

INSTRUCTION MANUAL

•INSTALLATION •SETTING •OPERATING

BACnet Gateway for VRF System

UTY-ABGX

Ver. 1.0



P/N 9708568010_EN

FUJITSU GENERAL LIMITED

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For

“BACnet Gateway for VRF System”

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1. Usage Precautions

1-1 Precautions When Using the BACnet Gateway

1. Please read and agree to the LICENSE AGREEMENT FOR "BACnet Gateway" at the beginning of this manual before using the BACnet Gateway.
2. Please confirm that the PC for the BACnet Gateway meets the operating condition of the "Product Specifications" described in the Appendix of this manual.
3. Please read and fully understand this manual before using the BACnet Gateway.
4. Be careful not to shutdown or turn off the power supply of the PC or unplug its transmission adaptor. Do not terminate the BACnet Gateway program unless necessary. Otherwise, normal operation of the BACnet Gateway may not be performed.
5. To ensure continuous normal operation of this software, set the PC so that it would not go into an energy saving mode such as standby mode, sleep mode or execute hibernation. If the PC goes into a standby, sleep mode or execute hibernation, this software may not function properly. The method for setting the energy saving or hibernation of the PC depends on the Windows versions. For Windows XP, right click on the desktop and open the "Display properties", select "Screen Saver" tab and click on the "Power..." button. When the "Power Options Properties" appears, select the "Power schemes" to "Always On". Also, select the "Hibernate" tab and uncheck the "Enable hibernation".
6. The CD for this software and the software protection key (WIBU-KEY) will not be reissued. Keep and handle them with great care after installing.
7. BACnet Gateway programs perform schedules, operation recording and electricity apportionment data control based on date and time set in the personal computer. Adjust date and time periodically and by a small amount. Changing date and time may affect the functions listed above. When the date/time of the PC running BACnet Gateway is adjusted to roll back in time, the data collected for the electricity charge apportionment for that period will be deleted and be newly collected. When the date/time is adjusted to roll forward in time, there will be no data for that period. Such cases will result in incorrect calculation results for the electricity charge apportionment so the user should be careful when adjusting date/time for the PC.
8. When program execution environment of Windows is corrupted or abnormal, or if other software is installed or running on the same PC, operation of BACnet Gateway may be interfered and may not install or run properly. It is usually extremely difficult to detect such conditions, if it occurs. It is recommended that BACnet Gateway be installed on a new PC, dedicated for the use of BACnet Gateway.
9. BACnet Gateway product is provided with software, drivers, components listed below. If the same kind of software, drivers, components with different version is installed on the same PC, BACnet Gateway may not install or run properly.
 - (1) Microsoft® SQL Server® 2005
 - (2) OpenLDV (U10 USB Network Interface driver)
 - (3) Microsoft® Visual C++ 2005 SP1 Redistributable
 - (4) WIBU-KEY driver

2. How To Use This Manual

2-1 Manual Composition

This manual is composed of 5 sections.

- Introduction
- Installation
- Settings
- Operation
- Appendix

Before installing the software, read the Introduction first and check the Overview of the BACnet Gateway and the notes and cautions.

When installing the BACnet Gateway to the PC, read the Installation and Settings sections. Complete installation to the PC in accordance with the procedure described.

When performing operations related to various functions of the BACnet Gateway after installation, refer to the relevant parts of the operation section.

The Appendix is made up of product specifications, error code table, and FAQ. Read them as required.

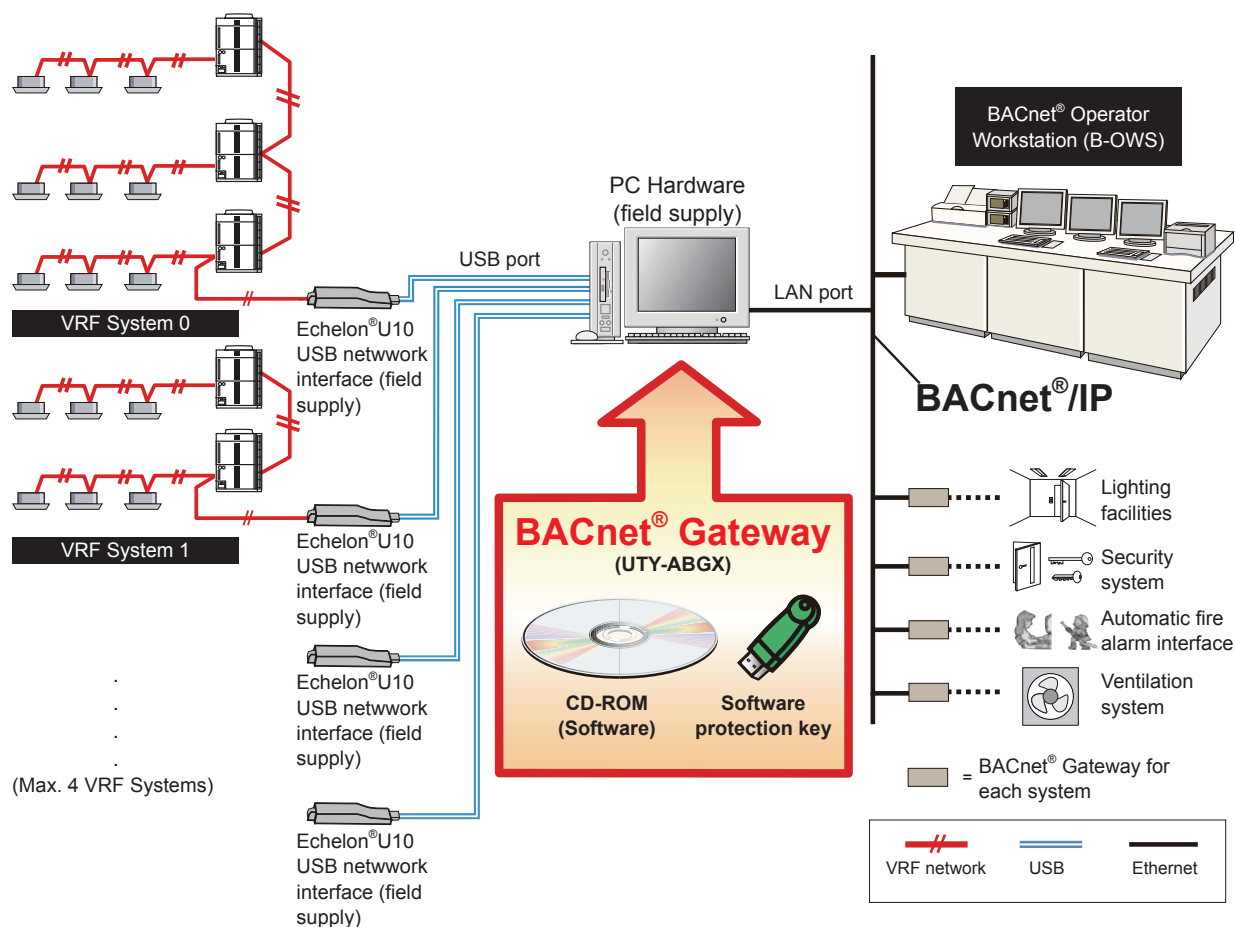
Interface Specification document is also available and should be referred to along with this manual.

Introduction

3. Overview
4. Materials To Be Prepared Beforehand

3. Overview

3-1 Features



BACnet Specification of UTY-ABGX

- ANSI / ASHRAE Standards 135-2004
- BACnet Application Specific Controller (B-ASC)
- BACnet / IP over Ethernet

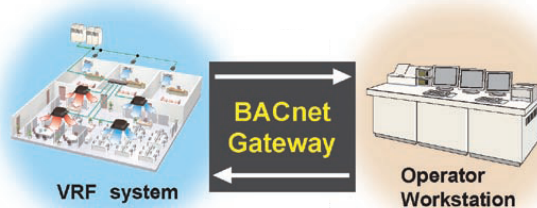
The maximum number of connecting systems

VRF System	4 systems
------------	-----------

For the numbers of the Units that can connect with one VRF System, Indoor and Outdoor Units are up to 400 units and up to 100 units respectively.

* VRF System Address:

The numbers from 0 to 3, which are assigned to each VRF System in the BACnet Gateway.



4. Materials To Be Prepared Beforehand

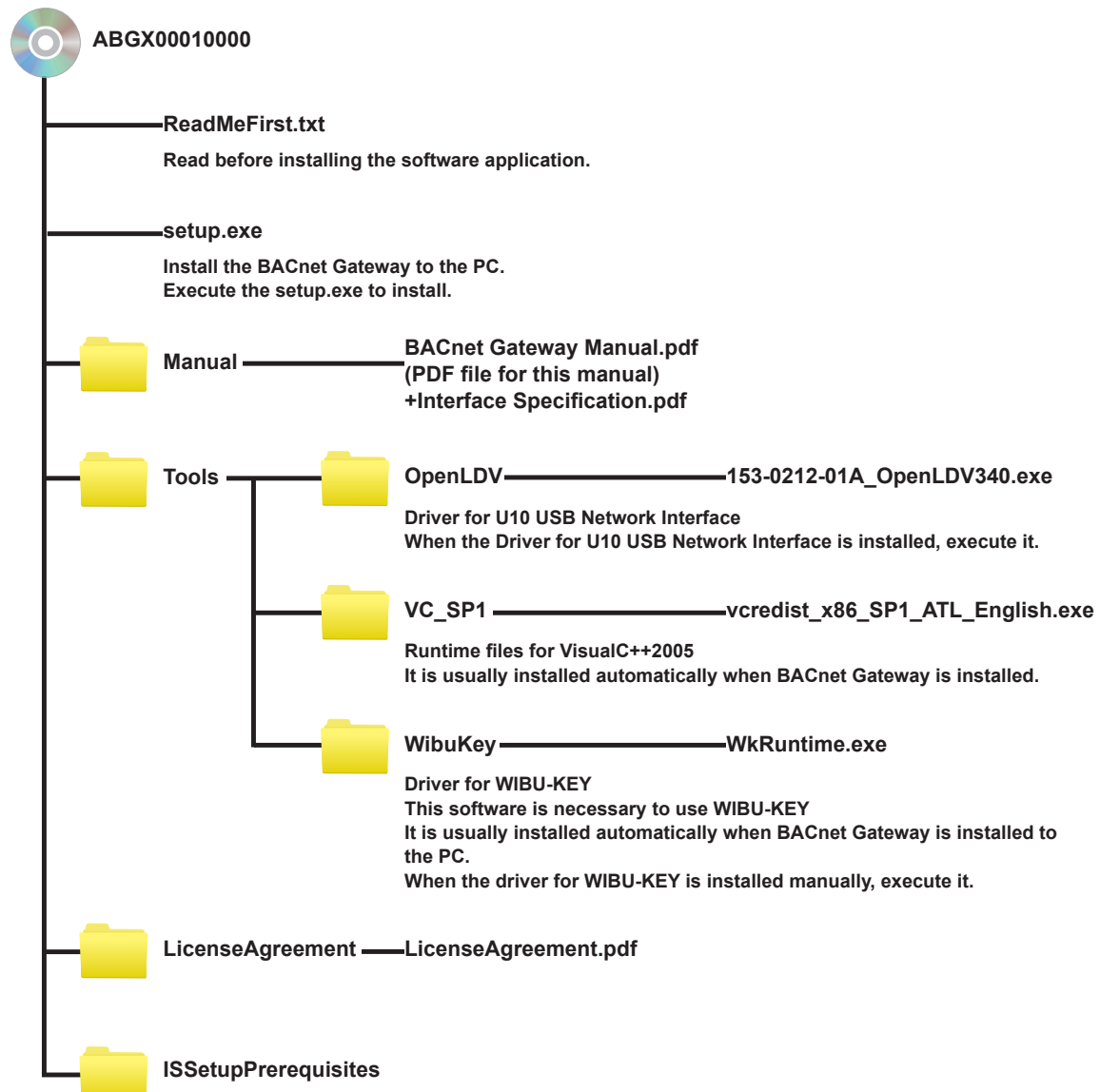
Materials necessary at installation

- WIBU-KEY (packed together with product)
- U10 USB Network Interface (adaptor with connection to VRF network work finished)
- Administrator ID and password (arbitrarily decided by the user. 2 byte characters cannot be used.)
- BACnet Gateway setup CD (For details, see the next page.)
- IP address

When number of USB ports for WIBU-KEY and U10 USB Network Interface are insufficient;

- USB hub

Setup CD configuration (Reference)



Installation

5. Installation

5. Installation

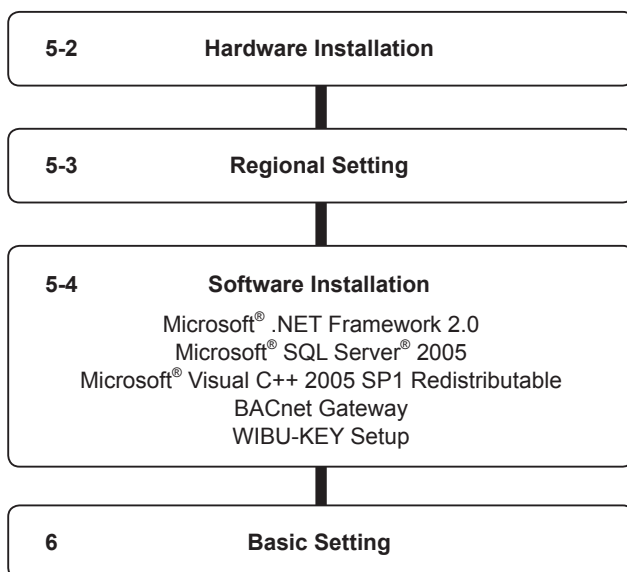
This section describes the procedure when installing the BACnet Gateway software to the PC which connects directly to the VRF network. The PC communicates directly with the indoor and outdoor units.

The PC and VRF network are connected by a Transmission Adaptor (U10 USB Network Interface).

This section also describes how to uninstall the software when BACnet Gateway software becomes unnecessary and also, how to reinstall the installed software due to software upgrading or other reasons.

5-1 Installation Flow

Installation/Setting Flow

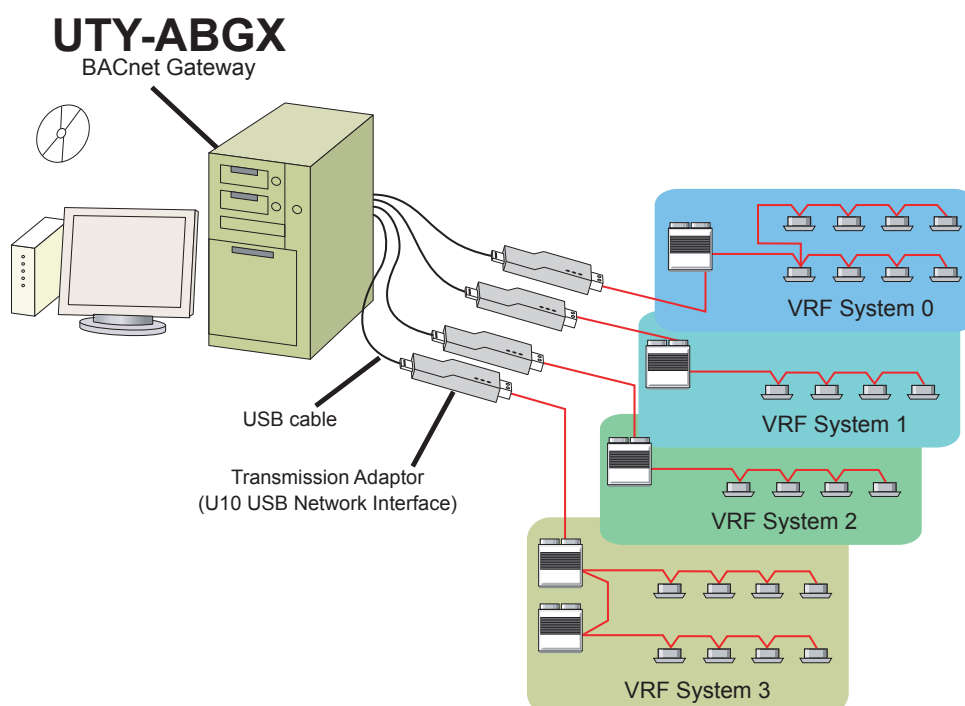


WARNING!

- ① BACnet Gateway is tested to install and operate under new Windows environment. When program executional environment of Windows is corrupted or abnormal, or other softwares that interfere with the operation of BACnet Gateway is installed or running, BACnet Gateway may not install or run properly. It is usually extremely difficult to detect such conditions, if it occurs.
- ② BACnet Gateway product is provided with softwares, drivers, components listed below. If the same kind of softwares, drivers, components with different version is installed on the same PC, BACnet Gateway may not install or run properly.
 - (1) Microsoft® SQL Server® 2005
 - (2) Open LDV (U10 USB Network Interface driver)
 - (3) Microsoft® Visual C++ 2005 SP1 Redistributable
 - (4) WIBU-KEY-driver
- ③ Do not insert U10 USB network interface adaptor to the USB slot of the PC BEFORE its driver is installed.
- ④ Do not turn on the power of indoor/outdoor units until all installation work is completed.
- ⑤ Do not insert WIBU-KEY to the USB slot of the PC until instructed.

5-2 Hardware Installation (Transmission Adaptor)

5-2-1 Transmission Adaptor Installation



The BACnet Gateway can connect up to 4 VRF Systems. Since 1 Transmission Adaptor connects to 1 system, up to 4 Transmission Adaptors are connected.

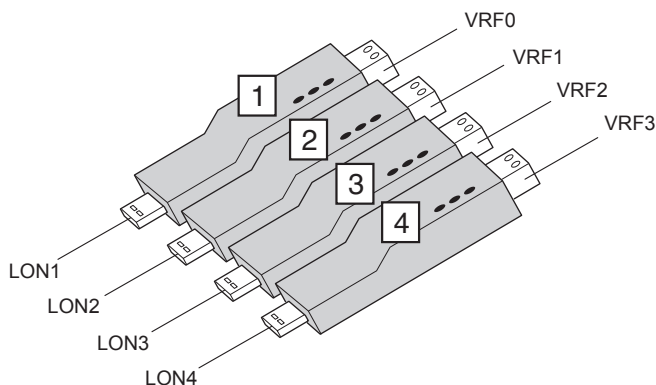
Following chart shows the detail of the U10 USB Network Interface Adaptor. These adaptors are not included in the BACnet Gateway product and must be procured in advance.

Name & Shapes	Q'ty	Remark
Transmission Adaptor (U10 USB Network Interface -TP/FT-10 Channel) (Field Supply)	Procure the necessary number in accordance with the number of connection systems.	Model : 75010R (Echelon® Corporation)

Installing U10 USB Network Interface Adaptor

To use this product, turn on the power of the PC and install necessary drivers/software for this product (BEFORE connecting it to any USB port), following the ***QUICK START*** enclosed with this product.

- ① When using multiple U10 USB Network Interface adaptors, confirm in advance, which U10 USB Network Interface adaptor connects to which VRF Network (Attach labels to the U10 USB Network Interface adaptors If possible). These information will become necessary during the setup procedure of BACnet Gateway (You will be required to specify which U10 USB Network Interface adaptor corresponds to which VRF network).



Keeping a record of a table such as shown below is recommended.

LON No.	Adaptor No.	VRF System No.
LON1	Adaptor 1	VRF 0
LON2	Adaptor 2	VRF 1
LON3	Adaptor 3	VRF 2
LON4	Adaptor 4	VRF 3

Note. "LONx" is used to identify U10 USB Network Interface adaptor. LON numbers are given in the order they are inserted to a PC for the first time and basically, never changes, even if you change USB slot afterwards.

