Panasonic®

NAT Traversal Service User's Guide

HD Visual Communication Unit

Model No. KX-VC300
KX-VC600

Thank you for purchasing this Panasonic product.
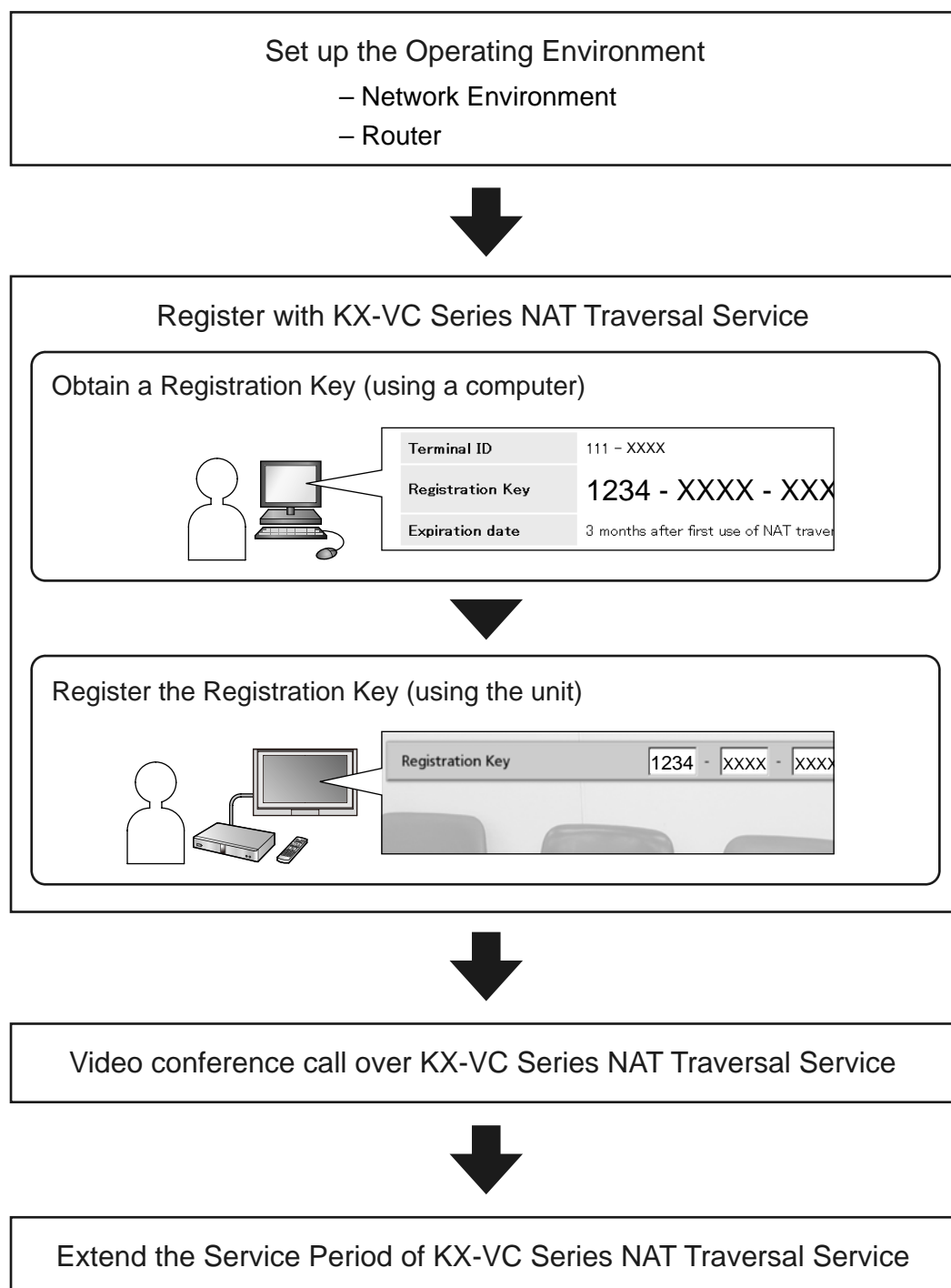Please read this manual carefully before using this product and save this manual for future use.

KX-VC300/KX-VC600: Software File Version 3.10 or later

In this manual, the suffix of each model number (e.g., KX-VC600**XX**) is omitted unless necessary.

Introduction

About this Manual

This manual contains the necessary information for setting up and starting to use "KX-VC Series NAT Traversal Service".

