit: the unit of value The minimum/maximum is configurable.	
Label	The widget displays a readonly analog value together with Name.	Alarm Status Enabled Fault Status Object Name Present Value	Alarm Annunciation: Blink, Normal, Hide Fault Annunciation: Blink, Normal, Hide Unit: the unit of value The unit/name is configurable.	AI_2 D_1221 : 8
MultipleState	The widget displays a readonly multistate value together with name. The name is configurable.	Alarm Status Enabled Fault Status Object Name Present Value Number of States	Alarm Annunciation: Blink, Normal, Hide Fault Annunciation: Blink, Normal, Hide State Text: split with " , ".	MI_2 D_1221 : off

Table 7-1: Widget Descriptions

Name	Description	Properties	Options	Animation
Text	The widget displays an analog value together with Unit or Name. The user can change the value in text box.	Alarm Status Enabled Fault Status Object Name Present Value	Alarm Annunciation: Blink, Normal, Hide Fault Annunciation: Blink, Normal, Hide Maximum Value: 100 Minimum Value: 0 Unit: the unit of value  The unit/name/maximum/minimum is configurable.	AI_2 D_1221 <input type="text" value="8"/>

4. Select the desired widget, click Next, the wizard show widget configuration form, as shown in Figure 7-3 on [page 7-8](#) and the wizard title will include widget name.

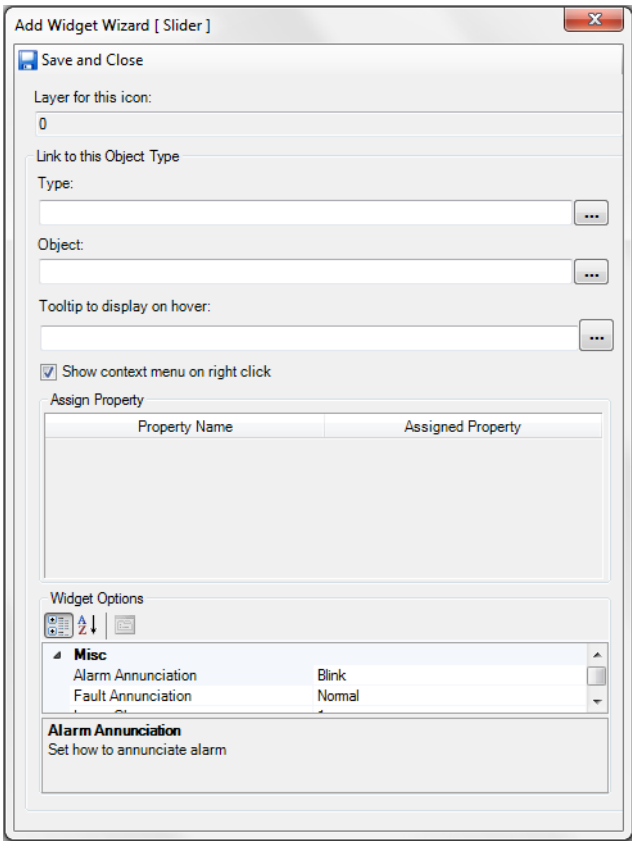


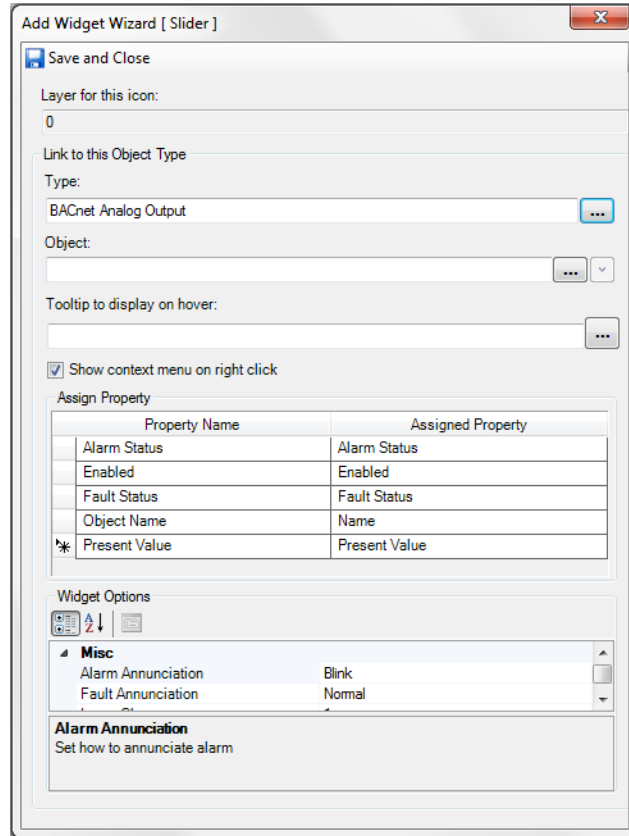
Figure 7-3: Widget Configuration Form

5. Click  in the Type field to open a **Select Type** dialog box that allows you to select a BACnet object type linking to this widget. Click the BACnet object type you want to link to this widget.

Once BACnet object type selected, system will assign properties automatically if the widget’s property name equals object’s property name. If name doesn’t match, the corresponding Assigned Property is empty, and then manual assignment is needed. Click the cell, select desired property from drop-down list.



Every widget supports Alarm Status, Enabled, Fault Status, Object Name, Present Value properties.






**Figure 7-4:** Widget Configuration - Assign Property

6. Click [...] in the **Object** field to open a dialog box that allow you to select an object of the type you just selected. Click the object you want to choose for this widget.
7. You can type a tooltip in the **Tooltip to Display on Hover** field if you want to display a tooltip message about this widget.
8. Refer to Options column of Table 7-1 to configure the widget options.
9. Click [Save and Close], this widget is added into map with red frame.
10. Adjust the widget's position in the map by drag and drop.
11. Adjust the widget's size by mouse wheel.
12. Right click this widget, select **Save Widget** from context menu to save this widget.
13. When completed map configuration, click [Save and Close] to save this map.

## Editing a Widget on Map

Perform the following steps to edit a Widget on map.

1. Open an existing map, click . The cursor becomes a cross-hair.
2. Right-click the widget and choose Edit Widget from the context menu to configure widget.
3. Follow 5~8 steps in “Adding a Widget on Map” to edit the widget.
4. Click  Save and Close , this widget is added into map with red frame.
5. Adjust the widget's position in the map by drag and drop.
6. Adjust the widget's size by mouse wheel.
7. Right click this widget, select **Save Widget** from context menu to save this widget.
8. When completed map configuration, click  Save and Close to save this map.

## BACnet Event Action

This chapter describes BACnet event action that affects BACnet object.

In this chapter:

◆ BACnet Event Action.....	8-2
◆ Configuring BACnet Object Action.....	8-4

BACnet Event Action

BMS Integration supports a BACnet Object action that affect BACnet object in BACnet device. And BACnet Object Action will be audited when created or deleted.

As shown in Figure 8-1 on [page 8-2](#), only one BACnet specific action is available - BACnet Object Action.

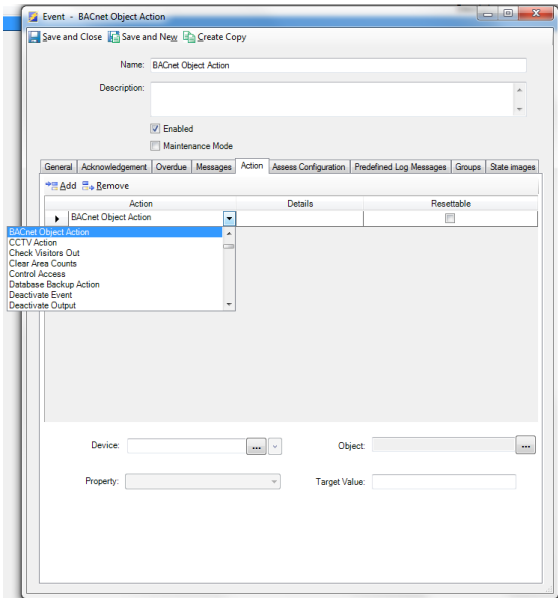


Figure 8-1: BACnet Specific Actions List

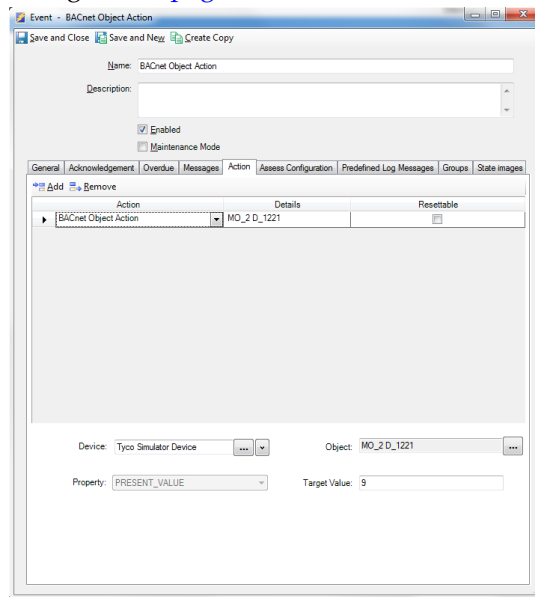
Table 8-1 on [page 8-2](#) provides the action and its target object respectively.