- ② Connect the U10 USB Network Interface adaptor to the personal computer USB port.
When there are multiple U10 USB Network Interface adaptors, connect each U10 USB Network Interface adaptor in the order of its LON number.

5-2-2 Wiring and Turning on the Units Power

Once the wiring has been installed, the power can be turned on. Follow the procedure below for turning on the power.

- ① Connect VRF network cables to the corresponding U10 USB Network Interface adaptors.
- ② Turn on the power for all connected indoor units.
- ③ Turn on the power for all connected outdoor units.

Note

Make sure that USB equipment (USB hub, etc.) that this product is connected to, is not overloaded (power supplied thru the interface does not exceeds the maximum limit).

- ④ Turn on the power for BACnet Gateway PC, if it is not yet turned on.

5-3 Regional Setting

5-3-1 Windows® XP

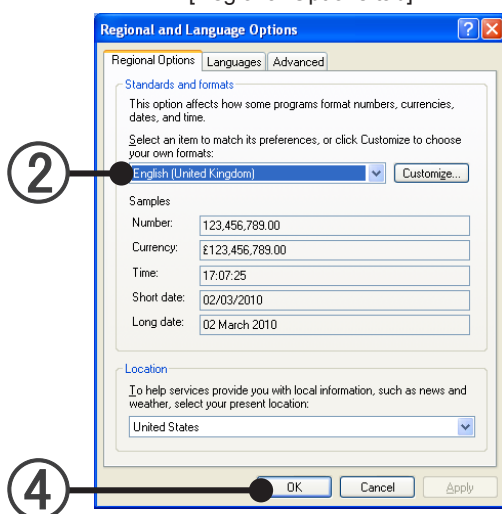
- ① Open the regional setting screen by sequentially selecting the menus as follows:
“start” → “Control Panel” → “Date, Time, Language, and Regional Options”

Note

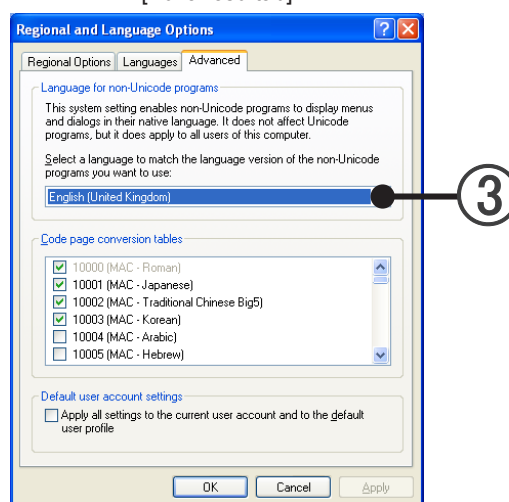
- When the control panel display format is Classic View, select the menus in the following order:
“start” → “Control Panel” → “Regional and Language Options”

- ② Select English (United Kingdom) at the Standard and formats area of the Regional Options tab.
- ③ Select English (United Kingdom) at the Language for non-Unicode programs of the Advanced tab.

[Regional Options tab]



[Advanced tab]



Note

Do not change the settings clicking the [Customize...] button. Set the settings as follows, if by chance, the current settings differs.


[Numbers].....Decimal symbol: “.” (dot)
[Time].....Time separator: “:” (colon)
[Date].....Date separator: “/” (slash)

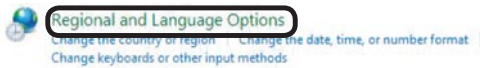
- ④ Click the [OK] button.

5-3-2 Windows Vista®

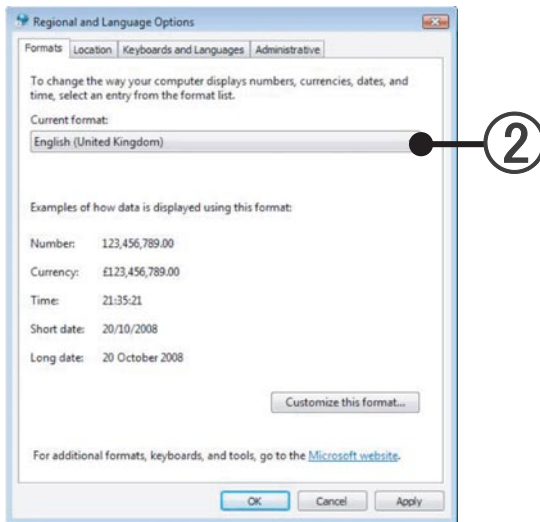
■ Regional option

- ① Open the regional setting screen by sequentially selecting the menus as follows:

“start” → “Control Panel” →  “Clock, Language, and Region” →

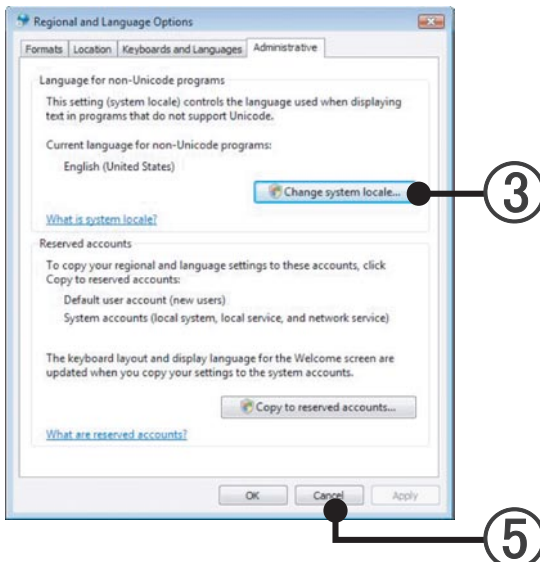


- ② Select English (United Kingdom) at the Current format area of the Formats tab.

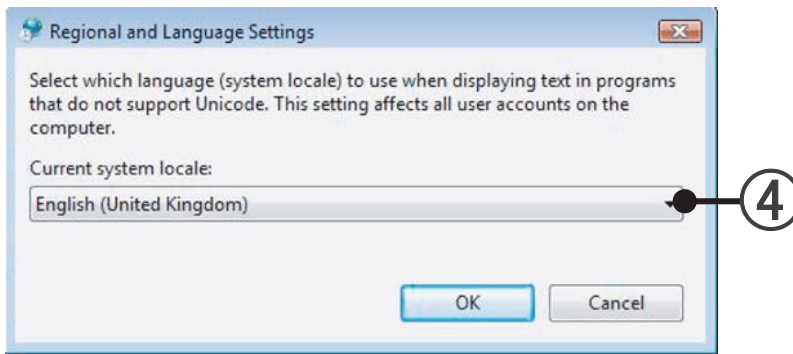


- ③ Select Administrative tab and click [Change system locale...] in the Language for non-Unicode programs area.

If security confirmation screen appears, press “Continue”.



- ④ Select English (United Kingdom) for the Current system locale in the Regional and Language Settings and click [OK].



Note

Do not change the settings clicking the [Customize...] button. Set the settings as follows, if by chance, the current settings differs.

[Numbers].....Decimal symbol: "." (dot)

[Time].....Time separator: ":" (colon)

[Date].....Date separator: "/" (slash)

- ⑤ Click [OK].

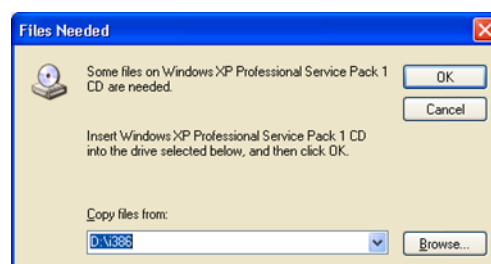
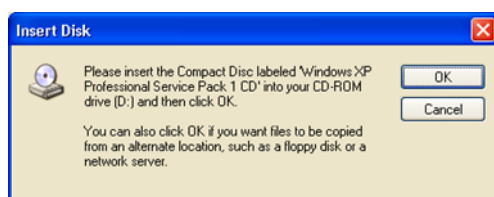
5-4 Software Installation

The following software is installed here.

- Microsoft® .NET Framework 2.0
- Microsoft® SQL Server® 2005
- Microsoft® Visual C++ 2005 SP1 Redistributable (Package ATL Security Update)
- BACnet Gateway
- WIBU-KEY driver

Before starting the installation of this product, check each of the followings.

- Install Adobe Reader (Ver. 9.0 or later) prior to the installation. (Adobe Reader does not come with this product).
- Have the installation CD of the Windows version (Windows® XP or Windows Vista®) used for the PC ready.

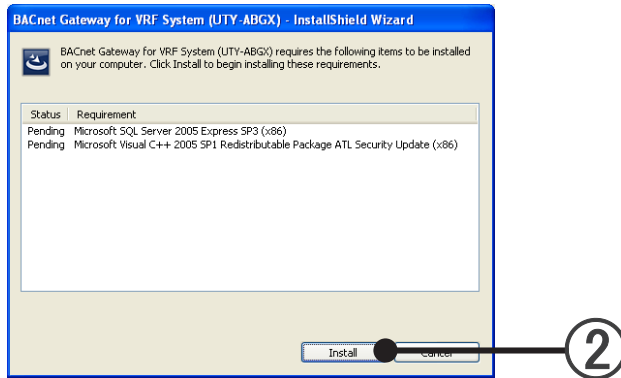


- Remove all program as described in “5-5 Software Uninstallation” , if you have the same or previous version of BACnet Gateway.
- Do NOT insert WIBU-KEY (Software protection key) enclosed with this product to the PC until product installation is completed.
- You are required to login to the computer as Administrator (or equivalent) to the PC to install this product. (Enter the ID with single-byte characters.)
- Stop all running programs before you start the installation.
- If Anti-Virus software product is installed, temporarily disable the software during the installation of this product.

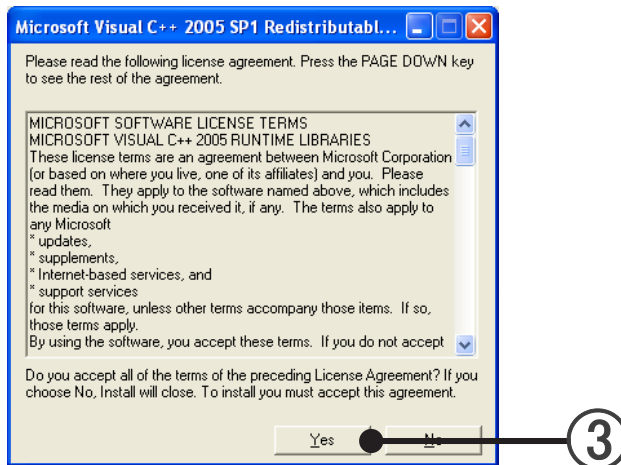
① Execute setup.exe in the root folder on the BACnet Gateway setup CD.

- **Microsoft® .NET Framework 2.0**
 .NET Framework 2.0 is installed automatically if it is not already installed.
- **Microsoft® SQL Server® 2005**
 Microsoft® SQL Server® 2005 is installed automatically if it is not already installed.
- **Microsoft® Visual C++ 2005 SP1 Redistributable (Package ATL Security Update)**
 Microsoft® Visual C++ 2005 SP1 Redistributable is installed automatically if it is not already installed.

- ② Click the [Install] button.

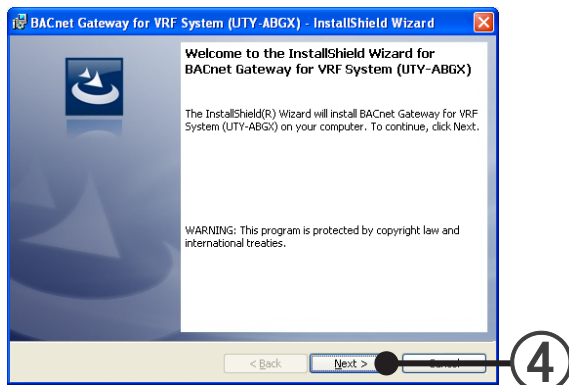


- ③ Click the [Yes] button.

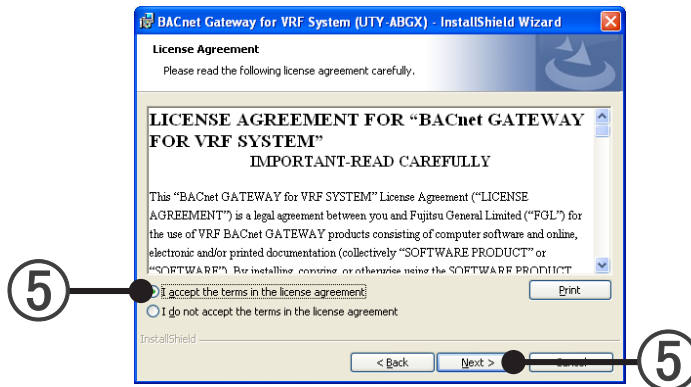


• BACnet Gateway

- ④ Install BACnet Gateway. Click the [Next] button.

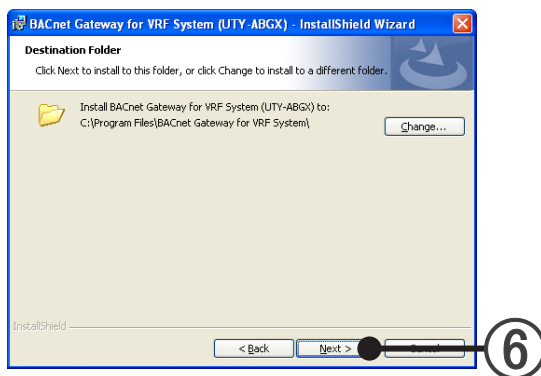


- ⑤ If the BACnet Gateway end user licensing agreement is displayed, confirm the contents. If you can agree to the terms of the licensing agreement, check "I accept the terms in the license agreement" and click the [Next] button.

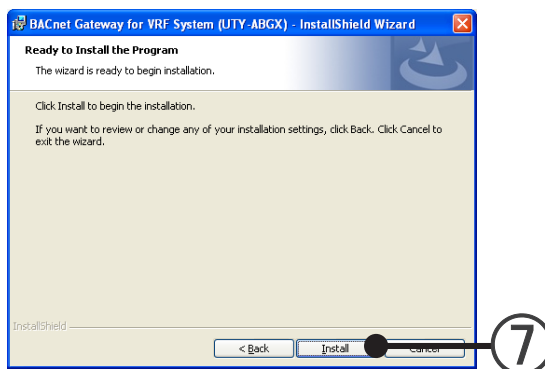


- ⑥ Specify the installation destination folder and click the [Next] button.

(To change the installation destination folder, click the [Change] button and select the folder to be installed.)



- ⑦ If the installation setting contents are correct, click the [Install] button.

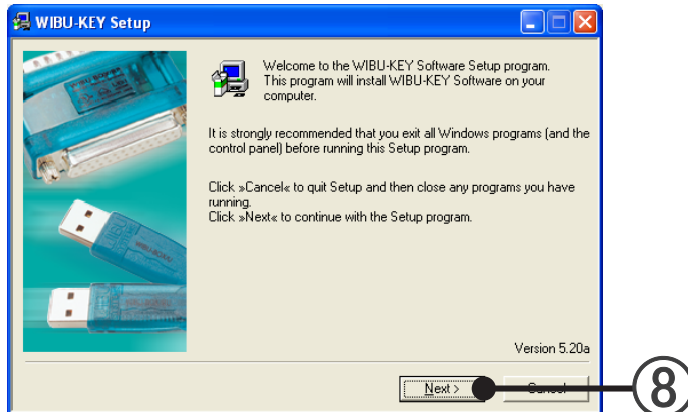


Installation starts.

The necessary drivers are also installed at the same time.

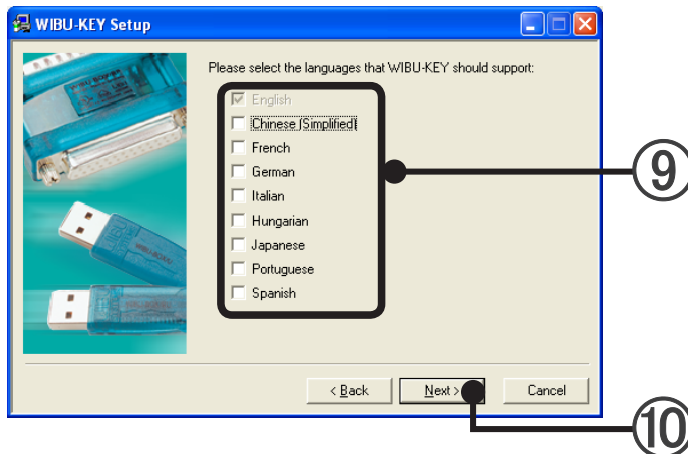
- **WIBU-KEY driver**

- ⑧ A description of WIBU-KEY Setup is displayed. Confirm the contents.
Click the [Next] button.

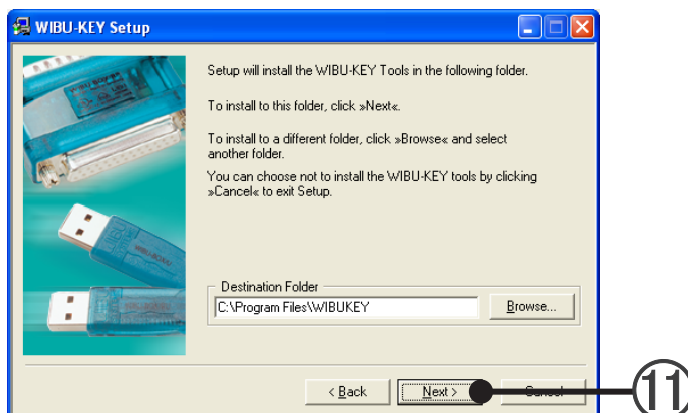


- ⑨ Select the language.
Check the desired language.

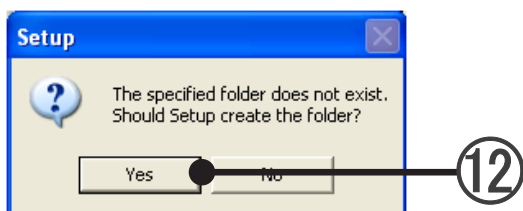
- ⑩ Click the [Next] button.



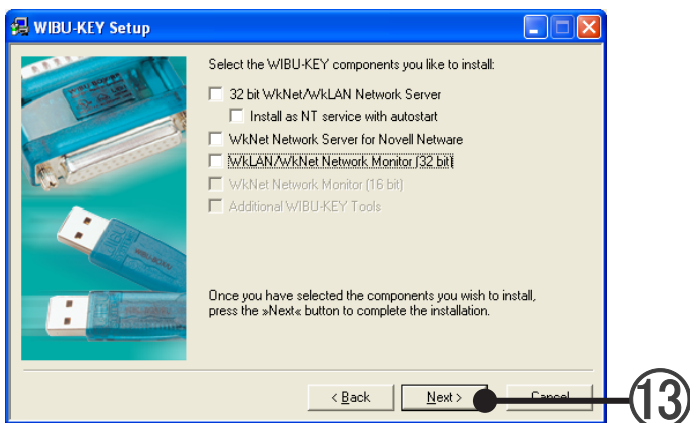
- ⑪ When the screen to specify the installation destination folder is displayed, specify the installation destination folder and click the [Next] button.