Table 8-1: Actions and Target object

Action	Target Object	Explanation
BACnet Object Action	BACnet Object	The BACnet object action will change the selected BACnet object's present value to the configured value.

## BACnet Object Action Definition



When you select BACnet Object Action in the Action drop-down list, the related field and pane appears, as shown in Figure on [page 8-3](#).



**Figure 8-2:** BACnet Object Action

Table 8-2 on [page 8-3](#) provides BACnet Object Action definition:

**Table 8-2:** Action Tab-BACnet Object Action Definitions


Field	Description
Device	Click  to open the <b>Device</b> list. Select a BACnet device that the target object of this action belongs to.
Object	Click  to open the <b>Object</b> list. It will list all BACnet objects available on the selected BACnet device. Select a BACnet object as the target object of this action.
Property	Only support present value now.
Target Value	<p>Set the target value that this action will change to.</p> <p>For Binary Input/Output/Value object, the valid target value is Binary_Active, Binary_Inactive, Binary_Null. You can select desired target value from dropdown list.</p> <p>For Analog Input/output/Value, Mutistate Input/Output/Value, you can enter number directly on textbox.</p>

## Configuring BACnet Object Action

Perform the following steps to configure a BACnet object action.


### To Configure a BACnet Object Action

1. Create an Event named **Change AI Value**. See how to create an Event in *C•CURE 9000 User Software Configuration Guide*.
2. Open this **Change AI Value** event, select **Action** tab, and then select **BACnet Object Action** in the **Action** field.

In the **Device** field, click the  to open the BACnet device list. In the BACnet device list, select a BACnet device that the target object of this action belongs to.

#### Example:

Select **Tyco Simulator Device**.

In the **Object** field, click the  to open the BACnet object list. In the BACnet object list, select a BACnet object as the target object of this action.

#### Example:

Select **AI\_2 D\_1221**.

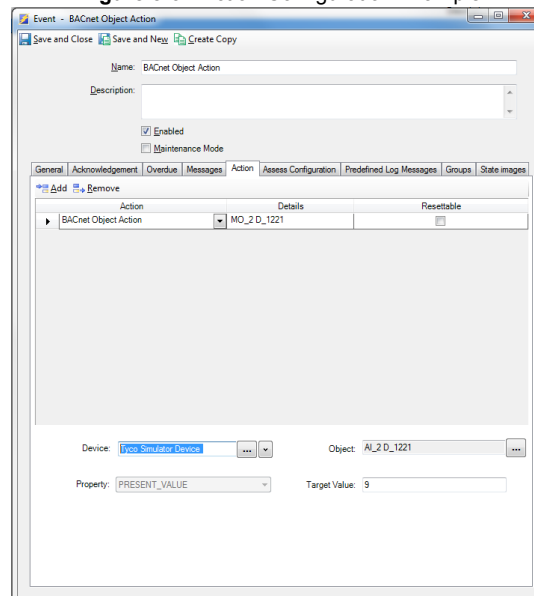
In the **Target Value** field, enter the target value for present value property.


#### Example:

Enter **9**.

Figure 8-3 on [page 8-4](#) shows the configuration details.




**Figure 8-3: Action Configuration Example**



3. Click  , this BACnet Object action is created. In the Audit Log report, you can find this audit as shown in below.

Object Created	12/2/2014 12:13:38	Action Item ('Action: 1 - BACnet Object Command on 'AI_2 D_1221' when Active Status is Active') owned by Event ('Change AI Value') was created by 'victor'.
----------------	--------------------	---

4. Activate this Event, which will change present value of AI\_2 D\_1221 to 9, as shown in the following Journal.1

	11/25/2014 3:17:56 PM	Manual action by 'victor': Activate Event 'BACnet Object Action' from 11/25/2014 3:17:54 PM to 11/25/2014 4:17:00 PM.
	11/25/2014 3:17:56 PM	Event 'BACnet Object Action' is active causer Manual Action by victor.
	11/25/2014 3:17:57 PM	PresentValue of AnalogInput 'AI_2 D_1221' on BACnet Device 'Tyco Simulator Device ' Changed to 9.





## BACnet Gateway Template Editor

This chapter describes how to maintenance BACnet Gateway Templates.

In this chapter:

- ◆ BACnet Gateway Template Overview ..... 9-2
- ◆ Viewing the Available BACnet Gateway Template list ..... 9-3
- ◆ Viewing the Mapping Definition of the BACnet Gateway Template ..... 9-4
- ◆ Creating a New BACnet Gateway Template ..... 9-5
- ◆ Editing a BACnet Gateway Template ..... 9-6
- ◆ Removing a BACnet Gateway Template ..... 9-7

## BACnet Gateway Template Overview

The BACnet gateway template defines the mapping definition on how to map C•CURE 9000 objects to BACnet objects.

The BMS integration provides the default gateway templates and also provide the way to customize gateway template.


BMS Integration provides the following default gateway templates:

- iStar people counting gateway template - this template maps the UserCountStatus property of Area to the present value of BACnet Analog Input.
- Default Event Template - this template maps the ActiveStatus of Event to present value of BACnet Binary Input.

## Viewing the Available BACnet Gateway Template list

Perform the following steps to view the available BACnet gateway template list.

### To View the Available BACnet Gateway Template List

1. In the Navigation pane of the C•CURE 9000 Administration Workstation, click Building Automation. The Building Automation pane opens.
2. Right click the BACnet Gateways folder, and select  Manage Templates from context menu to open the BACnet Gateway Template window. This window lists all available BACnet Gateway Templates, including default gateway templates.

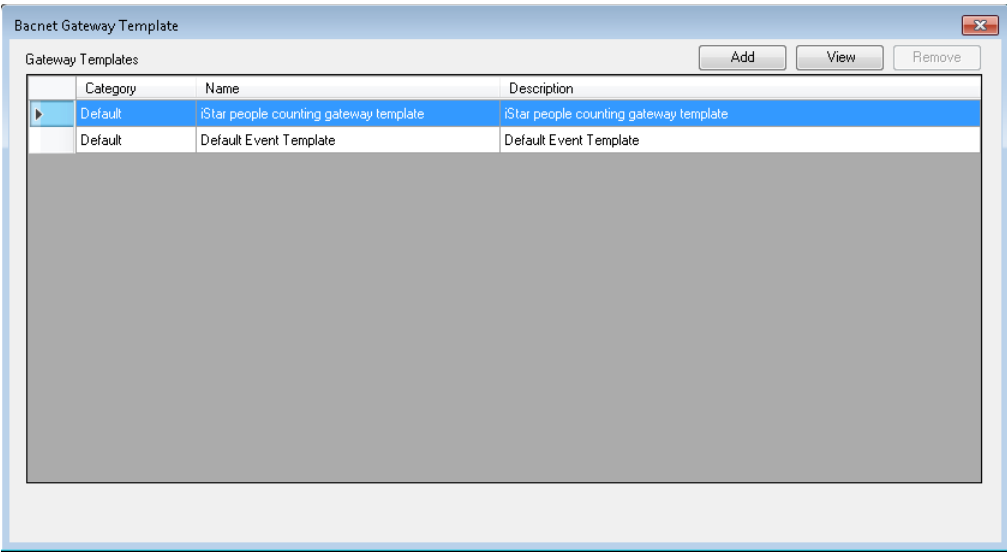



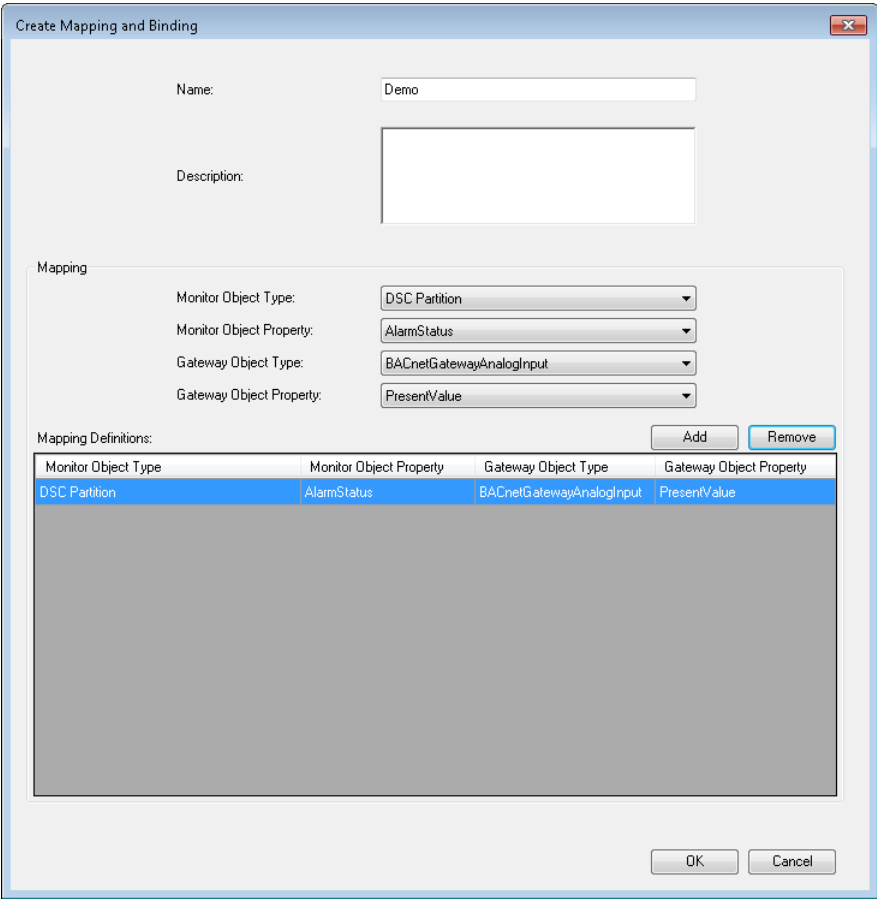
Figure 9-1: BACnet Gateway Template

## Viewing the Mapping Definition of the BACnet Gateway Template

Perform the following steps to view the mapping definition of the specific BACnet Gateway Template.

### To View the Mapping Definition of the Specific BACnet Gateway Template

1. In the Navigation pane of the C•CURE 9000 Administration Workstation, click Building Automation. The Building Automation pane opens.
2. Right click the BACnet Gateways folder, and select  Manage Templates from context menu to open the BACnet Gateway Template window, as shown in Figure 9-1 on [page 9-3](#).
3. Select the desired template, click View button to open a window to show the mapping definition of this template.



Create Mapping and Binding

Name: Demo

Description:

Mapping

Monitor Object Type: DSC Partition

Monitor Object Property: AlarmStatus

Gateway Object Type: BACnetGatewayAnalogInput

Gateway Object Property: PresentValue

Mapping Definitions:

Monitor Object Type	Monitor Object Property	Gateway Object Type	Gateway Object Property
DSC Partition	AlarmStatus	BACnetGatewayAnalogInput	PresentValue

Add Remove

OK Cancel


Figure 9-2: Create Mapping and Binding

## Creating a New BACnet Gateway Template

Perform the following steps to create a new BACnet Gateway Template.

---

### To Create a New BACnet Gateway Template

1. In the Navigation pane of the C•CURE 9000 Administration Workstation, click Building Automation. The Building Automation pane opens.
2. Right click the BACnet Gateways folder, and select  Manage Templates from context menu to open the BACnet Gateway Template window, as shown in Figure 9-1 on [page 9-3](#).
3. Click Add button to open a Create Mapping and Binding window, as shown in Figure 9-2 on [page 9-4](#).
4. Type a unique name in the Name field.
5. Type a textual description for the this template in the Description field.
6. Select C•CURE 9000 object type from Monitor Object Type drop-down list, then select object property of the selected object type from Monitor Object Property drop-down list; Select gateway object type from Gateway Object Type drop-down list, then select gateway object property of the selected gateway object type from Gateway Object Property.
7. Click Add button to add above mapping definition. Then this mapping definition show on the Mapping Definition frame.
8. Repeat steps5~step6 to add more mapping definitions, or select one mapping definition from Mapping Definitions list then click Remove button to remove the selected mapping definition.
9. If you are done mapping definitions for this template, click OK to save and exit.


## Editing a BACnet Gateway Template

For the user-defined BACnet gateway template, if haven't been used yet, it can be changed if needed.

Perform the following steps to edit a BACnet Gateway Template.

---

### To Edit a BACnet Gateway Template

1. In the Navigation pane of the C•CURE 9000 Administration Workstation, click Building Automation. The Building Automation pane opens.
2. Right click the BACnet Gateways folder, and select  Manage Templates from context menu to open the BACnet Gateway Template window.
3. Select one desired BACnet Gateway Template, click Edit button to open Create Mapping and Binding window.
4. Type a unique name in the Name field.
5. Type a textual description for the this template in the Description field.
6. Select C•CURE 9000 object type from Monitor Object Type drop-down list, then select object property of the selected object type from Monitor Object Property drop-down list; Select gateway object type from Gateway Object Type drop-down list, then select gateway object property of the selected gateway object type from Gateway Object Property.
7. Click Add button to add above mapping definition. Then this mapping definition show on the Mapping Definition frame.
8. Repeat steps 5~step 6 to add more mapping definitions, or select one mapping definition from Mapping Definitions list then click Remove button to remove the selected mapping definition.
9. If you are done mapping definitions for this template, click OK to save and exit.


#### NOTE

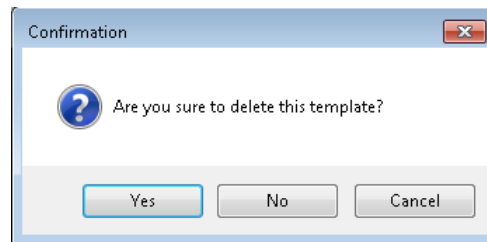
For the default gateway template and the template which has been used, there is no Edit button available.

## Removing a BACnet Gateway Template

Perform the following steps to remove a BACnet Gateway Template.

### To Remove a BACnet Gateway Template

1. In the Navigation pane of the C•CURE 9000 Administration Workstation, click Building Automation. The Building Automation pane opens.
2. Right click the BACnet Gateways folder, and select  Manage Templates from context menu to open the BACnet Gateway Template window, as shown in Figure 9-1 on [page 9-3](#).
3. Select one desired template, click Remove button. A confirmation dialog box opens.



4. Click Yes, this template removed from BACnet Gateway Template list.

#### **NOTE**

For the default gateway template and the template which has been used, the remove button is grayed out.





# BACnet Gateway Device Editor

This chapter describes BACnet Gateway Device Editor.

In this chapter:

- ◆ BACnet Gateway Device Editor Overview .....10-2
- ◆ Accessing the BACnet Gateway Device Editor .....10-3
- ◆ Adding a BACnet Gateway Device Object .....10-4
- ◆ Deleting a BACnet Gateway Device Object .....10-5
- ◆ BACnet Gateway Device General Tab .....10-6
- ◆ Configuring a BACnet Gateway Device Object .....10-8

## BACnet Gateway Device Editor Overview

The BACnet gateway device represents the device that contains BACnet objects mapping from C•CURE 9000 objects.

## Accessing the BACnet Gateway Device Editor

Perform the following steps to access the BACnet Gateway Device editor.