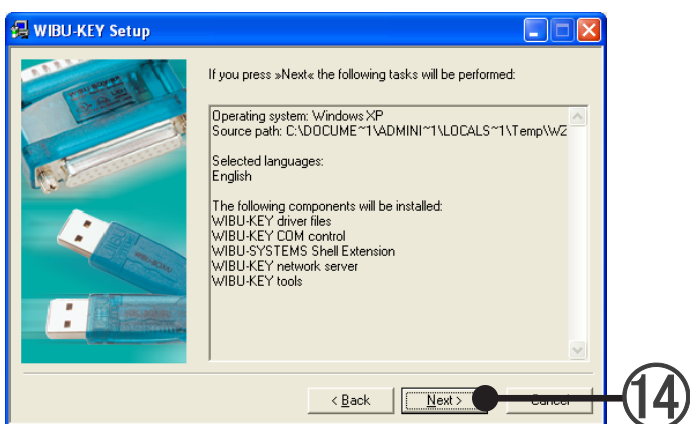
- ⑫ Click the [YES] button.



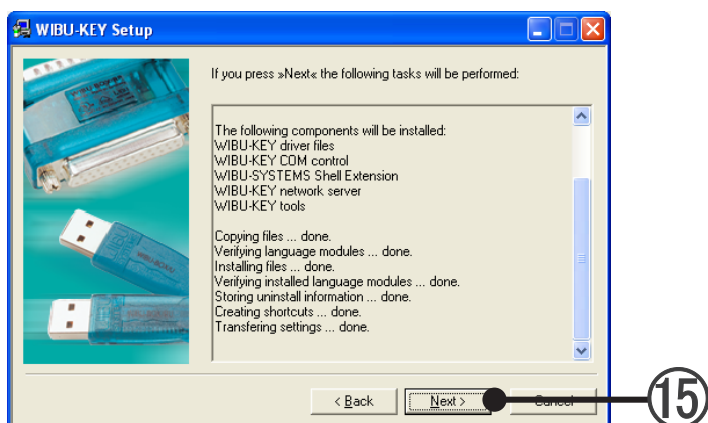
- ⑬ The WIBU-KEY components selection screen is displayed. Uncheck all the checkboxes and click the [Next] button.



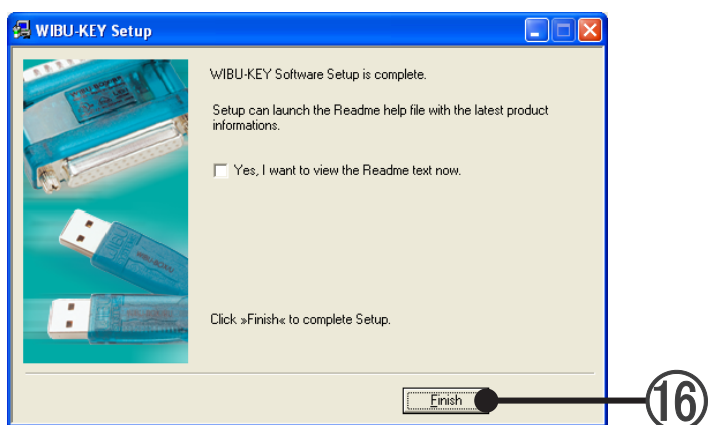
- ⑭ If the WIBU-KEY driver installation contents are displayed, confirm the contents and click the [Next] button.



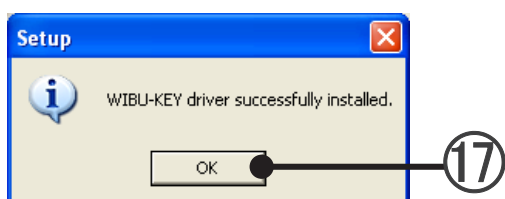
- 15 Installation starts.
When [Next] button is enabled, click the [Next] button.



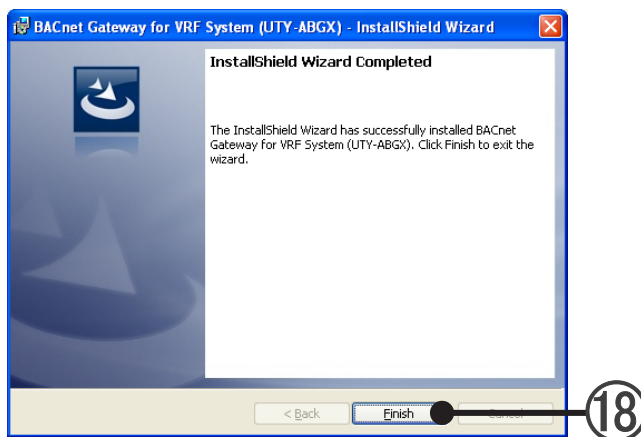
- 16 WIBU-KEY Setup is complete.
Uncheck the checkbox and click the [Finish] button.



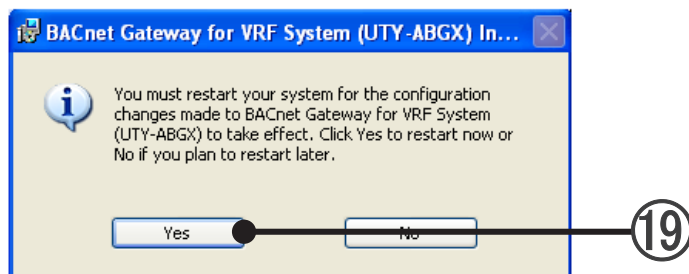
- 17 WIBU-KEY Setup was successful.
Click the [OK] button.



- ⑱ If this screen is displayed, installation of the BACnet Gateway for VRF System to the PC is complete. Click the [Finish] button



- ⑲ After the end of installation, reboot the PC. Click the [Yes] button.



5-5 Software Uninstallation

When uninstalling the software from PC, follow the procedures shown below.

When you intend to reinstall BACnet Gateway later, export "All Data" at this point.
→8-3-3 All Data Export

5-5-1 BACnet Gateway Uninstallation

5-5-2 WIBU-KEY Driver Uninstallation

5-5-3 Microsoft® SQL Server® 2005 Uninstallation

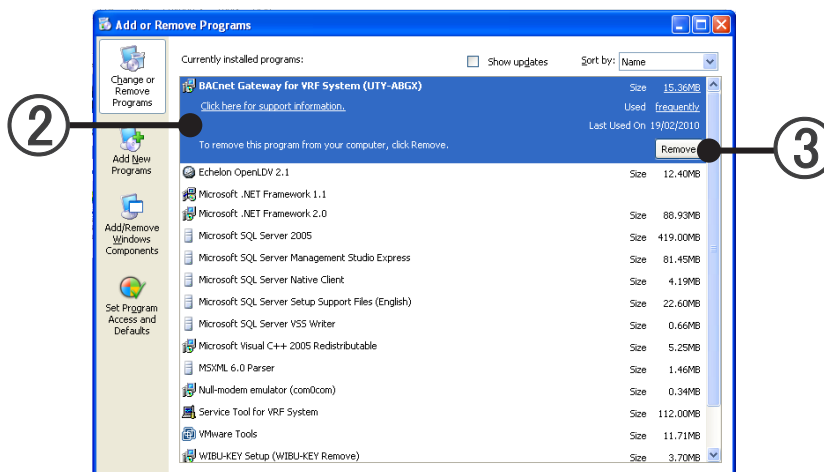
5-5-4 Microsoft® SQL Server® Native Client Uninstallation

5-5-1 BACnet Gateway Uninstallation

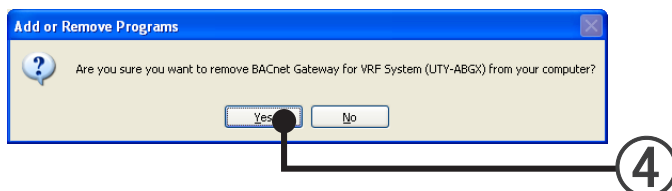
Note

- When you need to keep the data for later use, export the data before uninstalling the BACnet Gateway.
Write all the data by exporting. → 8-3 Data Import/Export

- ① Select the menu items in order of [start]→[Control Panel]→[Add or Remove Programs].
- ② Select the “BACnet Gateway for VRF System (UTY-ABGX)”.
- ③ Click the [Remove] button.



- ④ When the [Yes] button is clicked, uninstallation begins.



- ⑤ When the screen displaying the uninstallation process closes, uninstallation is complete.
 - ⑥ Close the “Add or Remove Programs” screen by clicking the [x] at the top right-hand corner of the screen.
- * A folder named the BACnet Gateway remains in the folder designated the BACnet Gateway installation folder at installation even though uninstallation is performed.
There is no problem even if this folder remains as is, but it doesn't matter if the folder is deleted.

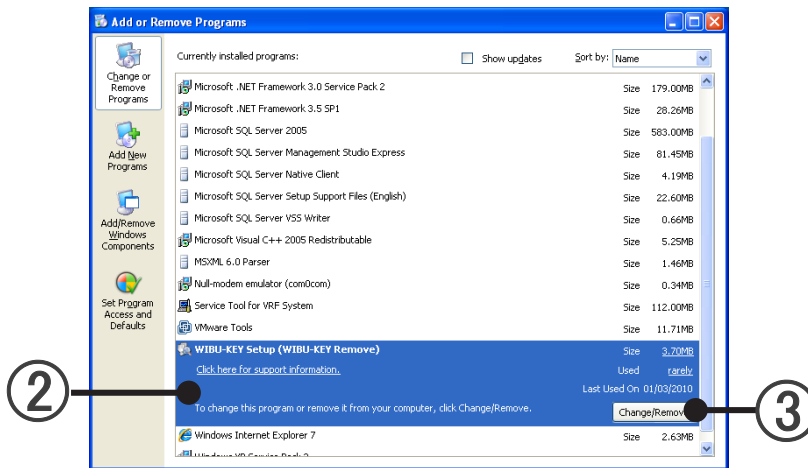
5-5-2 WIBU-KEY Driver Uninstallation

Execute only when you know for certain that the WIBU-KEY driver is not used by programs other than the BACnet Gateway.

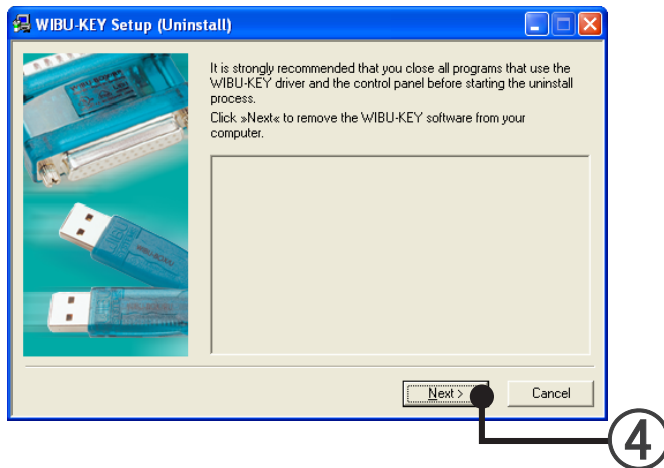
If unknown, do not uninstall the WIBU-KEY driver

Remove WIBU-KEY from the PC before uninstalling it.

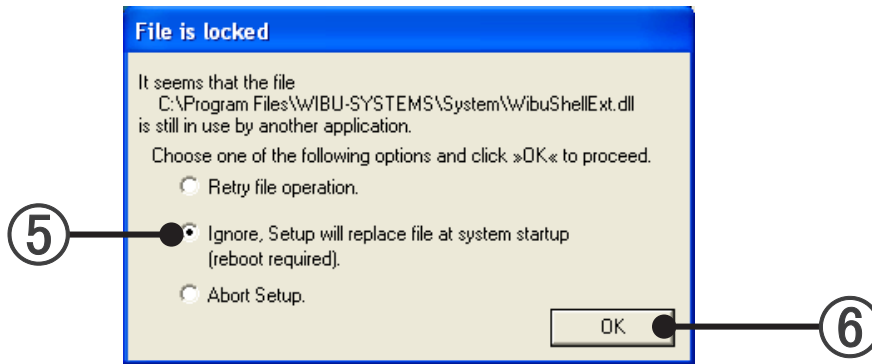
- ① Select the menu items in order of [start]→[Control Panel]→[Add or Remove Programs].
- ② Select “WIBU-KEY Setup (WIBU-KEY Remove)”.
- ③ Click the [Change/Remove] button.



- ④ Click the [OK] button.

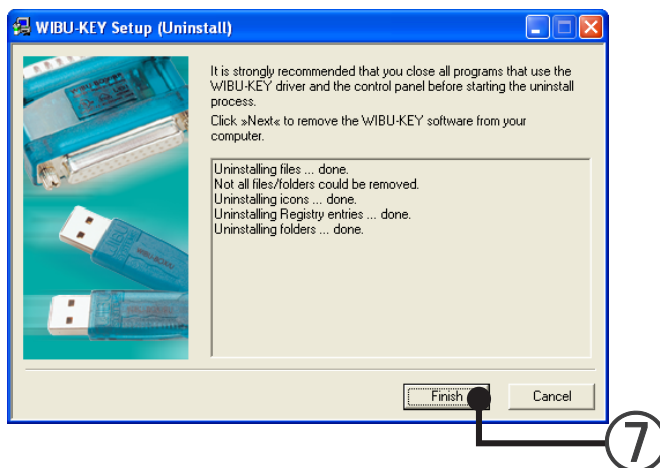


- ⑤ Check "Ignore, Setup will replace file at system startup (reboot required)."



- ⑥ Click the [OK] button.

- ⑦ When this screen is displayed, uninstallation of the WIBU-KEY driver is complete. Click the [Finish] button.



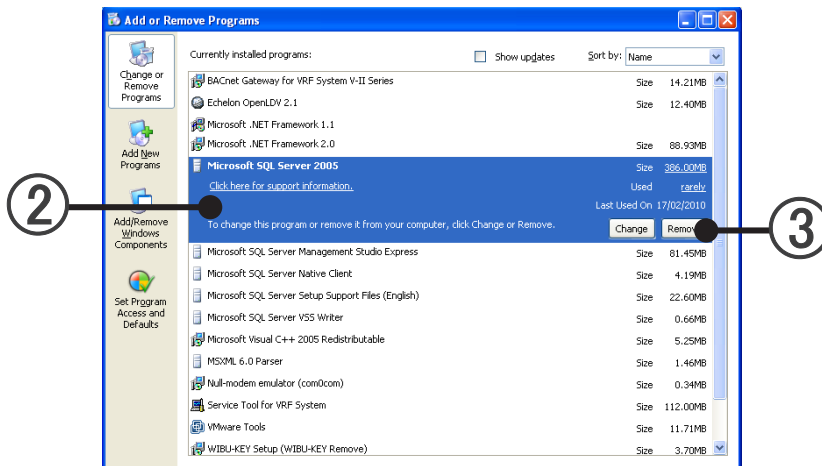
- ⑧ Close the "Add or Remove Programs" screen by clicking the [x] at the top right-hand corner of the screen.

5-5-3 Microsoft® SQL Server® 2005 Uninstallation

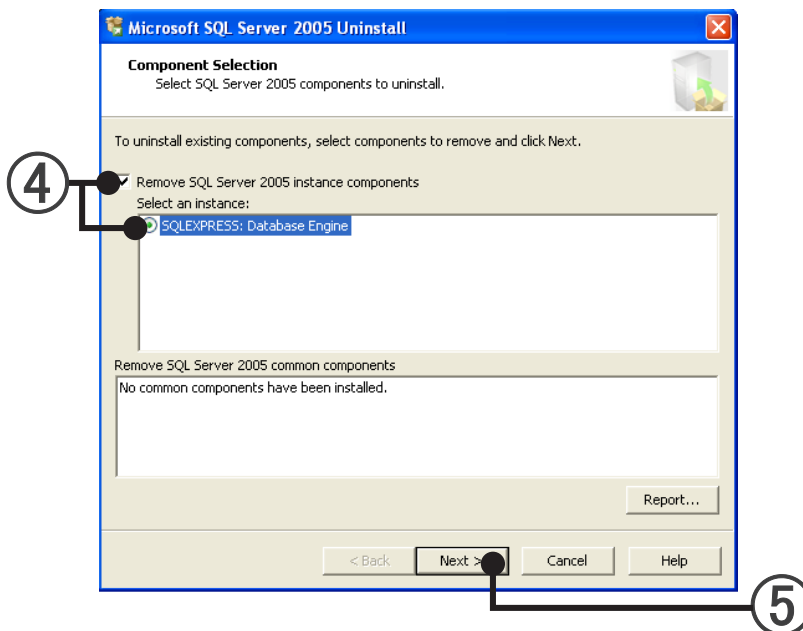
Execute only when you know for certain that Microsoft® SQL Server® 2005 is not used by programs other than the BACnet Gateway.

If unknown, do not uninstall the program.

- ① Select the menu items in order of [start]→[Control Panel]→[Add or Remove Programs].
- ② Select “Microsoft SQL Server 2005”.
- ③ Click the [Remove] button.



- ④ The components selection screen is displayed.
Check “Remove SQL Server 2005 instance components”.
Select “SQLEXPRESS: Database Engine” of the “Select an instance item”.



- ⑤ Click the [Next] button.

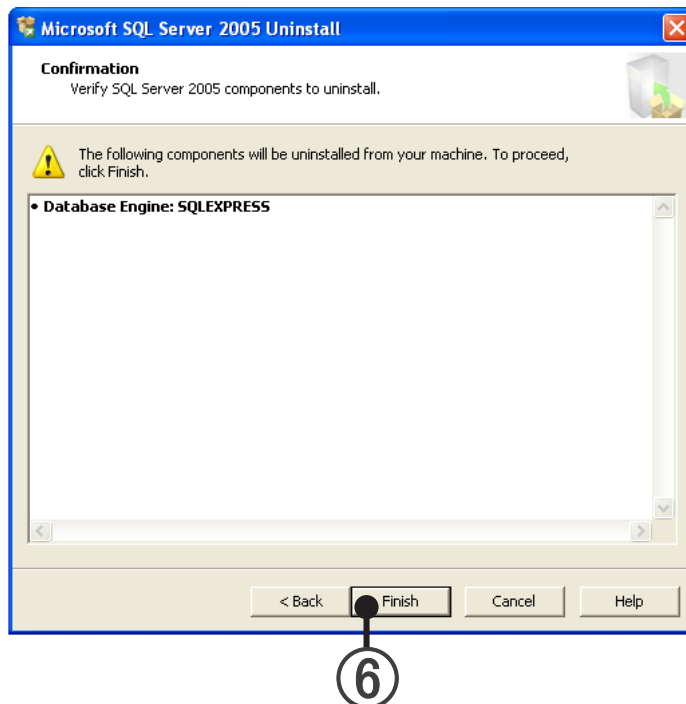
Note

- * When another instance exists at the “Select an instance” item or when an item exists at “Remove SQL Server 2005 common components”, it may be possible that other Microsoft® SQL Server® products are installed. Be careful not to delete them by mistake. In addition, in this case, do not perform the “Microsoft® SQL Server® Native Client” uninstallation on the next page.

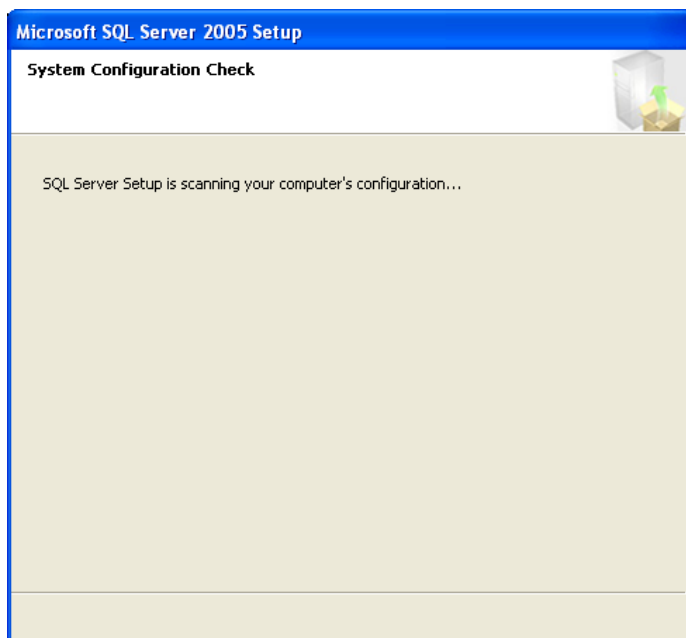
⑥ Click the [Finish] button.