---

### To Access the BACnet Gateway Device Editor

1. In the Navigation pane of the C•CURE 9000 Administration Workstation, click Building Automation. The Building Automation pane opens.
2. Right click the BACnet Gateways folder, select New from context menu.

The BACnet Gateway Device Editor opens with the General tab visible.

## Adding a BACnet Gateway Device Object

Perform the following steps to add a BACnet Gateway Device object.

### To Add a BACnet Gateway Device Object

1. In the Navigation pane of the C•CURE 9000 Administration Workstation, click Building Automation. The Building Automation pane opens.
2. Right click the BACnet Gateways folder, then select New from context menu, the BACnet Gateway Device editor opens.
3. Type a unique name in the Name field.
4. Type a textual description for the BACnet Gateway device in the Description field.
5. See “BACnet Gateway Device General Tab” on [page 10-6](#) to configure communication information.

#### **NOTE**


If the Network ID of the BACnet gateway device is 0, MAC Address is not necessary, but if Network ID is not 0, you must enter MAC Address to identify device.

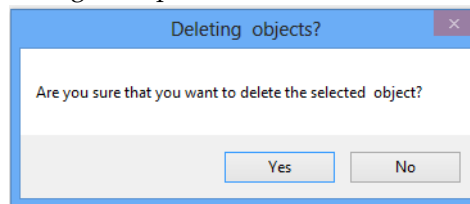
6. Check the Enabled option to make BACnet Gateway Device work.
7. If you are done editing the BACnet gateway device, click to save the BACnet gateway device configuration.

## Deleting a BACnet Gateway Device Object

You can delete a BACnet gateway device from the Building Automation tree or from the dynamic view if you no longer need it.


### To Delete a BACnet Gateway Device Object from the Building Automation Tree

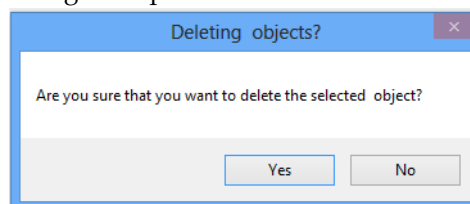
1. In the Navigation pane of the C•CURE 9000 Administration Workstation, click Building Automation. The Building Automation pane opens.
2. Open the BACnet Gateways folder by clicking  to the left of folder.
3. Right-click a BACnet gateway device object to be deleted and select **Delete** from context menu. A confirmation dialog box opens.



4. Click Yes. After a while, this BACnet gateway device object and all BACnet objects in this device are deleted from Building Automation tree and C•CURE 9000 database.

### To Delete a BACnet Gateway Device Object from the Dynamic View

1. In the Navigation pane of the C•CURE 9000 Administration Workstation, click Building Automation. The Building Automation pane opens.
2. Select BACnet Gateways from Building Automation pane drop-down list.
3. Click  to open a Dynamic View showing all BACnet Gateway Devices objects.
4. Right-click a BACnet gateway device object to be deleted and select **Delete** from context menu. A confirmation dialog box opens.



5. Click Yes. After a while, this BACnet gateway device object and all BACnet objects in this device are deleted from Building Automation tree and C•CURE 9000 database.

## BACnet Gateway Device General Tab

The BACnet Gateway Device General tab, shown in Table 10-1 on [page 10-6](#), lets you set the name and description for the BACnet Gateway device, and configure the communication settings for the device.

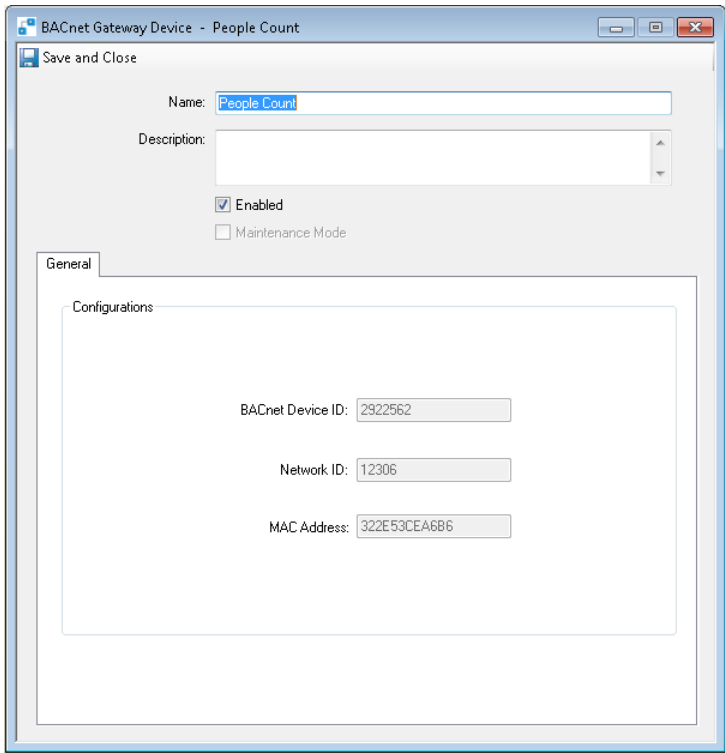


Figure 10-1: BACnet Gateway Device - General Tab

### BACnet Gateway Device General Tab Definitions

The BACnet Gateway Device General tab includes the fields described in Table 10-1 on [page 10-6](#).

Table 10-1: BACnet GatewayDevice General Tab Definitions

Field	Description
Name	Enter a unique name up to 50 characters long for BACnet Gateway Device. If you enter the name of an existing object, the system will not save the object, and will display an error message indicating there is a conflict. Choose a different name.
Description	Enter a general comment about the BACnet gateway device that will help you identify the device. This text is for information only.
Enabled	Select the Enabled option to make BACnet gateway device work on system, or clear this option to disable the BACnet gateway Device.The default value is enabled.  You can change BACnet Device ID, MAC Address, Network ID when disabled BACnet gateway device.
Configuration	
BACnet Device ID	BACnet gateway device ID, which must be unique on the network. Read only.


Field	Description
MAC Address	MAC address of BACnet gateway device. Read only.
Network ID	Network ID of BACnet gateway device. Read only.

## Configuring a BACnet Gateway Device Object

You can use the BACnet Gateway Device Editor to configure settings for BACnet gateway device.

---

### To Configure a BACnet Device Object


1. In the Navigation pane of the C•CURE 9000 Administration Workstation, click Building Automation. The Building Automation pane opens.
2. Open the BACnet Gateway folder by clicking  to the left of folder.
3. Double-click a BACnet gate device icon or name or right-click a BACnet gateway device and select Edit from context menu, the BACnet gateway device editor opens.
4. Type a unique name in the Name field.
5. Type a textual description for the BACnet gateway device in the Description field.
6. See “BACnet Gateway Device General Tab” on [page 10-6](#) to configure communication information.
7. Check the Enabled option to make BACnet gateway device work.
8. If you are done editing the BACnet gateway device, click to save the BACnet gateway device configuration.

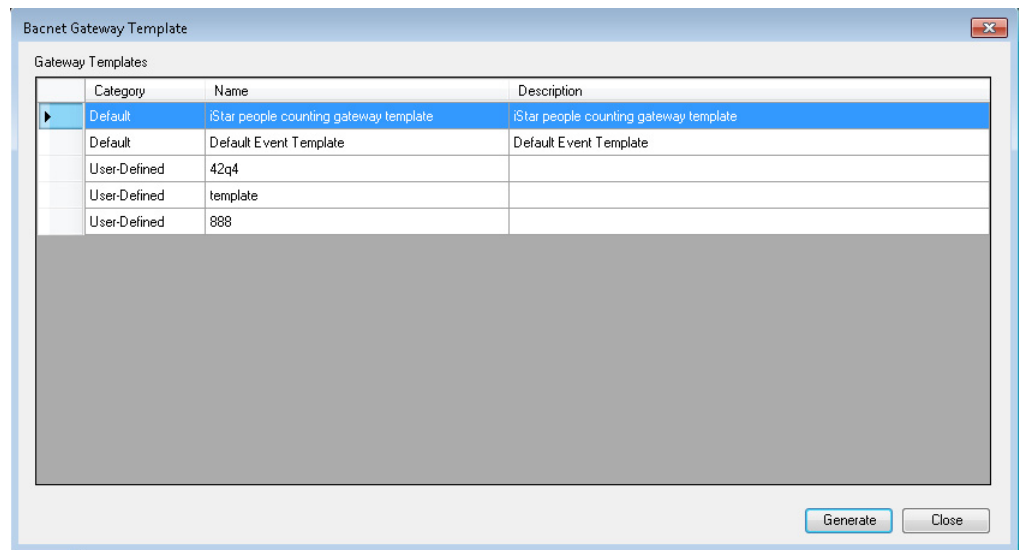


## Creating Monitored Mapping for BACnet Gateway Device

Perform the following steps to create Monitored Mapping for BACnet Gateway Device.

### To Create Monitored Mapping for BACnet Gateway Device

1. In the Navigation pane of the C•CURE 9000 Administration Workstation, click Building Automation. The Building Automation pane opens.
2. Open the BACnet Gateways folder by clicking  to the left of folder.
3. Right click one specific BACnet Gateway device, select Create Monitored Mapping from context menu. The BACnet Gateway Template window opens.




4. Select one template, click Generate button. The Create Mapping and Binding window opens. By default, one mapping definition is selected, and the corresponding monitored instances list on the Binding Instances frame.
5. Select one Mapping Definition, then select the instances to be monitored. Click Select All to select all instances or click Unselect All to unselect all instances.
6. Click Generate to generate BACnet gateway objects. After a while, the output summary window opens to list all BACnet gateway objects and mapping results. The BACnet Gateway Object name created automatically, following the rule: BACnet object type+instance name+object property.

## Viewing BACnet Gateway Monitored Objects


Perform the following steps to view BACnet Gateway Monitored Objects.

**To view the mapping reports for BACnet Gateway Device**

- 1. In the Navigation pane of the C•CURE 9000 Administration Workstation, click Building Automation. The Building Automation pane opens.
- 2. Select BACnet Gateways Monitored Objects from Building Automation pane tooltrip drop-down list.
- 3. Click  to open a Dynamic View showing all Monitored Objects that have been mapped.

The BACnet gateway monitor object grouped by Monitor Object Type by default.

BACnet Gateway Monitored Object x

views  Count: 4

Monitor Object Type


Area (2)				
Name	Monitor Object Property	Gateway Device Name	Gateway Object Type	Gateway Object Property
Area in	UserCountStatus	e	BACnet Gateway Analog Input	PresentValue
Area out	UserCountStatus	e	BACnet Gateway Analog Input	PresentValue

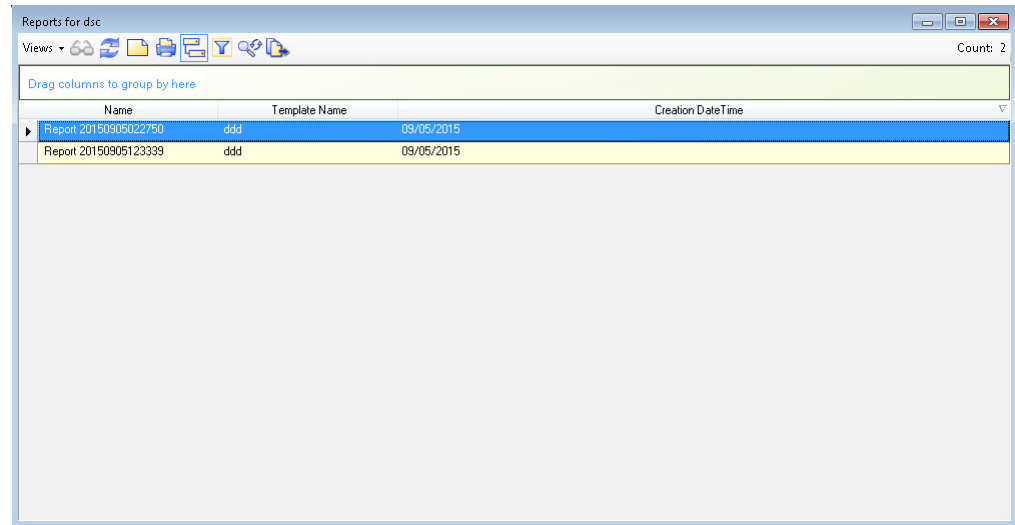
DSC Partition (2)

## Viewing the Mapping Reports for BACnet Gateway Device

Perform the following steps to view the mapping reports for BACnet Gateway Device.

### To view the mapping reports for BACnet Gateway Device

1. In the Navigation pane of the C•CURE 9000 Administration Workstation, click Building Automation. The Building Automation pane opens.
2. Open the BACnet Gateways folder by clicking  to the left of folder.
3. Right click one specific BACnet Gateway device, select View Mapping Reports from context menu. The Mapping Report window opens.



4. Right click one specific report, select View Details from context menu. A window opens to display the detailed information, including Template Name, Template Definition, Mapping instances.



# BACnet Gateway Object Editor

This chapter describes BACnet Gateway Object Editor.

In this chapter:

◆ BACnet Gateway Object Editor Overview .....	11-2
◆ Accessing the BACnet Gateway Object Editor .....	11-3
◆ Deleting a BACnet Gateway Object .....	11-4
◆ BACnet Gateway Object General Tab .....	11-5
◆ Configuring a BACnet Gateway Object .....	11-6

## BACnet Gateway Object Editor Overview



The BACnet Gateway Object represents the BACnet Gateway Object in the C•CURE 9000 database.

## Accessing the BACnet Gateway Object Editor

Perform the following steps to access the BACnet Gateway Object editor.

---

### To Access the BACnet Gateway Object Editor

1. In the Navigation pane of the C•CURE 9000 Administration Workstation, click Building Automation. The Building Automation pane opens.
2. Expand the BACnet Gateways folder by clicking  to the left of folder.
3. Expand the Analog Input/AnalogOutput/Analog Value/Binary Input/Binary Output/Binary Value/Multistate Input/Multistate Output/Multistate Value folder by clicking  to the left of folder.
4. To open the BACnet Gateway Object editor to edit an existing BACnet Gateway Object, double-click a BACnet Gateway Object icon or name or right-click a BACnet Gateway Object and select Edit from context menu.


The BACnet Gateway Object Editor opens with the General tab visible.

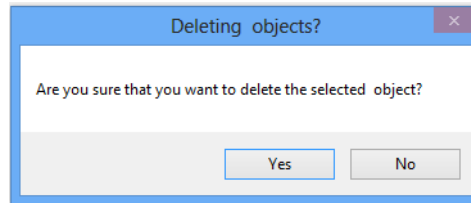
## Deleting a BACnet Gateway Object

You can delete a BACnet Gateway Object from the Building Automation tree or from the dynamic view if you no longer need it.

---

### To Delete a BACnet Gateway Object from the Building Automation Tree


1. In the Navigation pane of the C•CURE 9000 Administration Workstation, click Building Automation. The Building Automation pane opens.
2. Open the BACnet Gateway Object folder by clicking  to the left of folder.
3. Right-click a BACnet Gateway Object to be deleted and select **Delete** from context menu. A confirmation dialog box opens.

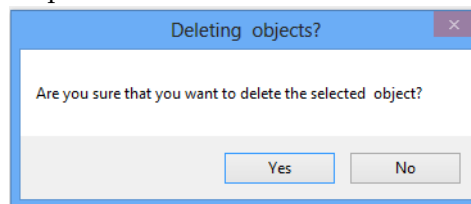


4. Click Yes. After a while, this BACnet Gateway Object is deleted from Building Automation tree and C•CURE 9000 database.

---

### To Delete a BACnet Gateway Object from the Dynamic View

1. In the Navigation pane of the C•CURE 9000 Administration Workstation, click Building Automation. The Building Automation pane opens.
2. Select BACnet Gateway Object from Building Automation pane drop-down list.
3. Click  to open a Dynamic View showing all BACnet Gateway Objects objects.
4. Right-click a BACnet Gateway Object to be deleted and select **Delete** from context menu. A confirmation dialog box opens.



5. Click Yes. After a while, this BACnet Gateway Object is deleted from Building Automation tree and C•CURE 9000 database.