When the screen displaying the uninstallation process closes, uninstallation is complete.

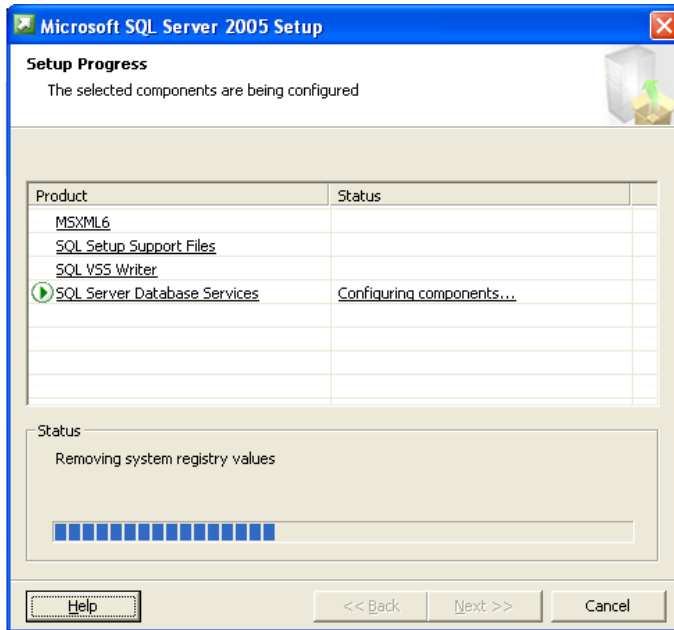
When there were items other than those at the processing of ④ on the screen of ④, do not uninstall the “Microsoft® SQL Server® Native Client”.



System Configuration Check is implemented automatically. When ended, the screen automatically closes.



Setup Progress screen is displayed. When ended, the screen automatically closes.



- ⑦ Close the "Add or Remove Programs" screen by clicking the [×] at the top right-hand corner of the screen.

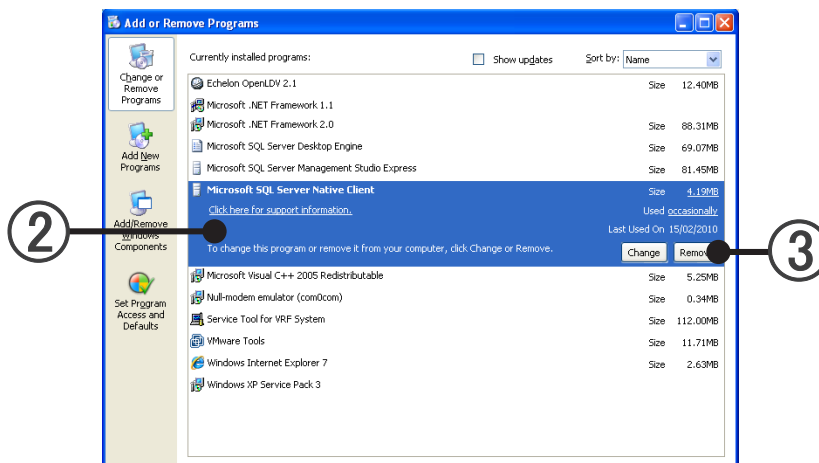
5-5-4 Microsoft® SQL Server® Native Client Uninstallation

Execute only when you know for certain that Microsoft® SQL Server® 2005 is not used by programs other than the BACnet Gateway.

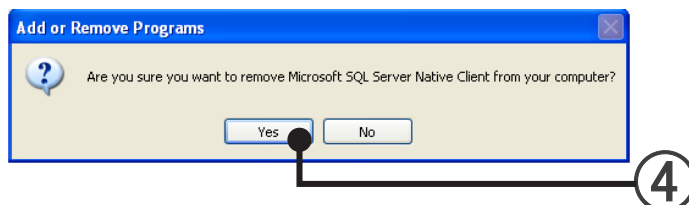
When unknown, do not execute.

In addition, do not execute when Microsoft® SQL Server® products other than “Microsoft SQL Server 2005” are installed.

- ① Select the menu items in order of [start]→[Control Panel]→[Add or Remove Programs].
- ② Select “Microsoft SQL Server Native Client”.
- ③ Click the [Remove] button.



- ④ Click the [Yes] button.



When the screen displaying the uninstall process closes, uninstallation is complete.

- ⑤ Close the “Add or Remove Programs” screen by clicking the [×] at the top right-hand corner of the screen.

Note

When installing the BACnet Gateway, “Microsoft®.NET Framework 2.0” and “Microsoft® Visual C++ 2005 SP 1 Redistributable” may be installed at the same time.

Since “Microsoft®.NET Framework 2.0” and “Microsoft® Visual C++ 2005 SP 1 Redistributable” may also be used by other programs, if it is uninstalled, the other programs may not run properly.

If not inconvenient, do not uninstall “Microsoft®.NET Framework 2.0”, and “Microsoft® Visual C++ 2005 SP 1 Redistributable” and let it remain as is.

Settings

- 6. Basic Settings
- 7. Electricity Charge Apportionment Setting

6. Basic Settings

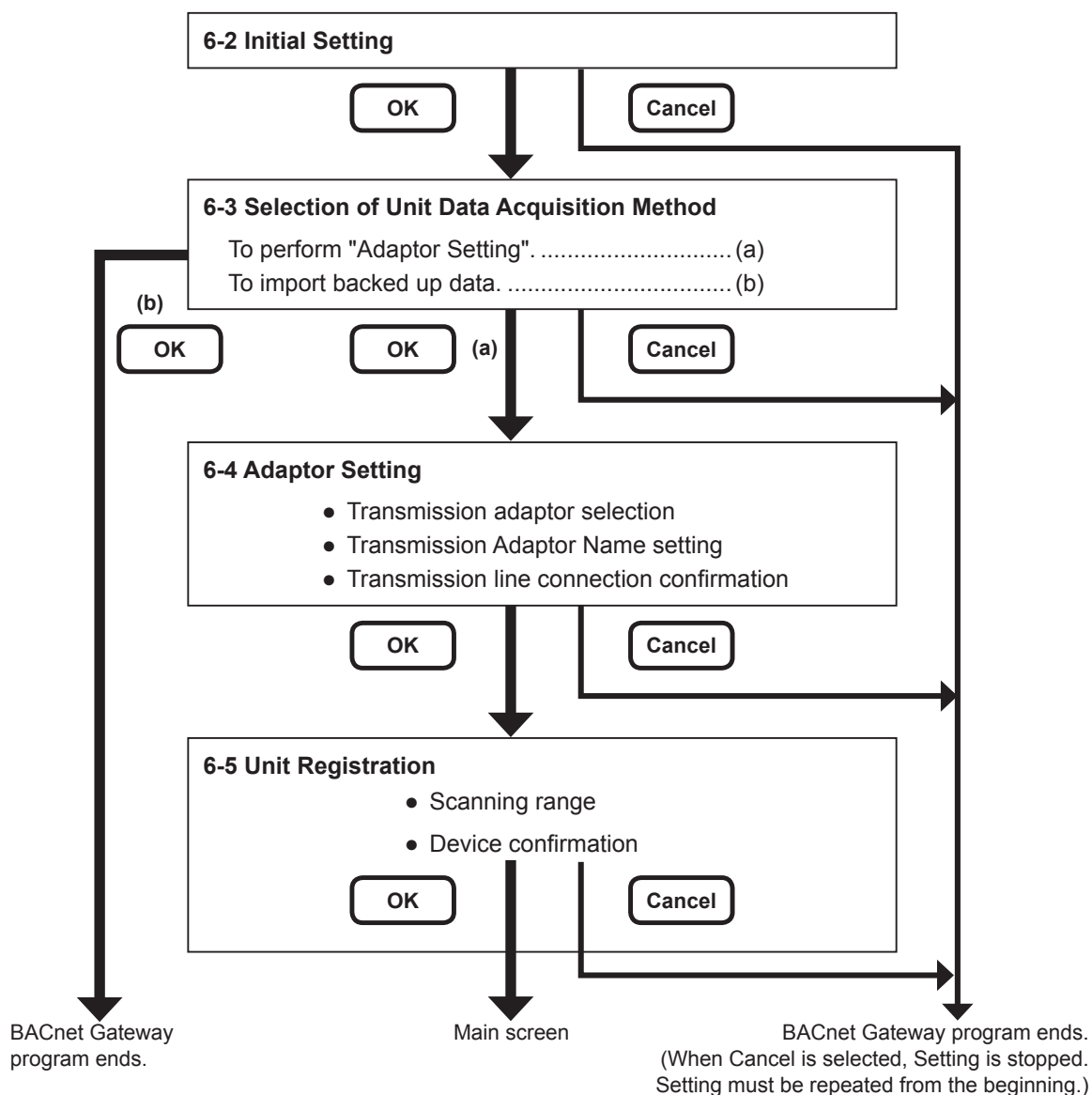
In this section, the basic settings necessary before use in the PC are explained. The settings that are also necessary when equipment configuration changes are also explained here.

When starting the system for the first time after installation, make the settings in accordance with the flow described below. At the 2nd and subsequent starting, make the necessary settings in accordance with subsequent paragraphs, as required.

6-1 When Starting for the First Time

When starting the BACnet Gateway for the first time, perform the settings in accordance with this flow.

- Setting for First Time Use



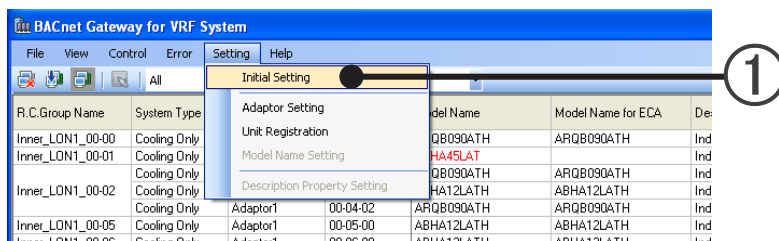
- Items Which Can Be Arbitrarily Set

6-6 Description Property Setting

6-2 Initial Setting

Makes any settings and changes necessary before operation.

- ① When you want to reset Initial Setting, open the “Initial Setting” screen.
Select the menu items in order of [Setting]→[Initial setting] from the Menu bar.



- ② Input or check each item of the screen shown below.
Always set “IP Address” and “Subnet Mask”.
Change other items as required.

The 'Initial Setting' dialog box contains the following fields and options:

- IP Address: 192.168.1.1
- Subnet Mask: 255.255.255.0
- Device Instance No.: 1
- Device Object Name: BACnet_Gateway_for_VRF_System
- Max_APDU_Length_Accepted: 1024 (dropdown)
- APDU_Timeout: 3000 m sec
- Number_of_APDU_Retries: 3 (dropdown)
- APDU_Segment_Timeout: 2000 m sec
- ☐ I-Am Service Broadcast Sending(at 60-second intervals)
- ☐ UnconfirmedCOVNotification Service Broadcast Sending
- ProcessID: 0
- ☐ Synch. VRF System Time to TimeSynchronization/UTCTimeSynchronization.
- ☐ Register as Foreign Device with BBMD
- BBMD at IP Address: (empty field)
- BBMD at UDP Port: (empty field) 0xBAC0(47808) Default
- OK button (highlighted with a circled '3')
- Cancel button

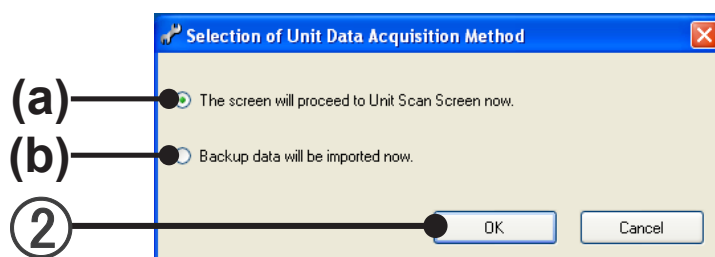
- ③ Click the [OK] button.

Items	Contents
IP Address	Enter the IP address used in BACnet communications. (IPv4 only)
Subnet Mask	Enter the subnet mask corresponding to the IP address used in BACnet communications.
Device Instance No.	Enter the Instance No. of the local Device.
Device Object Name	Enter the object name of the local Device. (Up to 50 ASCII characters)
Max_APDU_Length_Accepted	Select the acceptable APDU length.
APDU_Timeout (m sec)	Enter the APDU timeout time in milliseconds.
Number_of_APDU_Retries	Select the number of retries when time out occurs.
APDU_Segment_Timeout (m sec)	Enter the internal time at which APDU segment is resent, in milliseconds.
I-Am Service Broadcast Sending (at 60-second intervals)	Check when you want to send I-Am Service periodically. (60-second intervals)
Unconfirmed COV Notification Service Broadcast Sending	COV notification is sent by broadcast even when SubscribeCOV service is not subscribed. Refer to the interface specifications for the target object. * Depending on the number of units and their status, large number of packets are sent.
Process ID	Process ID used when sending COV notification.
Synch. VRF System Time to Time Synchronization/UTCT Time Synchronization.	Check if you want to send "system time setting" to VRF units when TimeSynchronization/UTCTimeSynchronization Service is received.
Register as Foreign Device with BBMD	Check when you register as an external device to BBMD.
BBMD at IP Address	BBMD IP address.
BBMD at UDP Socket	BBMD UDP port No.

6-3 Selection of Unit Data Acquisition Method

This setting is performed only at first start settings.

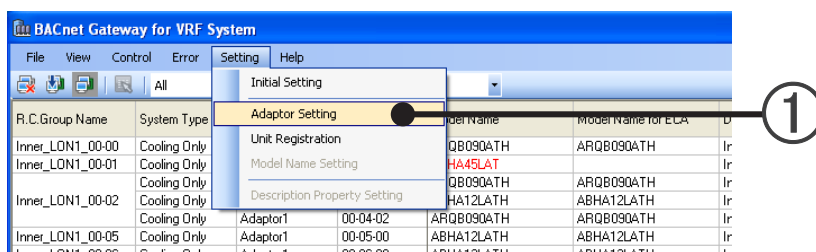
- ① To perform "6-4 Adaptor Setting" processing, select (a).
To import backed up data, select (b).
- ② Click the [OK] button.



6-4 Adaptor Setting

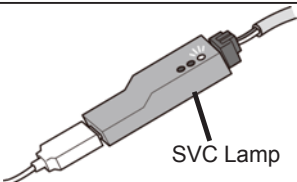
Sets the Device Name and confirms the Device State of the Transmission adaptor (U10 USB Network Interface) that connects the BACnet Gateway.

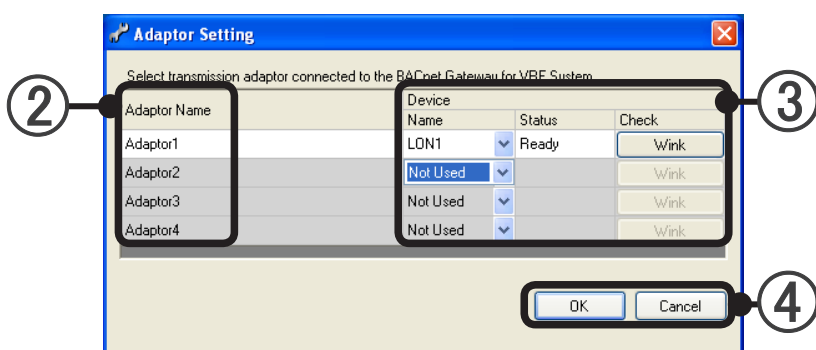
- ① When you want to reset Adaptor Setting, open the “Adaptor Setting” screen.
Select the menu items in order of [Setting]→[Adaptor setting] from the Menu bar.



- ② The Adaptor Name can be set for easy identification by the user. Click the Adaptor Name you want to set and enter the text. (Default name: “AdaptorX”)
Up to 20 characters (alphabet, numeric, and symbol) can be set. The Adaptor Name cannot be duplicated. Only the connected adaptor can be set.

- ③ Usable device setting and confirmation are possible.

Device	Name	A usable devices list (LONx) or “Not Used” can be pulled down and selected.	
	Status	Displays the device status.	
		Ready	The specified adaptor can be used.
		Busy	The specified adaptor is being used by another system.
		Error	The specified adaptor cannot be used.
		(Blank)	Not displayed when an adaptor is not connected.
Device	Check	When the [Wink] button is clicked, the SVC lamp of the specified device lights (for approx. 2 second) and you can confirm which Transmission line the adaptor is connected to. (Only when the Device Status is Ready)	
			



- ④ [OK]: Saves the settings and ends setting work.
[Cancel]: Ends setting work without saving the settings.

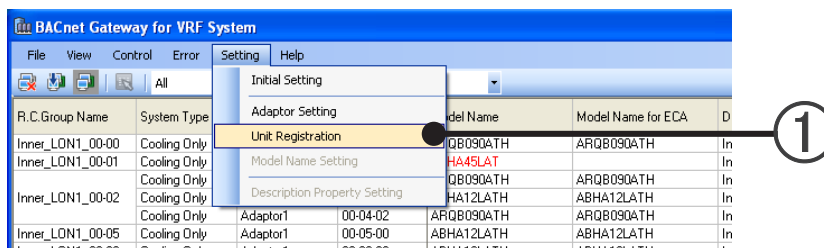
Note

Adaptor Name is a name which can be arbitrarily set so that the user can easily identify connection of the Transmission adaptor (U10 USB Network Interface). (Default name: “AdaptorX”)
“Device Name” is a name automatically allocated on the network when a Transmission adaptor (U10 USB Network Interface) was connected. (Can be changed by LONx and the user)

6-5 Unit Registration

Scans by the network and detects and registers usable R.C. groups and outdoor units.
The units registered by scanning are managed by BACnet Gateway.

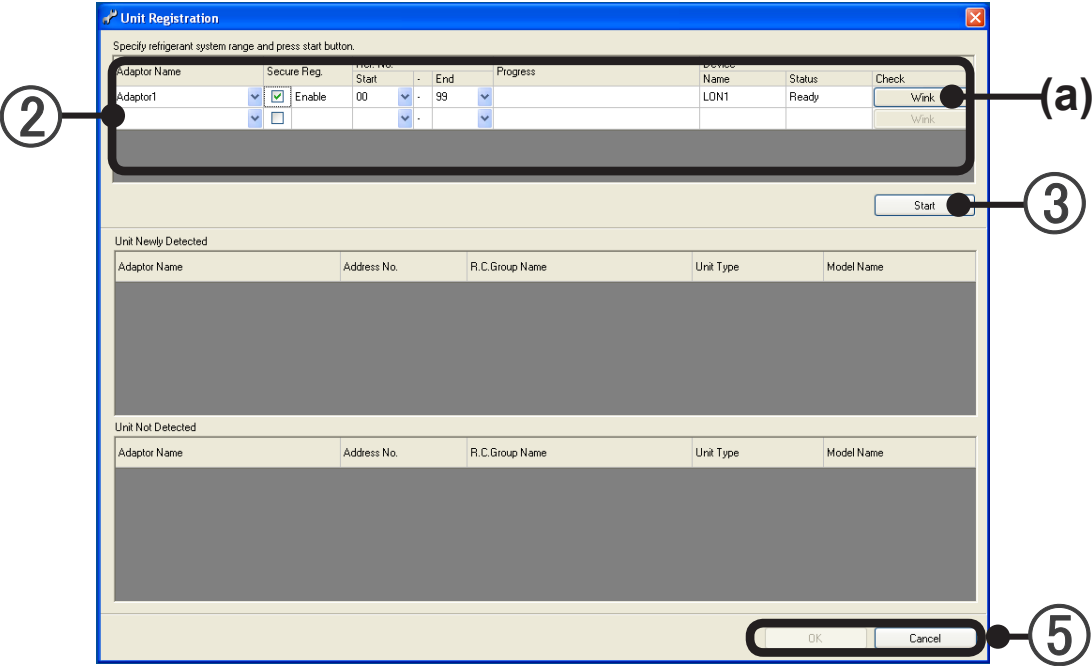
- ① When you want to reset Unit Registration, open the "Unit Registration" screen.
Select the menu items in order of [Setting]→[Unit Registration] from the Menu bar.