## BACnet Gateway Object General Tab

The BACnet Gateway Object General tab, shown in Table 11-1 on [page 11-5](#), lets you set the name and description for the BACnet Gateway Object, and view present value of this object.

The screenshot shows a window titled "BACnet Gateway Binary Input - BI\_Audit LogBackup Event\_ActiveStatus". It has a "Save and Close" button at the top left. The "Name" field contains "BI\_Audit LogBackup Event\_ActiveStatus". The "Description" field is empty. There are two checkboxes: "Enabled" (checked) and "Maintenance Mode" (unchecked). Below these are two tabs: "General" (selected) and "Monitor Object". Under the "General" tab, there is a "BACnet" section with four fields: "Object Type" (OBJECT\_BINARY\_INPUT), "Object ID" (5000), "Present Value" (BINARY\_INACTIVE), and "Status Flags" (Normal).

**Figure 11-1:** BACnet Gateway Object - General Tab

## BACnet Gateway Object General Tab Definitions

The BACnet Gateway Object General tab includes the fields described in Table 11-1 on [page 11-5](#).

**Table 11-1:** BACnet Gateway Object General Tab Definitions


Field	Description
Name	Enter a unique name up to 50 characters long for BACnet Gateway Object. If you enter the name of an existing object, the system will not save the object, and will display an error message indicating there is a conflict. Choose a different name.
Description	Enter a general comment about the BACnet Gateway Object that will help you identify the device. This text is for information only.
Enabled	Click <b>Enabled</b> to make this object work.
Object Type	Bacnet Gateway object type. Valid value: ANALOG_INPUT, ANALOG_OUTPUT, ANALOG_VALUE, BINARY_INPUT, BINARY_OUTPUT, BINARY_VALUE, MULTI-STATE_INPUT, MULTI-STATE_OUTPUT, MULTI-STATE_VALUE. Read only.
Object ID	BACnet Gateway object ID. Read only.
Present Value	The current value of the BACnet gateway object. Read only.
Status Flags	Not Applicable in this release.

## Configuring a BACnet Gateway Object

You can use the BACnet Gateway Object Editor to configure settings for BACnet Gateway Object.

---


### To Configure a BACnet Gateway Object

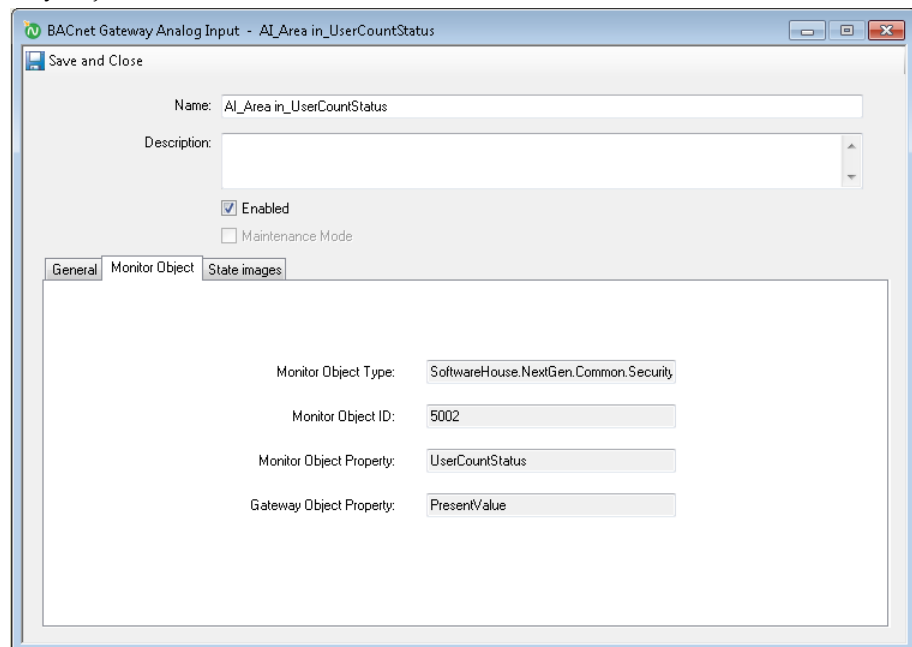
1. In the Navigation pane of the C•CURE 9000 Administration Workstation, click Building Automation. The Building Automation pane opens.
2. Open the BACnet Gateway Object folder by clicking  to the left of folder.
3. Double-click a BACnet Gateway Object icon or name or right-click a BACnet Gateway Object and select Edit from context menu, the BACnet Gateway Object editor opens.
4. Type a unique name in the Name field.
5. Type a textual description for the BACnet Gateway Object in the Description field.
6. Check the Enabled option to make this object work.
7. If you are done editing the BACnet Gateway Object, click to save the BACnet Gateway Object configuration.

## Viewing Monitor Object for this BACnet Gateway Object

Perform the following steps to view Monitor Object for this BACnet Gateway Object.

### To view Monitor Object for this BACnet Gateway Object

1. In the Navigation pane of the C•CURE 9000 Administration Workstation, click Building Automation. The Building Automation pane opens.
2. Open the BACnet Gateway Object folder by clicking  to the left of the folder. The folder title is "Viewing Monitor Object for this BACnet Gateway Object" and the link is "/Content/frameimport/Viewing\_Monitor\_Object\_f.htm".
3. Double-click a BACnet Gateway Object icon or name or right-click a BACnet Gateway Object and select Edit from context menu, the BACnet Gateway Object editor opens.
4. Click Monitor Object Tab to view which monitor object is monitored by this BACnet gateway object.



The screenshot shows the 'BACnet Gateway Analog Input - AI\_Area in\_UserCountStatus' window. The 'Monitor Object' tab is selected. The 'Name' field is 'AI\_Area in\_UserCountStatus' and the 'Description' field is empty. The 'Enabled' checkbox is checked, and 'Maintenance Mode' is unchecked. The 'Monitor Object Type' is 'SoftwareHouse.NextGen.Common.Security', 'Monitor Object ID' is '5002', 'Monitor Object Property' is 'UserCountStatus', and 'Gateway Object Property' is 'PresentValue'.

Field	Value
Name	AI_Area in_UserCountStatus
Description	
Enabled	<input checked="" type="checkbox"/>
Maintenance Mode	<input type="checkbox"/>
Monitor Object Type	SoftwareHouse.NextGen.Common.Security
Monitor Object ID	5002
Monitor Object Property	UserCountStatus
Gateway Object Property	PresentValue

**Figure 11-2:** BACnet Gateway Object - Monitor Object Tab

Viewing Monitor Object for this BACnet Gateway Object

# BACnet Broadcast Management Device

This chapter describes BACnet Broadcast Management Device.

In this chapter:

- ◆ BACnet/IP Broadcast Management Device Overview .....12-2
- ◆ Supported and Tested BBMD Network - First .....12-3
- ◆ Supported and Tested BBMD Network - Second. ....12-4
- ◆ Accessing the BACnet Broadcast Management Device (BBMD).....12-5
- ◆ Adding a BBMD .....12-6
- ◆ Editing a BBMD. ....12-7
- ◆ Deleting a BBMD.....12-8
- ◆ BBMD General Tab .....12-9
- ◆ Configuring a BBMD Network.....12-10

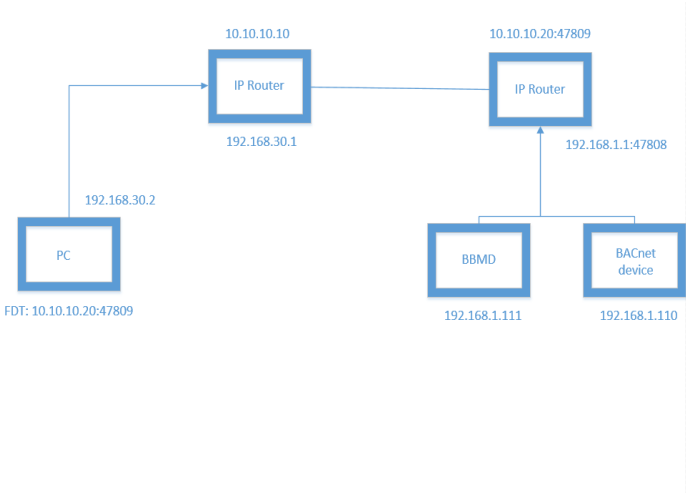
## BACnet/IP Broadcast Management Device Overview

The BACnet utilized broadcast messages for certain functions, when you try to discover BACnet Devices, your BACnet Devices are interconnected via IP routers then the IP routers normally blocks the broadcast messages. This may cause issues for your BACnet communications. BACnet solves the IP router issue by utilizing a BACnet/IP Broadcast Management Device (BBMD). The BBMD will send any received broadcast messages as directed messages through the IP router to its partner BBMD Devices.

# Supported and Tested BBMD Network - First

Figure 12-1 on [page 12-3](#) displays the Topology of first Supported and Test network of BBMD

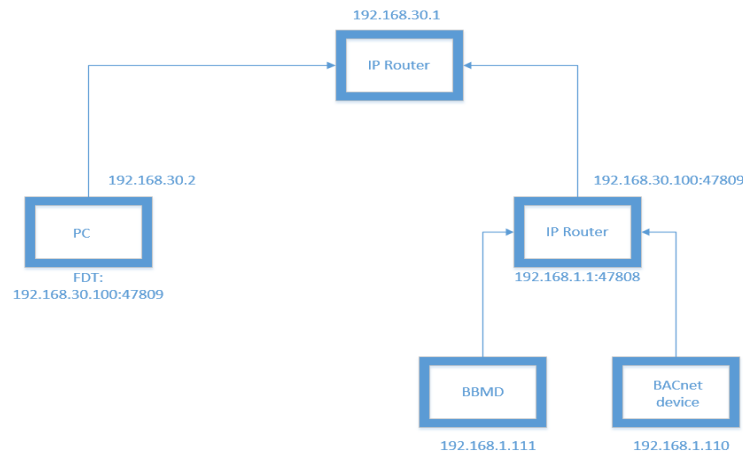
**Figure 12-1:** Supported and Test Network Topology - First



## Supported and Tested BBMD Network - Second

Figure 12-2 on [page 12-4](#) displays the Topology of second Supported and Test network of BBMD

Figure 12-2: Supported and Test Network Topology - Second






## Accessing the BACnet Broadcast Management Device (BBMD)

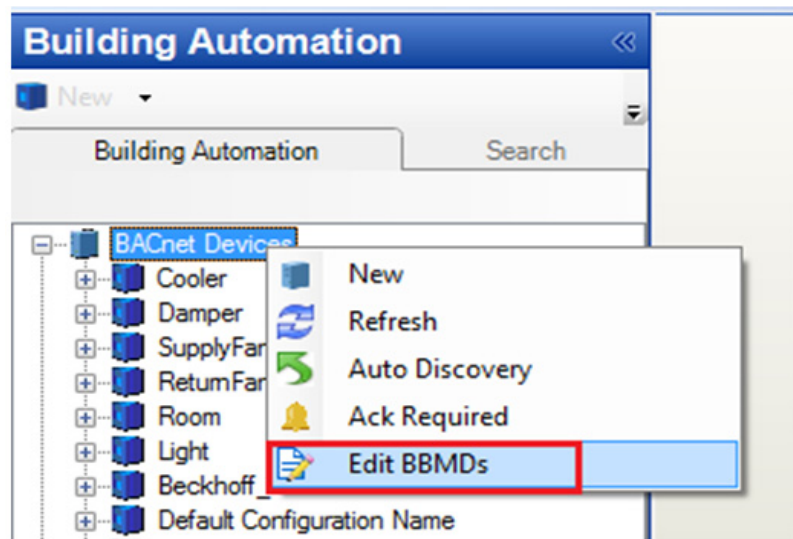
Perform the following steps to access the BACnet Broadcast Management Device (BBMD).

### To Access the BBMD

1. In the Navigation pane of the C•CURE 9000 Administration Workstation, click Building Automation. The Building Automation pane opens.
2. Expand the BACnet Device folder by clicking  to the left of folder.
3. Right click the BACnet Device folder, select **Edit BBMDs** from context menu. See Figure 12-3 on [page 12-5](#).

The BBMD opens with the General Tab visible.

Figure 12-3: BBMD



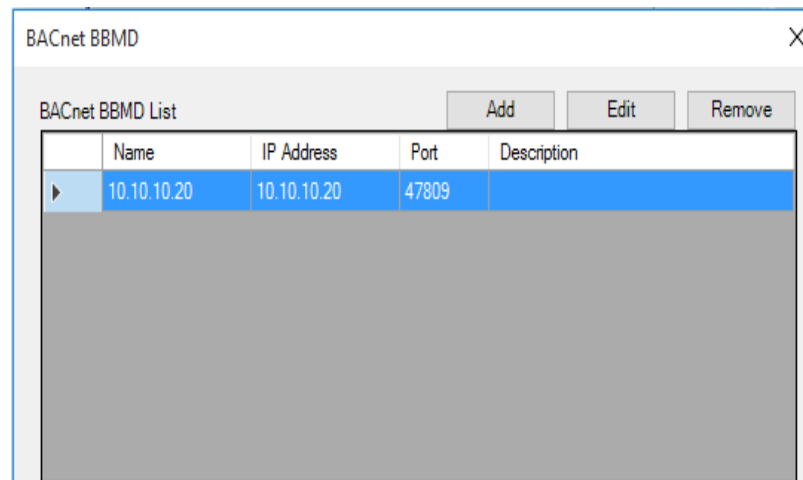
## Adding a BBMD

Perform the following steps to add a BBMD.

### To Add a BBMD

1. In the Navigation pane of the C•CURE 9000 Administration Workstation, click Building Automation. The Building Automation pane opens.
2. Right click the BACnet Device folder, then select **Edit BBMDs** from context menu, the BBMD pane lists all BBMDs.
3. Click the **add** button, the new BBMD pane opens.
4. Type a unique name in the Name field.
5. Type a textual description for the BACnet Device in the Description field. See Figure 12-4 on [page 12-6](#).
6. See “BBMD - General Tab” on [page 12-9](#) to configure communication information.
7. Check the Enabled option to make BBMD work.
8. Click Add on the top left of the BACnet BBMD to add a BBMD.

**Figure 12-4:** BBMD Editor



## Editing a BBMD

Perform the following steps to edit a BBMD.

---

### To Edit a BBMD

1. In the Navigation pane of the C•CURE 9000 Administration Workstation, click Building Automation. The Building Automation pane opens.
2. Right click the BACnet Device folder, then select Edit BBMDs from context menu, the BBMD pane opens.
3. Click Edit on the top left of the BACnet BBMD to edit a BBMD
4. Type a unique name in the Name field.
5. Type a textual description for the BACnet device in the Description field. See Figure 12-4 on [page 12-6](#).
6. See “BBMD - General Tab” on [page 12-9](#) to configure communication information.
7. Check the Enabled option to make BBMD work.
8. If you are done editing the BBMD, click to save the BBMD configuration.

## Deleting a BBMD

You can delete a BBMD from the Building Automation tree if you no longer need it.

---

### To Delete a BBMD from the Building Automation Tree

1. In the Navigation pane of the C•CURE 9000 Administration Workstation, click Building Automation. The Building Automation pane opens.
2. Right click the BACnet Device folder, then select Edit BBMDs from context menu, the BBMD pane opens.
3. Click Remove on the top left of the BACnet BBMD to delete a BBMD. See Figure 12-4 on [page 12-6](#).

## BBMD General Tab

The BBMD General tab, shown in Figure 12-5 on [page 12-9](#), lets you set the name and description for the BBMD, and configure the communication settings for the device.

The screenshot shows a configuration window titled "BACnet BBMD - 10.10.10.20". At the top left is a "Save and Close" button. Below it are two input fields: "Name:" with the value "10.10.10.20" and "Description:" which is empty. There is an unchecked checkbox labeled "Maintenance Mode". Below these is a tabbed interface with a "General" tab selected. Inside the "General" tab, there is a sub-header "BACnet BBMD" and two more input fields: "IP Address:" with the value "10.10.10.20" and "UDP Port:" with the value "47809".

**Figure 12-5:** BBMD - General Tab

## BACnet Object General Tab Definitions

The BBMD General tab includes the fields described in Table 12-1 on [page 12-9](#).