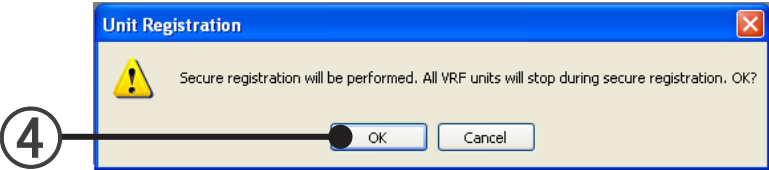
- ② Set the scan Targets.
Scan targets

Adaptor Name	<p>Selects the name of the adaptor which is to perform scanning. (Name set at par. 6-4 Adaptor Setting) Unit Registration is necessary for each adaptor. When an adapter is set at a blank line, a blank line is added below it. The same adapter can be set on multiple lines and different refrigerant system can also be specified.</p>	
Secure Reg.	<p>Specifies by checkbox whether or not secure registration is to be performed when scanning Checked: Secure registration (Recommended) Not checked: No secure registration When scanning is performed by secure registration, operation of the units is stopped. When you do not want to stop operation, uncheck the checkbox. See par. 11-1 No.4.</p>	
Ref. No.	Start	When partially scanning, specify the start number of the refrigerant system by pull-down menu or key input. See par.11-1 No.8.
	End	When partially scanning, specify the end number of the refrigerant system by pull-down menu or key input.
Device	Name	Displays the name of the device used by the relevant network.
	Status	Displays the status of the device used by the relevant network. Normal: "Ready" Abnormal: "Error" Not connected: "Blank"
	Check	When the (a) [Wink] button is clicked, the SVC lamp of the Transmission adaptor used by the relevant network lights (for approx. 2 second) and connection of the selected adaptor can be identified. (Effective only when the status of the Transmission adaptor is normal.)

Description of screen



- 3 Click the [Start] button.
- 4 Click the [OK] button. (The following screen is displayed only when “Secure Reg” is checked.)



Starts scanning. (Disabled when there is no scanning target.)

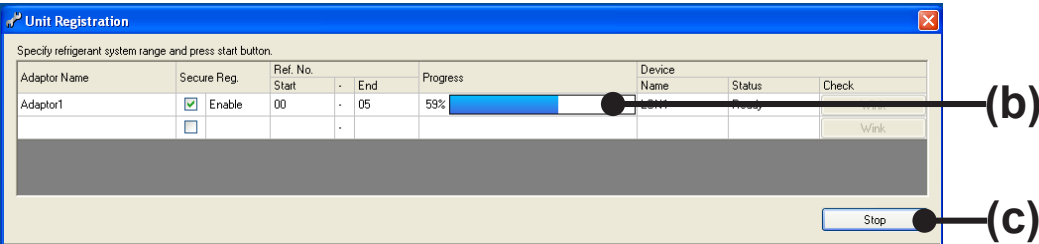
The time required by scanning differs with the size of the system. Use the indicator displayed at (b) during scanning as a guideline.

While scanning is being performed, the [Stop] button (c) is displayed. To stop scanning, click this button.

Note

All systems connected to one Transmission adaptor (U10 USB Network Interface) are stopped during scanning for secure reg.

VRF network list display during scanning



When scan ends, “Done” is displayed at the progressive bar display.

Note

If the following message is displayed after scanning is completed, the necessary information cannot be acquired.

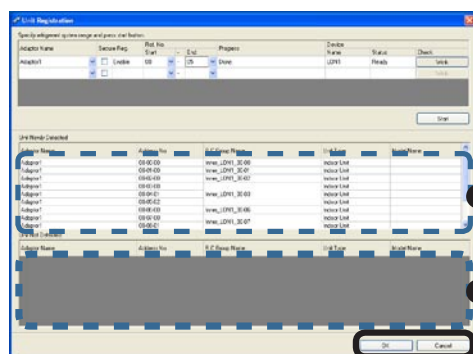
"Information was not acquired for some units. Perform unit registration again."

In this case, always perform scan again to acquire all the necessary information.

If advanced to next as is, normal operation will become impossible.

Especially, if there is a unit for which information could not be acquired when electricity charge apportionment is performed, the refrigerant system including that unit will not be handled by the electricity charge apportionment function.

When these information missing units are included in "Unit Newly Detected", since they are displayed in red characters, treat them as the index of refrigerant system specification when rescanning.



Unit newly detected list:

After the end of scanning, displays the units newly detected.

At initial scanning, all the units are displayed.

From the 2nd scanning, only the units newly detected are displayed

Unit not detected list:

When scanning was performed for the 2nd and subsequent times, displays the units which are already registered and were not detected this time.

Note

- As a result of performing scan, a unit of the same address may be displayed in the Unit Newly Detected list and Undetected Unit list.

This occurs when a registered unit was changed to a different model and set to the same address as the previous unit, etc.

Since the registration information of the previous unit is erased when registration is completed, continue at that setting.

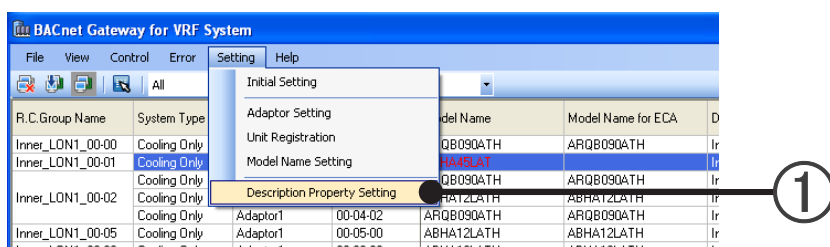
- When intentionally removing a unit from registration, etc, because the unit is removed from the electric power charge apportionment objective or other reason, confirm it here. (Perform scanning after turning off the power of the unit removed from registration.)

- ⑤ [OK] button: Saves the detected unit configuration detected by scanning.
[Cancel] button: Ends scanning without saving the scanned result.

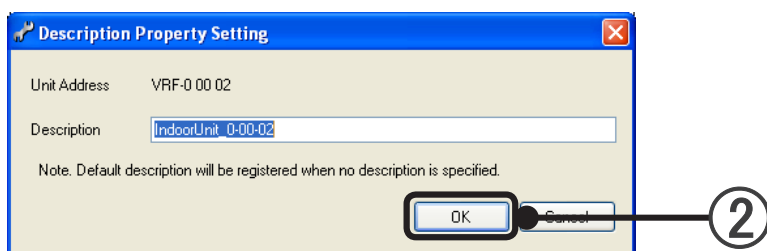
6-6 Description Property Setting

Values of description properties of all objects within the selected unit can be modified at once.

- ① Select the menu items in order of [Setting]→[Description Property Setting] from the Menu bar.



Up to 50 characters can be entered.



- ② Click the [OK] button.

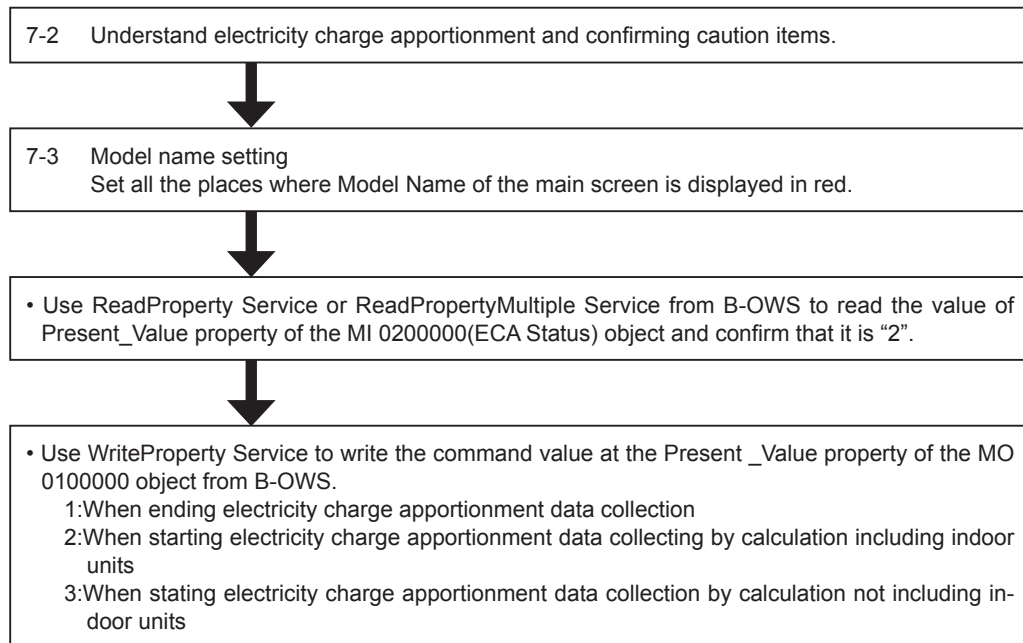
7. Electricity Charge Apportionment Setting

Performs basic settings related to electricity charge apportionment necessary before operation. You may also update the settings due to facility and tenant changes.

At initial starting after installation, perform setting in accordance with the following flow. For settings and changes after operation starts, perform the necessary settings in accordance with the contents of par. 7-2 and subsequent paragraphs.

7-1 Basic Setting Flow

Perform initial setting in accordance with this flow.



1. Purpose of electricity charge apportionment

The electricity charge apportionment function apportions air conditioner electricity charges to tenants. Generally, indoor units are divided among and used by each tenant, and calculation of the electricity charge for each tenant is easy. But since outdoor units are shared by multiple tenants, calculation of the electricity charge for each tenant is not easy.

The electricity charge apportionment function allows distribution of the electricity charges of outdoor units, which are a large part of the air conditioner power consumption, according to the air conditioner usage of each tenant.

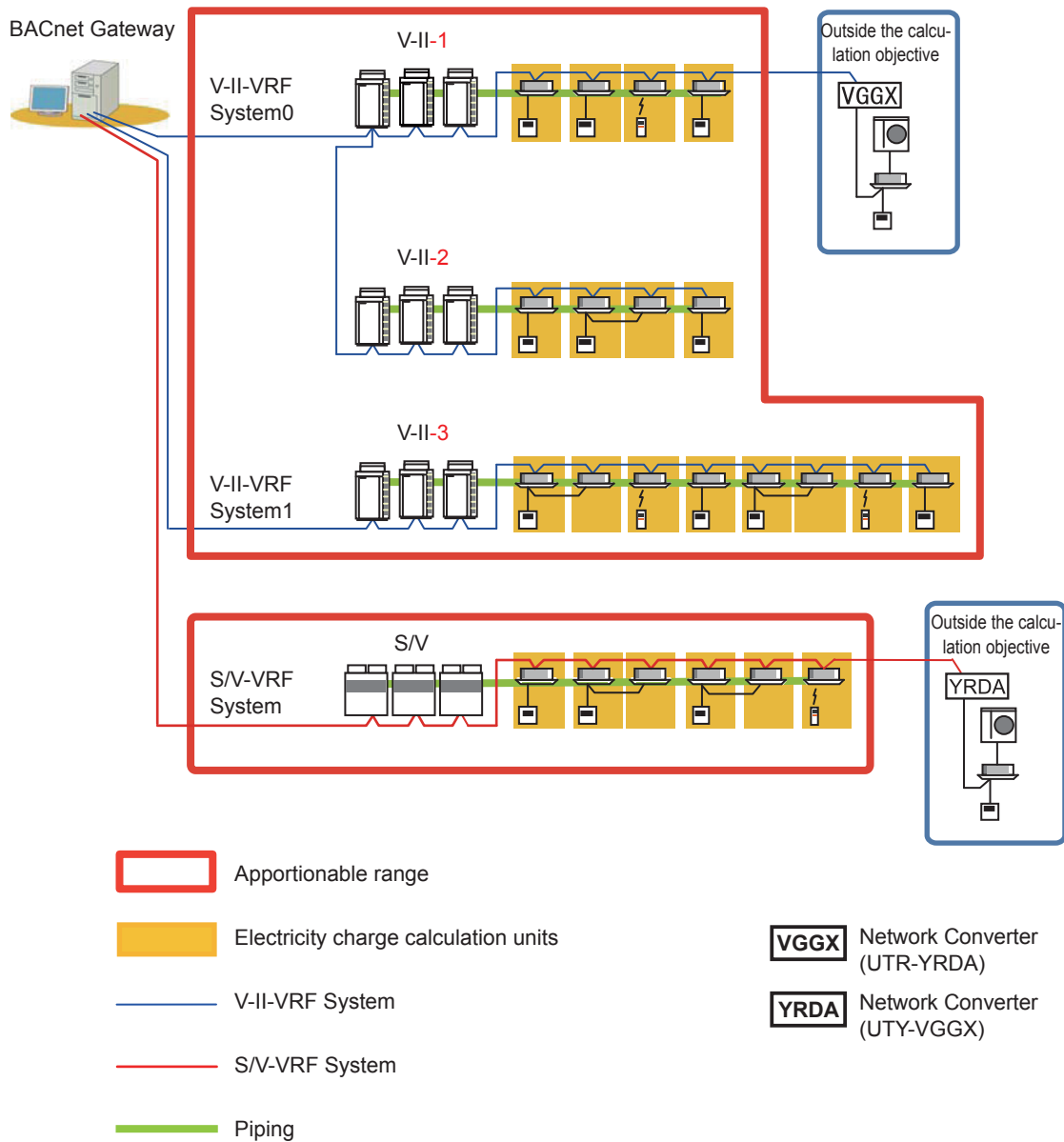
2. Features of electricity charge apportionment of BACnet Gateway

- (1) Power meter is not used and electricity apportionment calculation is performed from the electricity charges billed from the electric power company.
- (2) Apportionment calculation is performed according to indoor unit usage.
- (3) In addition to electricity charge calculation of outdoor units only, electricity charge calculation including indoor units is also possible.
- (4) Flexible definition according to the electricity charge contract configuration, block configuration, and usage period is possible.
- (5) Since the data for 1 year is saved, recalculation of the past is possible.

3. Precautions for Using Electricity Charge Apportionment Function

- (1) The electricity charge apportionment function requires correct setting and use in accordance with the descriptions in this manual and Interface Specification Manual.
If correct operation based on correct setting is not performed, a reasonable result may not be obtained.
- (2) The electricity charge apportionment function does not calculate official electricity charges like those established by the laws and regulations of each country.
- (3) Gaining an understanding of the descriptions, etc. in this manual and using the electricity charge apportionment function accordingly should be performed by the responsibility of the user.
- (4) The electricity charges used in electricity charge apportionment calculation should only be that of the power consumed by the air conditioner.
- (5) For the electricity charge apportionment function to function properly, BACnet Gateway must operate continuously. If BACnet Gateway is shut down or stopped by a power failure, etc. while the data needed by calculation is being acquired, correct electricity charge apportionment calculation may be not be possible.
- (6) Electricity charge apportionment is performed for units identified by scanning. When the unit configuration is changed, perform scanning to re-identify the target units.
- (7) Constantly maintain the units which are the target of electricity charge apportionment calculation in the normal operating state.
If it is turned off for a long time, etc., data acquisition and correct calculation may not be possible.
- (8) The electricity charge for units or refrigerant systems which are the target of electricity charge apportionment calculation are calculated even when it is turned off. To remove them from electricity charge apportionment calculation, turn off the power of the unit or refrigerant system which is to be removed and re-scan to remove the unit from the calculation target.
- (9) Electricity charge apportionment calculation identifies units by address. When the address of a unit was changed by automatic addressing function, etc., perform scanning to re-identify the correct address.
- (10) Even when an indoor unit operation time is zero, the rate (proportion) of the electricity charge apportionment is not zero because of the power consumed in the outdoor unit in standby.
- (11) The apportionment calculation for the electricity charge cannot be performed for air conditioners

- other than VRF, such as single split type, that are connected to the VRF System via convertors.
- (12) The S/V series and V-II series adopt different refrigerant system control and the electricity charge apportionment function adopts different method reflecting the difference. So the same operation condition for units may not yield the same result for S/V and V-II series.



7-3 Model Name Setting

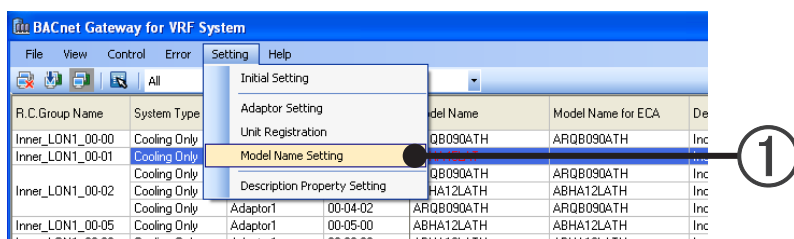
Model Name is automatically acquired at scanning.

When the data was collected normally, Model Name is displayed at "Model Name" and "Model Name for ECA".

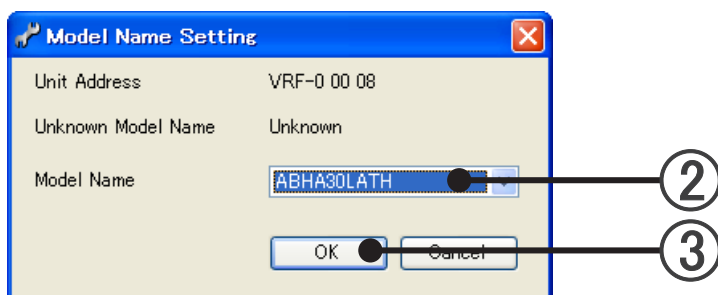
When the data could not be collected normally, Model name is displayed in red. In this case, set Model Name individually.

* S/V Series cannot obtain Model Name even by scanning. (This function cannot be used.)

- ① Select the menu items in order of [Setting]→[Model Name Setting] from the Menu bar.



- ② Select "Model Name".



- ③ Click the [OK] button.

Operation

8. Operation

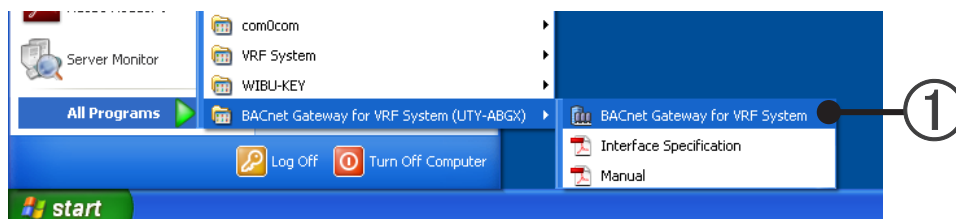
8. Operation

8-1 Starting and Ending the BACnet Gateway

■ Starting the BACnet Gateway

Make sure that USB Adaptor Connections (Refer to "5-2 Hardware Installation".) are completed and the Ethernet cable for the BACnet Gateway is connected to LAN port of the PC before starting up the application.

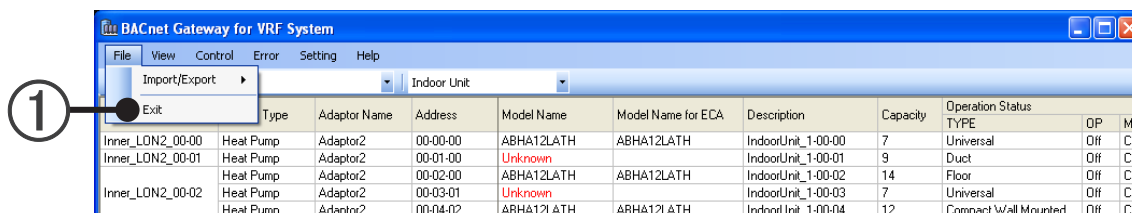
- 1 Select "BACnet Gateway for VRF System" from the Windows start menu.



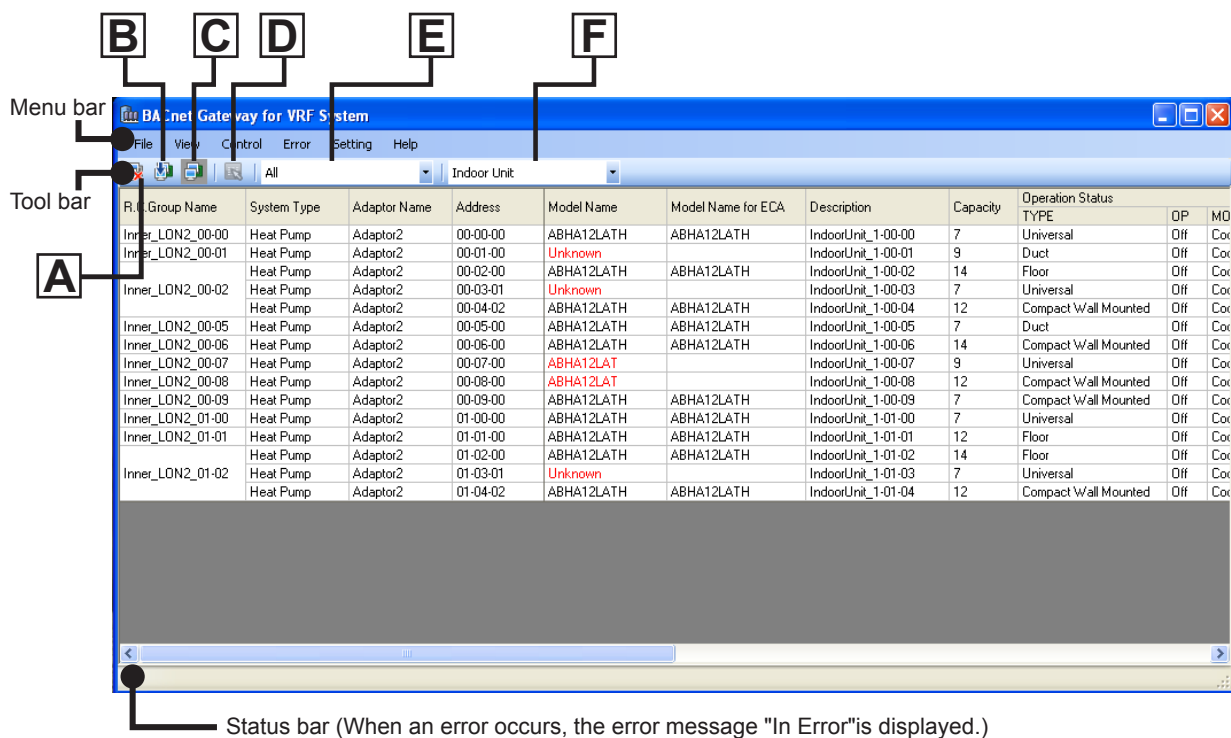
- 2 When "BACnet Gateway for VRF System" boots up, the main screen is displayed.

■ Ending the BACnet Gateway

- 1 Select the menu items in order of [File]→[Exit] from the Menu bar



8-2 Main Screen



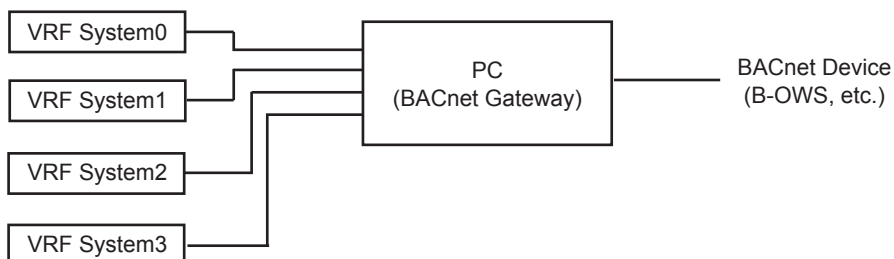
This software has the following functions

		Menu bar (Command name)	Contents	Tool bar
1	File	Import / Export	Unit List(EDE) Export	Exports "Unit List(EDE)" data to a CSV format file.
			All Data Import	Imports the data backed up by [All Data Export].
			All Data Export	Backs up the internal data.
		Exit	-	The BACnet Gateway ends.
2	View	VRF System	All (All adaptors)	Displays the Status information of all the indoor units or outdoor units connected to this system.
			Adaptor*	Displays the Status information of the indoor unit or outdoor unit of the selected adaptor. * A maximum of 4 adaptors can be connected. Menus for only the number of connected adaptors are displayed
		Unit	Indoor Unit	Displays the Status information of the Indoor Unit connected to the adaptor selected by [VRF System] menu.
			Outdoor Unit	Displays the Status information of the Outdoor Unit connected to the adaptor selected by [VRF System] menu.

	Menu bar (Command name)			Contents	Tool bar
3	Control	Operation Setting	-	The following setting screen of indoor unit is displayed. ①Operation on/off ②Operation mode switching ③Set temperature switching ④Fan speed switching (Outdoor Unit cannot be set.)	D
		Device Communication Disable (*1)	-	Device communications is disabled. * When this setting is performed, communication with the VRF System is not stopped.	A
		Device Communication Disable_Initiation (*1)	-	The initiation of communications is disabled. *When this setting is performed, communication with the VRF System is not stopped.	B
		Device Communication Enable (*1)	-	Communications is enabled.	C
		Out of Service	False	Set Out_Of_Service properties of all BACnet objects to "False".	-
4	Error	Error Notification	-	Displays the current error information.	-
		Error History	-	Displays the error information history.	-
5	Setting	Initial Setting	-	Set when installing equipment. Refer to par. 6. Basic Settings.	-
		Adaptor Setting	-		-
		Unit Registration	-		-
		Model Name Setting	-		-
		Description Property Setting	-		-
6	Help	Manual	-	Instruction manual (this manual) is displayed.	-
		Interface Specification Document	-	Interface Specification Document is displayed.	-
		Version Information	-	Version information is displayed.	-

*1. About Device Communication Control Service

The 3 functions "Device Communication Disable", "Device Communication Disable_Initiation" and "Device Communication Enable" can be set for a Device itself. (Time Duration, Password cannot be set) This setting can be set from a BACnet Device (B-OWS, etc.) This value can be overwritten from B-OWS.



8-3 Data Import/Export

8-3-1 Unit List (EDE) Export

1. Description of function

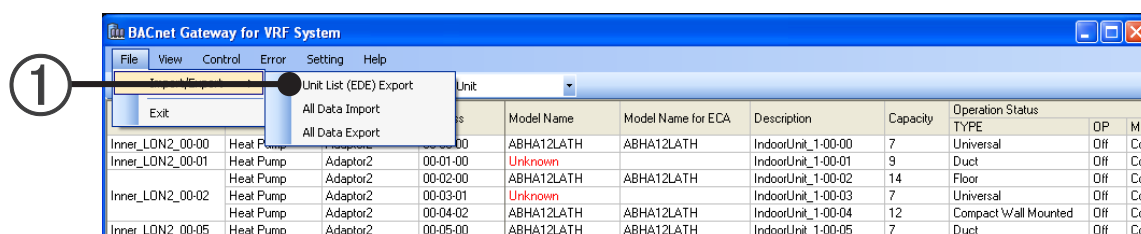
Export “Unit List(EDE)” data to a CSV format file.

About “EDE”

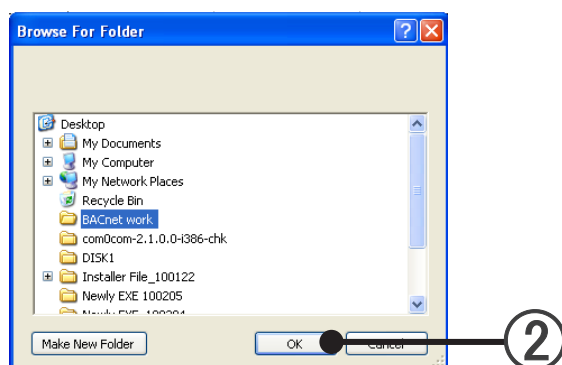
The contents of “EDE “ sheet and “State-Texts” sheet of The Engineering Data Exchanger (EDE) template created by BACnet Interest Group Europe is output in CSV format. In addition, the “settable” field of the “EDE” sheet is not used.

2. Operating procedure

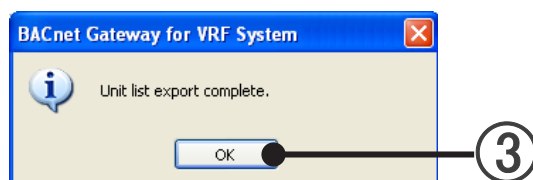
- ① Select the menu items in order of [File]→[Import/Export]→[Unit List (EDE) Export] from the Menu bar.



- ② Specify the Export destination folder and click [OK].
The folder to be saved shall be created in advance.



- ③ When [OK] is clicked, the export is complete.



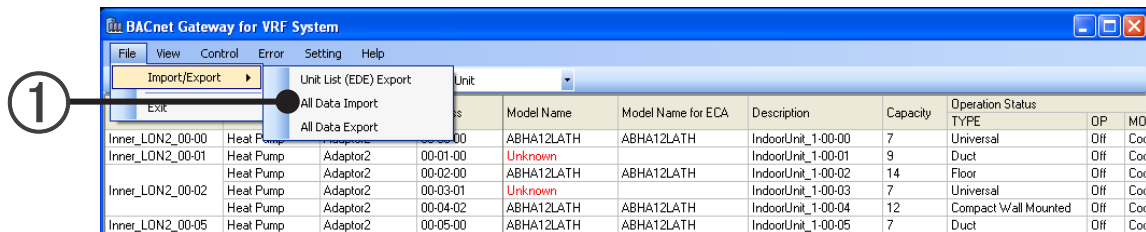
8-3-2 All Data Import

1. Description of function

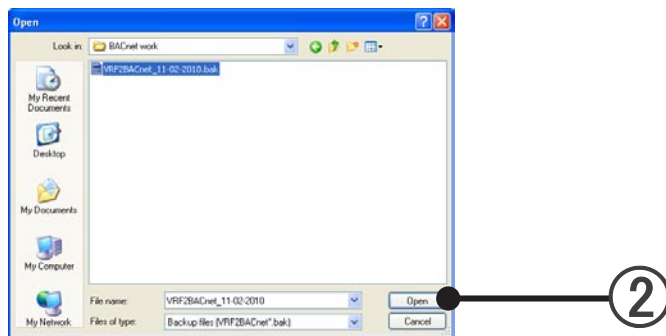
Import the data backed up by [All Data Export].

2. Operating procedure

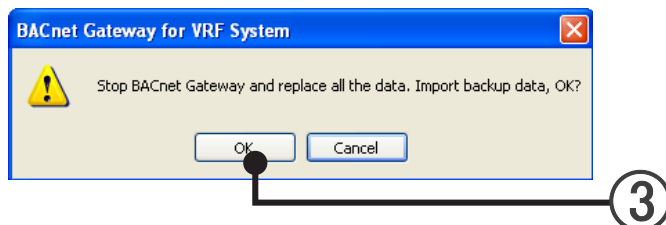
- ① Select the menu items in order of [File]→[Import/Export]→[All Data Import] from the Menu bar.



- ② Specify the file to be imported and click [OPEN].



- ③ When [OK] is clicked, the import starts.



- ④ When [OK] is clicked, the import is complete.
- ⑤ After the main screen is closed, restart BACnet Gateway.

8-3-3 All Data Export

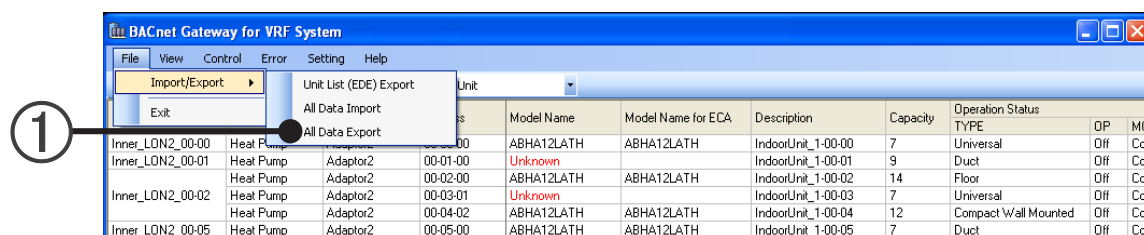
1. Description of function

Back up the "All Data"(internal data).

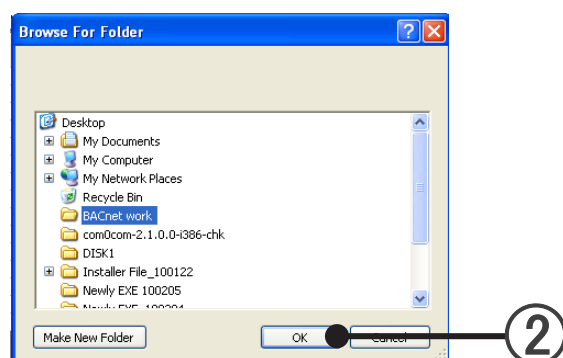
All Data : Connected U10 USB Network Interface adaptor data, scanned unit data, and data set by B-OWS.

2. Operating procedure

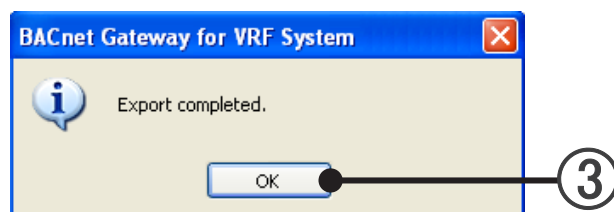
- ① Select the menu items in order of [File]→[Import/Export]→[All Data Export] from the Menu bar.



- ② Specify the export destination folder and click [OK].
The folder to be saved shall be created in advance.



- ③ When [OK] is clicked, the export is complete.



8-4 View

1. Description of function

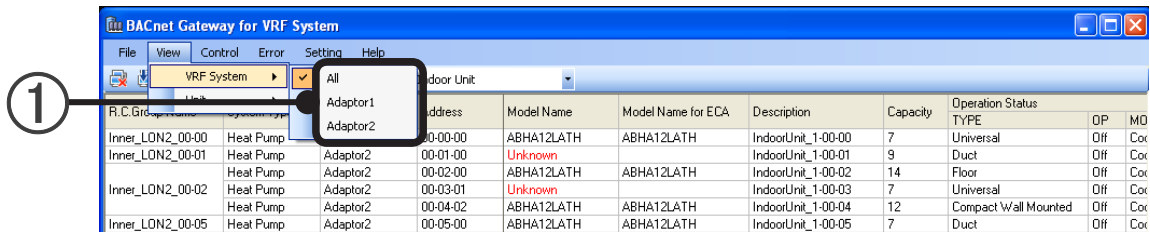
The Indoor unit and Outdoor unit Status information can be viewed.

2. Operating procedure

- ① Select the VRF System ([All] or [Adaptor*]) that you wish to display.

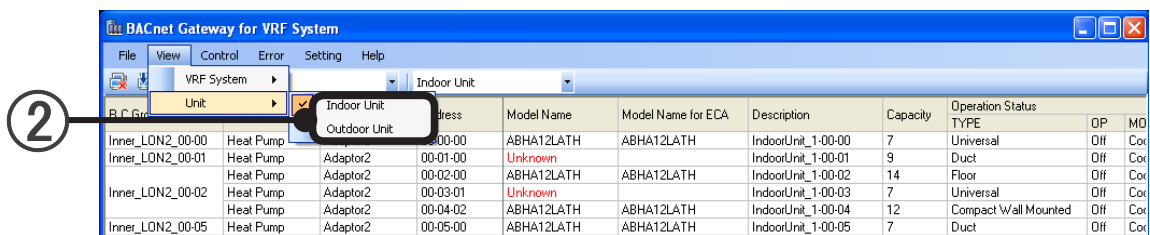
* Menus for only the number of connected adaptors are displayed

Select the menu items in order of [View]→[VRF System]→[All or Adaptor*] from the Menu bar



- ② Select the displayed unit (indoor unit or outdoor unit).

Select the menu items in order of [View]→[Unit]→[Indoor Unit or Outdoor] from the Menu bar



Example) When set to [All] and [Indoor unit]

BACnet Gateway for VRF System										
File View Control Error Setting Help										
VRF System		Unit		Indoor Unit						
R.C.Group Name	System Type	Adaptor Name	Address	Model Name	Model Name for ECA	Description	Capacity	Operation Status	TYPE	OP MO
Inner_LON2_00-00	Heat Pump	Adaptor2	00-00-00	ABHA12LATH	ABHA12LATH	IndoorUnit_1-00-00	7	Universal	Off	Cox
Inner_LON2_00-01	Heat Pump	Adaptor2	00-01-00	Unknown	ABHA12LATH	IndoorUnit_1-00-01	9	Duct	Off	Cox
Inner_LON2_00-02	Heat Pump	Adaptor2	00-02-00	ABHA12LATH	ABHA12LATH	IndoorUnit_1-00-02	14	Floor	Off	Cox
Inner_LON2_00-03	Heat Pump	Adaptor2	00-03-01	Unknown	ABHA12LATH	IndoorUnit_1-00-03	7	Universal	Off	Cox
Inner_LON2_00-04	Heat Pump	Adaptor2	00-04-02	ABHA12LATH	ABHA12LATH	IndoorUnit_1-00-04	12	Compact Wall Mounted	Off	Cox
Inner_LON2_00-05	Heat Pump	Adaptor2	00-05-00	ABHA12LATH	ABHA12LATH	IndoorUnit_1-00-05	7	Duct	Off	Cox

3. Items displayed in the Status List.

I.U.=Indoor unit O.U.=Outdoor unit

Items	Remarks	I.U.	O.U.
R.C.Group Name	Remote controller group name	○	-
Unit Group Name	Outdoor group name	-	○
System Type	Displays the type of refrigerant system (cooling only , heat pump or heat recovery)	○	○
Adaptor Name	Connected U10 USB Network Interface adaptor name.	○	○
Address	Displays the address for each unit. Display contents: "Refrigerant system address "-"Unit address"-"R.C address". For V-II series following notations apply for the address suffix to show how the units are controlled in AUTO mode; /m master indoor unit /s slave controlled by master indoor unit /o unit controlled by outdoor unit Those without suffixes are units that not any of the aboves.	○	○

Items		Remarks	I.U.	O.U.
Model Name	Unit model name*		○	○
	*The letter ":" as the last letter of the Model Name signifies that the Model Name for the corresponding unit was written after shipment. The letter ":" is not part of the Model Name.			
Model Name for ECA		Model names used with electricity charge apportionment	○	○
Description		Explanation for Indoor/Outdoor units	○	○
Capacity		Capacity of Indoor units	○	
Operation Status		Operation Status	○	-
	Type	Indoor unit type *Universal shows Floor or Ceiling.	○	-
	OP	Operation status.	○	-
	MODE	Displays the operation mode. (Displayed even when stopped.)	○	-
	SET Temp.	Set Temp. (°C) Displays the set temperature.	○	-
	Fan Speed	Fan speed displays the air flow setting.	○	-
Reliability		Shows any of the values other than "No_Fault_Detected", of the reliability properties of the objects contained in the unit.	○	○
Out of service		Shows "True" if any one of the values of the Out_Of_Service properties of the objects contained in the unit is "True".	○	○
Error	State separate from original instruction and operation		○	○
	Code	Error code of current error	○	○
	Contents	Error code details	○	○
	Time of Occurrence	Time error occurred	○	○
	Total Count of Occurrences	Number of errors which occurred from start up to the present	○	○
Emergency Stop		Displayed when emergency stop signal sent/received	○	○
Priority Operation Mode		Cooling/heating priority operation (Heat pump of S/V Series only)	-	○

8-5 Control

8-5-1 Operation Setting

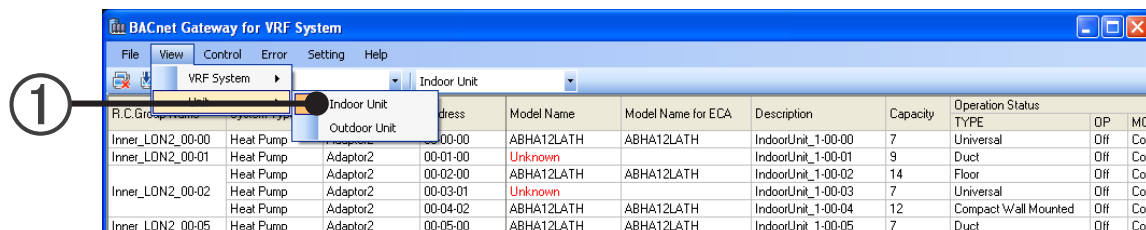
1. Description of function

Indoor unit "On/Off", "Operation Mode", "temperature setting", and "Fan speed" can be set.