**Table 12-1:** BBMD General Tab Definitions

Field	Description
Name	Enter a unique name up to 50 characters long for BACnet Device. If you enter the name of an existing object, the system will not save the object, and will display an error message indicating there is a conflict. Choose a different name.
Description	Enter a general comment about the BACnet device that will help you identify the device. This text is for information only.
IP Address	IP address of BACnet device.
UDP Port	UDP port of BACnet device used to communicate with the physical device. Editable when BACnet device is disabled.

## Configuring a BBMD Network

The following configuration is an example of a Contemporary Controls BAS Router and NetGear IP Router. The BBMD device and IP Router from other vendor may have different configuration, which should follow the vendor’s user guide.

Figure 12-6 on [page 12-10](#) shows the BBMD configuration steps and Figure 12-7 on [page 12-10](#) shows the BBMD Broadcast Distribution.

Figure 12-6: BBMD Configuration Steps

Secondary BACnet/IP UDP Port

Secondary BACnet/IP Network

Public IP Address

Figure 12-7: Broadcast Distribution

Broadcast Distribution Table

Save Changes

BBMD IP Address	Broadcast Distribution Mask
<input type="text" value="10.10.10.10"/>	<input type="text" value="255.255.255.255"/>
<input type="text" value="0.0.0.0"/>	<input type="text" value="255.255.255.255"/>
<input type="text" value="0.0.0.0"/>	<input type="text" value="255.255.255.255"/>
<input type="text" value="0.0.0.0"/>	<input type="text" value="255.255.255.255"/>
<input type="text" value="0.0.0.0"/>	<input type="text" value="255.255.255.255"/>

Perform the following steps to configure a BBMD Network.

### BBMD Configuration

1. Set BBMD local IP address to 192.168.30.111.

### NAT IP Router 1 configuration

1. Set WAN IP address: 10.10.10.10.
2. Set LAN IP address: 192.168.30.1.

### NAT IP Router 2 configuration

1. Set WAN IP address: 10.10.10.20.
2. Set LAN IP address: 192.168.30.111.

3. Set Port forward 47809 message to 192.168.30.111.

---

### **BACnet Device**

1. Set BACnet device IP address to: 192.168.1.110.





# BACnet Journal Messages

The BMS integration has customized Journal messages that are described here.

In this chapter

◆ BMS Integration Journal Messages Definitions .....13-2

## BMS Integration Journal Messages Definitions

The following tables list the Journal Messages that can be reported by the BMS Integration products to the C•CURE 9000 database.

"#" in the table is used to represent an object such a BACnet device name, BACnet object name, or computer name, The actual value for the object property will replace the "#" in the Journal.

**Table 13-1:** BACnet State Change Journal Messages

Message Type	Object	State Change	Message
BACnet Device State Change	BACnet Device	Online	BACnet Device '#' communication restore.
		Offline	BACnet Device '#' communication failure.
		Operational	BACnet Device '#' is operational.
		Non-Operational	BACnet Device '#' is non-operational.

**Table 13-2:** BACnet COV Notification Journal Messages

Message Type	Object	State Change	Message
BACnet Object Value Change	Analog Input/ Output/ Value Object	Present Value Change	Present Value of Analog Input/Output/Value '#' on BACnet Device '#' changed to #.
	Binary Input/ Output/ Value Object	Active	Present Value of Binary Input '#' on BACnet Device '#' changed to active.
		Inactive	Present Value of Binary Input '#' on BACnet Device '#' changed to inactive.
	MultiState Input/ Output/ Value Object	Present Value Change	Present Value of MultiState Input/Output/Value '#' on BACnet Device '#' changed to #.

Message Type	Object	State Change	Message
BACnet Object State Change	Analog Input/Output/Value Object	Alarm	Alarm Status of Analog Input/Output/Value '#' on BACnet Device '#' changed to Alarm.
		Normal	Alarm Status of Analog Input/Output/Value '#' on BACnet Device '#' changed to Normal.
		Fault	Fault Status of Analog Input/Output/Value '#' on BACnet Device '#' changed to Fault.
		Normal	Fault Status of Analog Input/Output/Value '#' on BACnet Device '#' changed to Normal.
		Out Of Service	Out Of Service of Analog Input/Output/Value '#' on BACnet Device '#' changed to Out of Service.
		Normal	Out Of Service Status of Analog Input/Output/Value '#' on BACnet Device '#' changed to Normal.
	Binary Input/Output/Value Object	Alarm	Alarm Status of Binary Input/Output/Value '#' on BACnet Device '#' changed to Alarm.
		Normal	Alarm Status of Binary Input/Output/Value '#' on BACnet Device '#' changed to Normal.
		Fault	Fault Status of Binary Input/Output/Value '#' on BACnet Device '#' changed to Fault.
		Normal	Fault Status of Binary Input/Output/Value '#' on BACnet Device '#' changed to Normal.
		Out Of Service	Out Of Service of Binary Input/Output/Value '#' on BACnet Device '#' changed to Out of Service.
		Normal	Out Of Service Status of Binary Input/Output/Value '#' on BACnet Device '#' changed to Normal.
	MultiState Input/Output/Value Object	Alarm	Alarm Status of MultiState Input/Output/Value '#' on BACnet Device '#' changed to Alarm.
		Normal	Alarm Status of MultiState Input/Output/Value '#' on BACnet Device '#' changed to Normal.
		Fault	Fault Status of MultiState Input/Output/Value '#' on BACnet Device '#' changed to Fault.
		Normal	Fault Status of MultiState Input/Output/Value '#' on BACnet Device '#' changed to Normal.
		Out Of Service	Out Of Service of MultiState Input/Output/Value '#' on BACnet Device '#' changed to Out of Service.
		Normal	Out Of Service Status of MultiState Input/Output/Value '#' on BACnet Device '#' changed to Normal.

**Table 13-3:** BACnet Event Notification Journal Messages

Message Type	Object	State Change	Message
BACnet Event Notification	Event Notification	High limit	AnalogInput'#' on BACnet Device '#' Changed from EVENT_State_HIGH_Normal to EVENT_STATE_HIGH_LIMIT by EVENT_OUT_OF_RAGNE.
		High normal	AnalogInput'#' on BACnet Device '#' Changed from EVENT_State_HIGH_LIMIT to EVENT_STATE_HIGH_NORMAL by EVENT_OUT_OF_RAGNE.
		Low limit	AnalogInput'#' on BACnet Device '#' Changed from EVENT_State_LOW_Normal to EVENT_STATE_LOW_LIMIT by EVENT_OUT_OF_RAGNE.
		Low normal	AnalogInput'#' on BACnet Device '#' Changed from EVENT_State_LOW_LIMIT to EVENT_STATE_LOW_NORMAL by EVENT_OUT_OF_RAGNE.

**Table 13-4:** BACnet System Activity Journal Messages

Message Type	Object	State Change	Message
BACnet System Activity	Driver	Start	System Activity: SoftwareHouse CrossFire BACnet Driver Service started on computer #.
		Stop	System Activity: SoftwareHouse CrossFire BACnet Driver Service stopped on computer #.

## Glossary

<b>BACnet</b>	Building Automation and Control Networks. An industry standard communications protocol for building automation and control networks.
<b>BACnet Device</b>	Any device, real or virtual, that supports digital communication using the BACnet protocol.
<b>BACnet Object</b>	A version of Ethernet in which stations are attached by twisted pair cable, the traditional cables used for telephone lines. 10BaseT uses a star topology, and has a bandwidth of 10 megabits per second.
<b>COV (change of value)</b>	An event that occurs when a measured or calculated analog value changes by a predefined amount.
<b>BACnet MS/TP</b>	MS/TP stands for Master Slave Token Passing. Each device on the link is considered the "master" when it has the token. If it does not have immediate need to use the token, it is required to pass the token along to the next device. This is the "token passing" part. All devices on the link which do not currently have the token are regarded as slaves, and are expected to listen to any messages the current master may have for it. Because all devices take turns being master, the link is effectively peer to peer.
<b>BACnet/IP</b>	BACnet/IP uses a standard UDP/IP stack to send and receive messages. There is no concept of master/slave token passing since Ethernet is automatically peer to peer in nature. Devices simply transmit to their intended recipient at will, and let Ethernet deal with packet collisions and retries as needed.