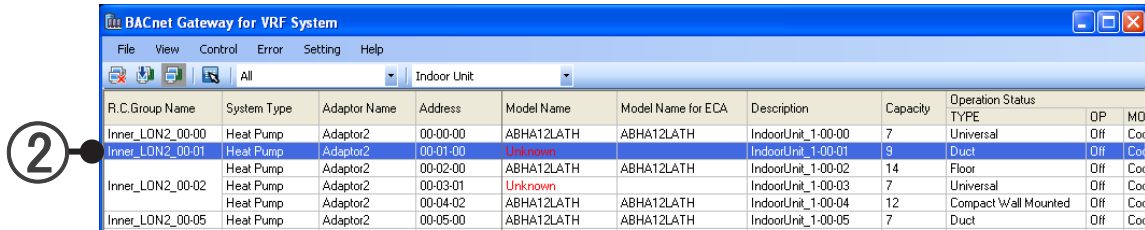
2. Operating procedure

- ① Select indoor unit.


Select the menu items in order of [View]→[Unit]→[Indoor Unit] from the Menu bar

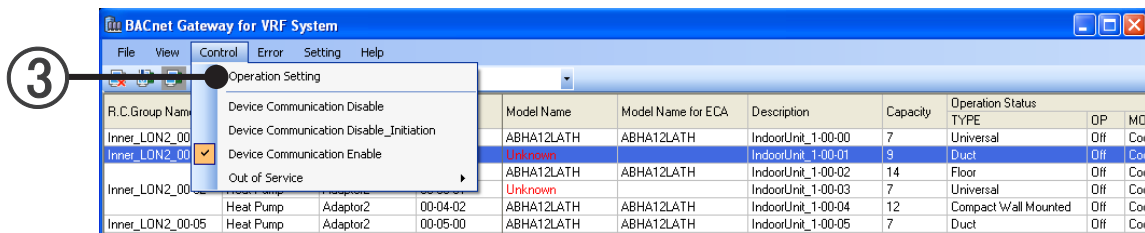
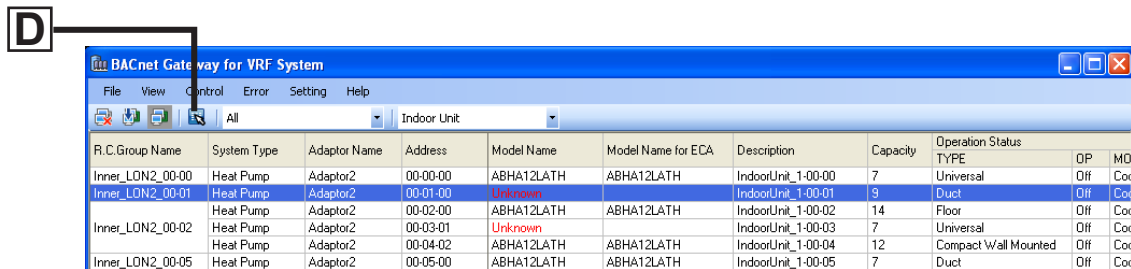


- ② Click the unit (line) that you wish to select.



R.C.Group Name	System Type	Adaptor Name	Address	Model Name	Model Name for ECA	Description	Capacity	Operation Status	TYPE	OP	MO
Inner_LON2_00-00	Heat Pump	Adaptor2	00-00-00	ABHA12LATH	ABHA12LATH	IndoorUnit_1-00-00	7	Universal	Off	Co	
Inner_LON2_00-01	Heat Pump	Adaptor2	00-01-00	Unknown	ABHA12LATH	IndoorUnit_1-00-01	9	Duct	Off	Co	
Inner_LON2_00-02	Heat Pump	Adaptor2	00-02-00	ABHA12LATH	ABHA12LATH	IndoorUnit_1-00-02	14	Floor	Off	Co	
Inner_LON2_00-03	Heat Pump	Adaptor2	00-03-01	Unknown	ABHA12LATH	IndoorUnit_1-00-03	7	Universal	Off	Co	
Inner_LON2_00-04	Heat Pump	Adaptor2	00-04-02	ABHA12LATH	ABHA12LATH	IndoorUnit_1-00-04	12	Compact Wall Mounted	Off	Co	
Inner_LON2_00-05	Heat Pump	Adaptor2	00-05-00	ABHA12LATH	ABHA12LATH	IndoorUnit_1-00-05	7	Duct	Off	Co	

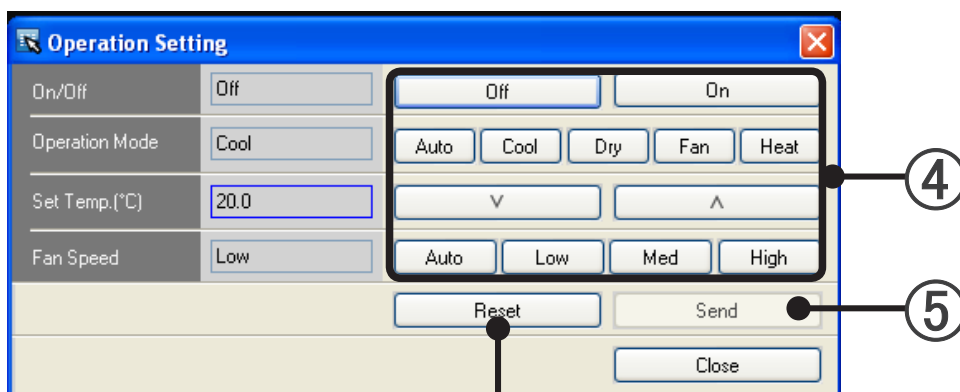
- ③ Select the menu items in order of [Control]→[Operation Setting] from the Menu bar
or
Click the  button.

R.C.Group Name	System Type	Adaptor Name	Address	Model Name	Model Name for ECA	Description	Capacity	Operation Status	TYPE	OP	MO
Inner_LON2_00-00	Heat Pump	Adaptor2	00-00-00	ABHA12LATH	ABHA12LATH	IndoorUnit_1-00-00	7	Universal	Off	Co	
Inner_LON2_00-01	Heat Pump	Adaptor2	00-01-00	Unknown	ABHA12LATH	IndoorUnit_1-00-01	9	Duct	Off	Co	
Inner_LON2_00-02	Heat Pump	Adaptor2	00-02-00	ABHA12LATH	ABHA12LATH	IndoorUnit_1-00-02	14	Floor	Off	Co	
Inner_LON2_00-03	Heat Pump	Adaptor2	00-03-01	Unknown	ABHA12LATH	IndoorUnit_1-00-03	7	Universal	Off	Co	
Inner_LON2_00-04	Heat Pump	Adaptor2	00-04-02	ABHA12LATH	ABHA12LATH	IndoorUnit_1-00-04	12	Compact Wall Mounted	Off	Co	
Inner_LON2_00-05	Heat Pump	Adaptor2	00-05-00	ABHA12LATH	ABHA12LATH	IndoorUnit_1-00-05	7	Duct	Off	Co	

- ④ "Operation Setting" screen is displayed.
When the set button is pressed, "On/Off", "Operation Mode", "temperature setting", and "Fan speed" can be set.

* Function which cannot be set is not pressed.



"Reset" button: When this button is pressed, returns to the setting state when this screen was displayed.

Function List

On / Off	Switches operation of the selected Indoor Unit On/Off.
Operation Mode	Switches Operation Mode to [Auto], [Cool], [Dry], [Fan] or [Heat].
Set Temp.(°C)	Changes the set temperature.
Fan speed	Switches Fan speed to [Auto], [Low], [Med] or [High].

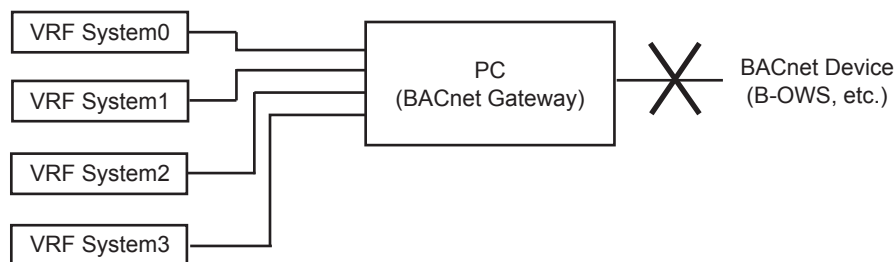
- ⑤ Click the [Send] button.
Indoor unit setting is switched.

8-5-2 Device Communication Disable

1. Description of function

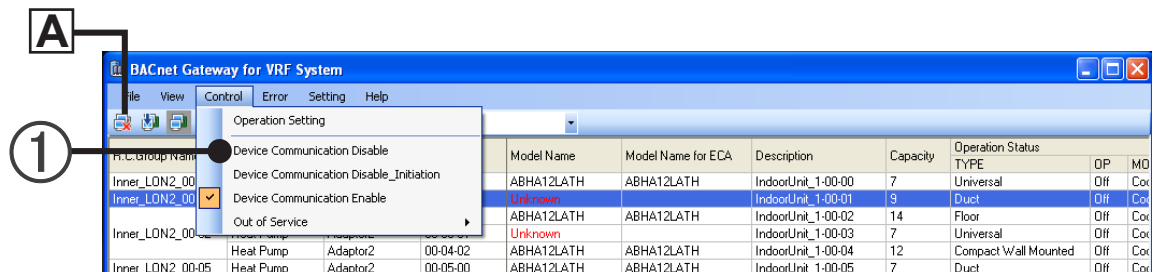
Device communications is disabled.

- * When this setting is performed, communication with the VRF System is not stopped.

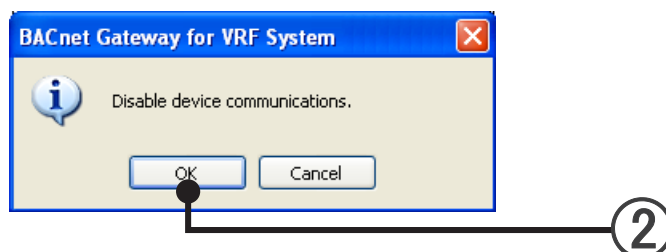


2. Operating procedure

- ① Select the menu items in order of [Control]→[Device Communication Disable] from the Menu bar
or
Click the **A** button.



- ② Click the [OK] button on the window of "Disable device communication" shown below.



8-5-3 Device Communication Disable_Initiation

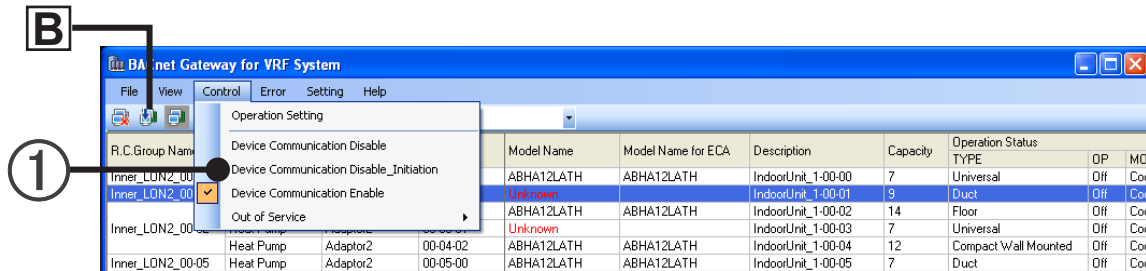
1. Description of function

The initiation of communications shall be disabled.

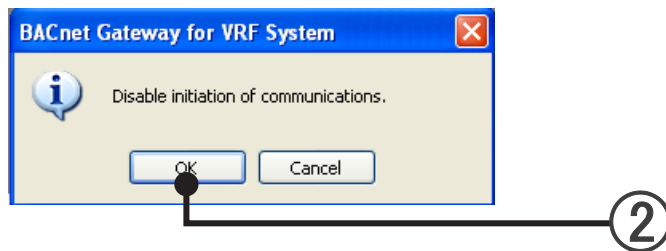
- * When this setting is performed, communication with the VRF System is not stopped.

2. Operating procedure

- ① Select the menu items in order of [Control]→[Device Communication Disable_Initiation] from the Menu bar
or
Click the **B** button.



- ② Click the [OK] button on the window of "Disable initiation of communications" shown below.



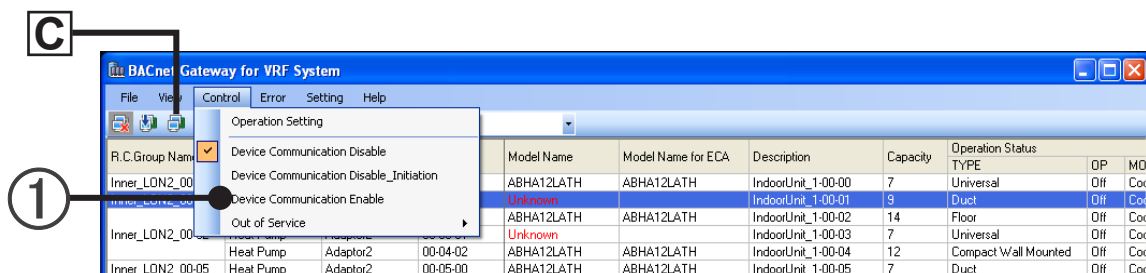
8-5-4 Device Communication Enable

1. Description of function

Communications is enabled.

2. Operating procedure

- ① Select the menu items in order of [Control]→[Device Communication Enable] from the Menu bar
or
Click the **C** button.



- ② Click the [OK] but on the window of "Enable device communications" shown below.



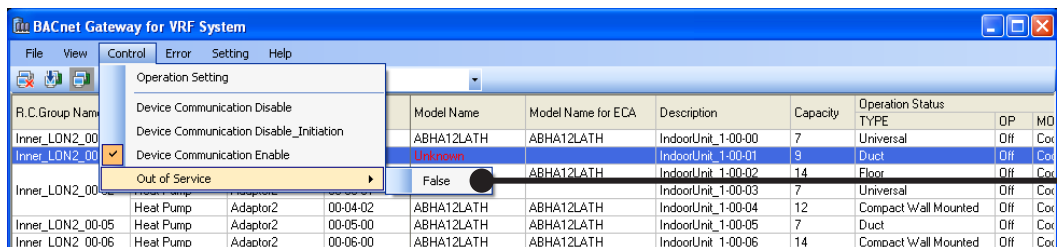
8-5-5 Out of Service

1. Description of function

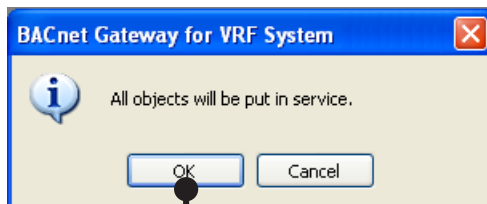
Set Out_Of_Service properties of all BACnet objects to "False".

2. Operating procedure

- ① Select the menu items in order of [Control]→[Out of Service]→[False] from the Menu bar



- ② Click the [OK] button on the window of "All objects will be put in service." shown below.

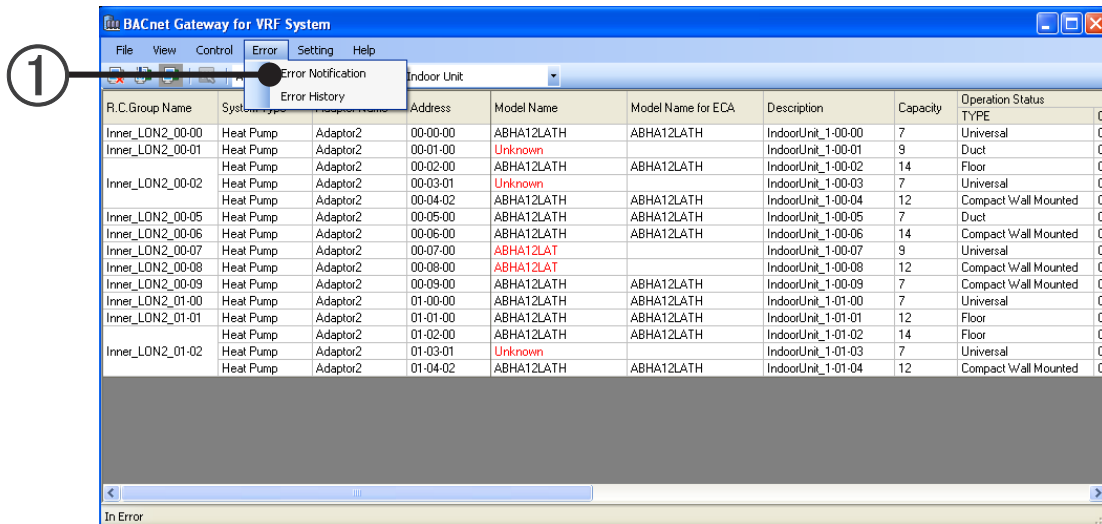


8-6 Error

"Error information" and "Error History" can be viewed.

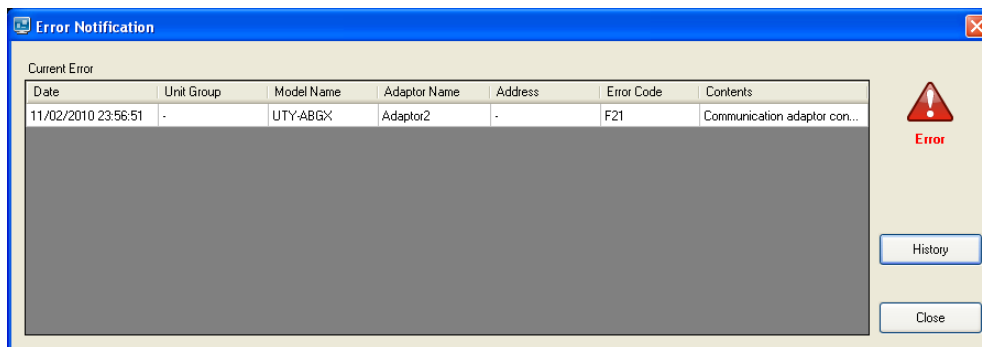
8-6-1 Displays Error Information

- ① Select the menu items in order of [Error]→[Error Notification] from the Menu bar or
Automatically opens at error generation.



- ② "Error Notification" screen is displayed.

"Error Notification" screen

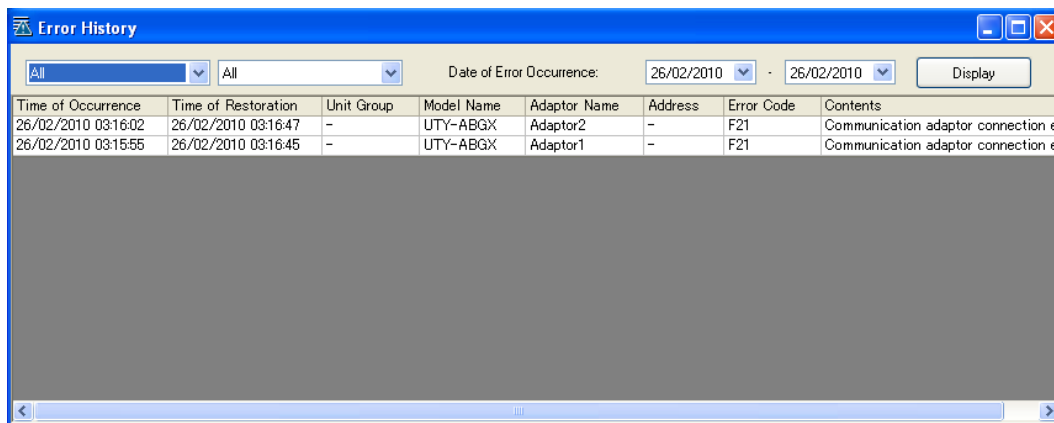


Items displayed in the ERROR List of Indoor/Outdoor Unit.

Items	Remarks
Date	Date error occurred
Unit Group	When "Indoor Unit" is selected, "R.C.Group Name" is displayed. When Outdoor Unit is selected, "Unit Group Name" is displayed. Otherwise, "-" is displayed.
Model Name	Unit model name* *The letter ":" as the last letter of the Model Name signifies that the Model Name for the corresponding unit was written after shipment. The letter "-" is not part of the Model Name.
Adaptor Name	Connected U10 USB Network Interface adaptor name.
Address	Displays the address for each unit. Display contents: "Refrigerant system address "-"Unit address"-"R.C address".
Error Code	Error code
Contents	Contents

8-6-2 Displays Error History

- ① Select the menu items in order of [Error]→[Error History] from the Menu bar
or
Click the [History] button of the "Error Notification" screen.
- ② "Error History" screen is displayed.

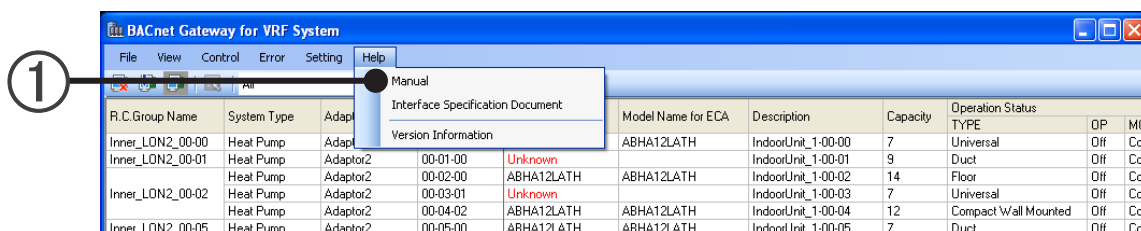


8-7 Help

"Instruction manual", "Interface Specification Document", and Version information of BACnet Gateway is displayed.

8-7-1 Displays "Instruction Manual"

- ① Select the menu items in order of [Help]→[Manual] from the Menu bar



- ② "Instruction manual"(this manual) is displayed.

8-7-2 Displays "Interface Specification Document"

- ① Select the menu items in order of [Help]→[Interface Specification Document] from the Menu bar
- ② "Interface Specification Document" is displayed.

8-7-3 Displays Application Version Information

- ① Select the menu items in order of [Help]→[Version Information] from the Menu bar
- ② "Version Information" is displayed.

Appendix

- 9. Product Specifications
- 10. Error Code Table
- 11. FAQ

9. Product Specifications

9-1 Operating Conditions

BACnet Gateway

Model name	UTY-ABGX
OS	Microsoft® Windows® XP Professional (English version) Service pack 3 or later Microsoft® Windows Vista® Home Premium, Business (English version)
CPU	Intel® Pentium®/Celeron® 2 GHz or higher
Memory	2GB or more
HDD	40GB or more of free space
Display (resolution)	1024 x 768 pixel or more
Interface	USB (Ver.1.1/2.0) port x 1 (for WIBU-KEY) USB (Ver.1.1/2.0) port x 1 to 4 (for U10 USB Network Interface)* Ethernet Port

* Number of USB ports required differs with the number of adaptors connected.

9-2 Accessories

CD-ROM (Application and Manual)	(1)
USB Software Protection key	(1)

10. Error Code Table

The BACnet Gateway error codes are shown below. When an error occurred at the BACnet Gateway, check the codes below and contact your service personnel.

Refer to the Interface Specification document for the Indoor unit and Outdoor unit error codes.

Error code	Error contents
F11	Database access error
F12	Database connection error
F13	Software restart error
F14	Program run time error
F15	Error at execution of various special operations
F16	Insufficient vacant space on HDD used by database
F21	Transmission adaptor connection failed
F22	Transmission error (data not acquired)
F23	External input power meter error
F31	Communication between processes error
F32	Software protection key not recognized (including WIBU-KEY obstruction)
F33	Server/client communication error
F41	HDD capacity error
F42	System requirements error
F43	Time error

11. FAQ

11-1 General

No.	Question
	Answer
1.	The PC power was dropped during unit scanning. What happens to the data scanned up to the point? Is data integrity maintained?
	The scanned data is saved when scanning is completed and the [OK] button is pressed. When the power was dropped before this, the data scanned up to that point is lost. Restart scanning from the beginning. → 6-5 Unit Registration.
2.	When scanning, U10 USB Network Interface is not displayed as a selection choice. What should I do?
	U10 USB Network Interface driver is not installed. Install the OpenLDV supplied with the U10. Power is not supplied. If an USB hub is used or many USB units are connected, the power supply may be insufficient. Connect the USB units directly to the PC, or reduce the number of USB units connected.
3.	Can the U10 USB Network Interface used with the BACnet Gateway also be used with service tools and other software?
	The adaptor can also be used with service tools. However, one adaptor cannot be used simultaneously by the BACnet Gateway and service tools.
4.	What is the difference between Secure Reg enable and disable at Unit Registration?
	Secure Reg. is a mode which stops operation of all the units and confirms scanning for Unit Registration. Secure Reg. disable is a mode which performs scanning in parallel without stopping operation of the units. Since scanning is an important function for recognition of the units to be managed by the BACnet Gateway, it is recommended that, as a rule, it be performed by enabling Secure Reg. If unavoidable, disable Secure Reg only when scanning must be performed without stopping operation of the units. In any case, whether or not units were recognized correctly must be confirmed after scanning. However, when scanning was performed with Secure Reg disabled, re-scanning may be necessary due to Unit Registration failures.
5.	Scanning was performed, but all the units were not recognized. What should I do?
	When work is performed normally and scanning is performed after confirmation and units are not recognized, first check that the power of the unrecognized units is turned on. Other causes may be: •Unit trouble •Installation work problem Contact your service personnel.
6.	Scanning was performed, and all the units were recognized, but R.C. group information is not correct. What should I do?
	They may be an abnormality in the wiring which defines the R.C. group or incorrect setting of the address in the indoor unit R.C. group. Refer to the service manual and perform setting correctly.
7.	Scanning was performed and all the units were recognized, but the unit information is not correct. What should I do?
	It is possible that communication with the unit is incomplete. Enter a secure reg. check mark and re-scan. → 6-5 Unit Registration.
8.	Scanning takes a very long time. What can I do?
	When the existing refrigerant system numbers are known in advance, the scanning time may be shortened by specifying the refrigerant range to be scanned at the scan execution screen. For example, when rescanning, etc. when recognition by scanning isn't very good, the scanning time can be shortened by specifying the range of only the refrigerant systems at which recognition was poor. In addition, scanning by "secure reg." is faster than scanning "without secure reg.". → 6-5 Unit Registration.

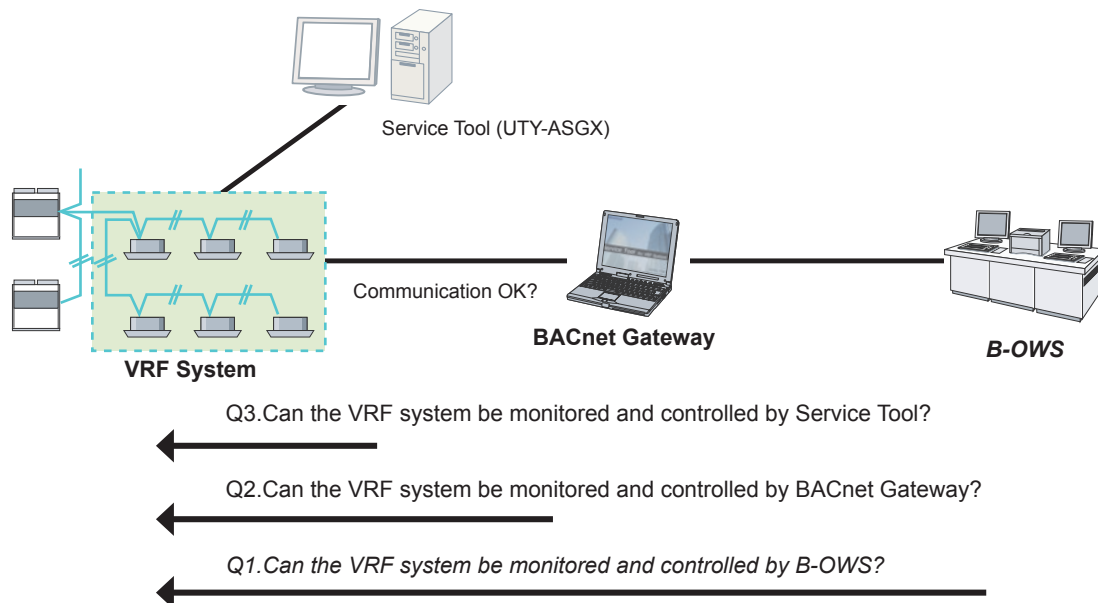
No.	Question
	Answer
9.	I want to replace the PC with a new PC. Can the data be transferred?
	The BACnet Gateway has data Export and Import functions. For details, see the Import/Export page.
10.	Unit expansion, replacement, and removal were performed. How can I reflect these changes at the BACnet Gateway?
	Perform scanning again. → 6-5 Unit Registration.
11.	VRF System expansion, replacement, and removal were performed.
	After setting the U10 USB Network Interface adaptor correctly, recognize the units by scanning. → 6-2 Initial Setting , 6-4 Adaptor Setting, 6-5 Unit Registration
12.	The state displayed on the screen does not change even though operation setting is performed.
	When operation setting was performed at multiple units or at a group containing multiple units, it may take some time for the state of that unit to change to the set contents.
13.	Can a transmission adaptor (UTR-YTMA) be used with the BACnet Gateway?
	Transmission adaptor (UTR-YTMA) cannot be used with the BACnet Gateway.
14.	Can a WIBU-KEY used by a UTR-YLBA be used by the BACnet Gateway?
	Since the UTR-YLBA and BACnet Gateway are separate products, the WIBU-KEY used by the UTR-YLBA cannot be used by the BACnet Gateway.
15.	Can a XLON [®] used by a UTR-YLBA be used by the BACnet Gateway?
	No. it cannot be used.
16.	Installation of "MSXML6" and "SQL Server Database Services" failed in the "Microsoft SQL Server 2005 Express Setup" process, during the installation of BACnet Gateway. What should I do?
	To work around this issue, use the "Windows Installer Clean Up utility" to remove references to MSXML 6.0 Service Pack 2. To do this, follow these steps: 1. Download the "Windows Installer Clean Up utility". To do this, visit the following Microsoft Web site: http://support.microsoft.com/kb/290301 2. After installation, run the "Windows Installer Clean Up utility". 3. Select MSXML6 Service Pack 2 (KB954459) [6.20.1099.0] in the list, and then click Remove. 4. After restarting the Windows, install the BACnet Gateway again. Reference: http://support.microsoft.com/kb/968749
17.	Warning message appeared saying that "SQL Server cannot install files to the compressed or encrypted folder ... ", while performing "Microsoft SQL Server 2005 Express Setup" process, during the installation of BACnet Gateway. What should I do?
	When the folder in the "Program Files" folder where the "Microsoft SQL Server 2005 Express" is to be installed is compressed or encrypted, "Microsoft SQL Server 2005 Express" cannot be installed. Undo the compression or encryption of the "Program Files" folder where the "Microsoft SQL Server 2005 Express" is to be installed, as follows. 1. Start "Windows Explorer". 2. Right-click on the "Program Files" folder, select "properties". 3. Click "Advanced..." button. Remove the check for "Compress contents to save disk space" and "Encrypt contents secure data" of "Compress or Encrypt attributes" and press "OK". 4. Click "OK" in the "property" of 2 and undo operation is executed for the item where the check has been removed in 3. Do not perform any operation on the Windows while this operation is in progress. The duration of the operation depends on the volume of the folder. The time given on screen gives a rough estimation.
18.	Why is an electricity charge generated even though none of the indoor units is being used?
	Since power is consumed by the outdoor unit even when all the indoor units are not in use, an electricity charge is generated. To prevent generation of an electricity charge, turn off the power of that indoor unit and perform scan to remove the indoor unit from the electricity charge apportionment function objectives.

No.	Question
	Answer
19.	Why isn't the operation time and electricity charge proportional?
	If the room temperature has reached the set temperature even if the operation is turned ON by a remote controller, the indoor unit will not operate and the power consumption will be that much lower. In addition, if the difference between the room temperature and the set temperature is large, more power is consumed than when the difference is small. Therefore, the operation time and electricity charge may not necessarily be proportional.
20.	Why is the electricity charge of operated indoor units so much smaller than that of indoor units that are not operated at all?
	Electricity charge includes the power consumed by the outdoor unit in addition to that of the indoor unit. The outdoor unit consumes power constantly so that operation at any time is possible even though indoor units are not operating. This is called the "standby power". Since the standby power differs between the models of outdoor units, if the number of indoor units per outdoor unit is assumed to be the same, the indoor units which use an outdoor unit will consume more power than indoor units which use with high standby power. This question is an example of when the difference of this standby power was larger than the power consumed by operation. This is a normal result. Generally, this kind of difference is made small by selecting the model of outdoor unit based on appropriate facility design.
21.	Why has the electricity charge suddenly increased even though the use is the same as in the past?
	One of the reason could be that some tenants have moved out. The electricity charge is apportioned between blocks. When the number of blocks decreases or increases by moving in and out of tenants, the electricity charge increases and decreases. As an example, if the basic charge is set so that it is equally apportioned between the blocks, then the electricity charges decreases if tenants move in and increases if tenants move out. The building owners and managers should perform appropriate settings in accordance with his/her policy as to how things should be in such cases.
22.	Characters displayed on the screen are strange. What should I do?
	Region is not set. Refer to "5-3 Regional Setting" and set the region. OS or PC trouble Contact the manufacturer of your PC.

11-2 Trouble Shooting BACnet Installation

Trouble Shooting Procedures

If you can not perform monitorings and controls of VRF system form B-OWS, the first step for the trouble shooting is to localize the trouble.



B-OWS : Operator Workstation, workstation used in the building management system.

Answer each questions in the diagram to see what sort of troubles are suspected.

Q1.Can the VRF system be monitored and controlled by B-OWS?

If no, any of the troubles below is suspected;

S1)VRF system is faulty or is not setup properly.

S2)Communication between BACnet Gateway and VRF system is not normal.

S3)BACnet Gateway is faulty or is not setup properly.

S4)Communication between the B-OWS and BACnet Gateway is not normal.

S5)B-OWS is faulty or is not setup properly.

Q2.Can the VRF system be monitored and controlled by BACnet Gateway?

If no, any of the troubles below is suspected;

S1)VRF system is faulty or is not setup properly.

S2)Communication between BACnet Gateway and VRF system is not normal.

S3)BACnet Gateway is faulty or is not setup properly.

Q3.Can the VRF system be monitored and controlled by Service Tool?

If no, the trouble below is suspected;

S1)VRF system is faulty or is not setup properly.

For each of the troubles suspected, perform the following checks to identify the problem.

S1.VRF system is faulty or is not setup properly.

If the VRF system itself is not working properly, consult the the Service Manuals for VRF system.

S2.Communication between BACnet Gateway and VRF system is not normal.

If the communication within the VRF system is not working properly, consult the Service Manuals for VRF system.

S3.BACnet Gateway is faulty or is not setup properly.

Refer to the Instruction Manual (this manual) of BACnet Gateway.

See also A1.Initial setting for PC.

S4.Communication between the B-OWS and BACnet Gateway is not normal.

See A2.Networking Troubles.

S5.B-OWS is faulty or is not setup properly.

Refer to the manual that comes with the B-OWS.

Be sure that settings are correct for connecting with the BACnet Gateway.

A1:Initial Setting for PC

(1) Network Setting for the PC

Perform appropriate setting for the transparent connection of UDP/IP unicast and multicast communication.

- IP Address / Netmask Setting
- UDP port 0xBAC0(47808) made available and enabled

A2:Networking Troubles

(1) Checking Unicast Communication

Ping to/from BACnet Gateway – B-OWS using Windows Command Prompt.

Ex. "Ping 192.168.16.2"

If you get the response, unicast is reachable.

(2) Checking Broadcast Communication

Trace route to/from BACnet Gateway – B-OWS using Windows Command Prompt.

Ex. "Tracert 192.168.16.2"

Troubleshooting the Interworking Troubles

BACnet is an open network protocol interpreted and implemented by different vendors.

In some occasions, you may encounter interworking troubles.

If the trouble could not be located in the procedures above, interworking troubles may be suspected.

Analyzing interworking troubles involve capturing BACnet communication packets and analyzing the protocol using tools (ex.Wireshark) and expertise on BACnet.

Followings are some hints on the checks you need to perform in order to trouble shoot interworking problems.

1. Has B-OWS recognized BACnet Gateway?

If the B-OWS does not recognize BACnet Gateway, then the initial setting may be wrong or networking problem is suspected.

2. Has B-OWS established connection to the BACnet Gateway?

If the B-OWS cannot establish connection with BACnet Gateway (eg.B-OWS has issued error after series of communication), then packets must be captured to see where and what has gone wrong.

3. Has B-OWS registered units in VRF System correctly?

If the B-OWS cannot register units in VRF System correctly, then registration must be checked first using BACnet Gateway user interface. If there are no problems on the BACnet Gateway, then packets must be captured to see where and what has gone wrong.

4. What Service is Malfunctioning?

If any service cannot be performed on the B-OWS, then packets must be captured to see where and what has gone wrong.