Set up the Operating Environment

– Network Environment

– Router

⬇

Register with KX-VC Series NAT Traversal Service

Obtain a Registration Key (using a computer)

Terminal ID	111 – XXXX
Registration Key	1234 - XXXX - XXX
Expiration date	3 months after first use of NAT trave

⬇

Register the Registration Key (using the unit)

| Registration Key | 1234 | - | XXXX | - | XXXX |

⬇

Video conference call over KX-VC Series NAT Traversal Service

⬇

Extend the Service Period of KX-VC Series NAT Traversal Service

---

Trademarks

- Microsoft, Windows and Internet Explorer are either registered trademarks or trademarks of Microsoft Corporation in the United States and/or other countries.
- Mozilla and Firefox are registered trademarks of the Mozilla Foundation.
- All other trademarks identified herein are the property of their respective owners.

Miscellaneous

About the Display of Dates

The dates and times for the service period and service extension period of the KX-VC Series NAT Traversal Service are given in Greenwich Mean Time.

About the Setting Descriptions

This manual describes the displayed settings and value ranges etc. for Software File Version 3.10.

About the Illustrations

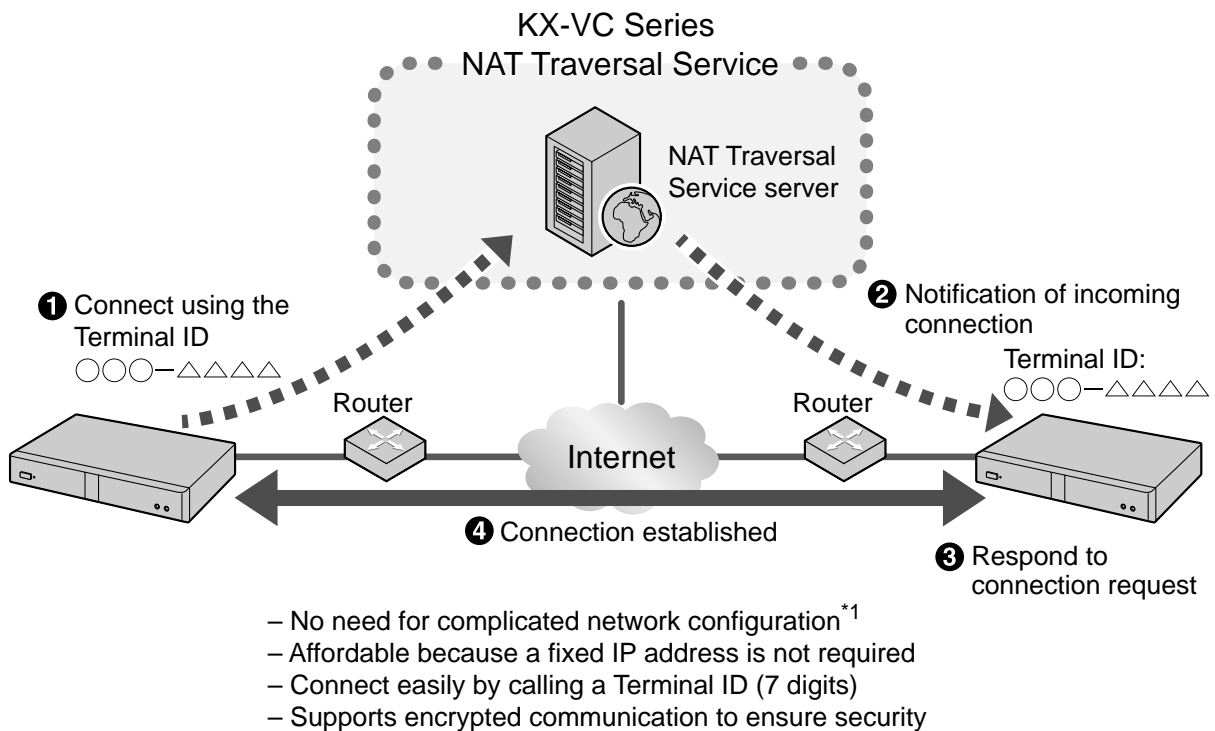In this manual, the illustrations of the unit are based on the appearance of the KX-VC600.

About the Activation Key Sheet

The Activation Key Sheet mentioned in this manual is included with the KX-VC300/KX-VC600.

Table of Contents

Overview of KX-VC Series NAT Traversal Service

KX-VC Series
NAT Traversal Service

NAT Traversal
Service server

❶ Connect using the
Terminal ID
○○○−△△△△

❷ Notification of incoming
connection

Terminal ID:
○○○−△△△△

Router

Internet

Router

❹ Connection established

❸ Respond to
connection request

– No need for complicated network configuration*1
– Affordable because a fixed IP address is not required
– Connect easily by calling a Terminal ID (7 digits)
– Supports encrypted communication to ensure security

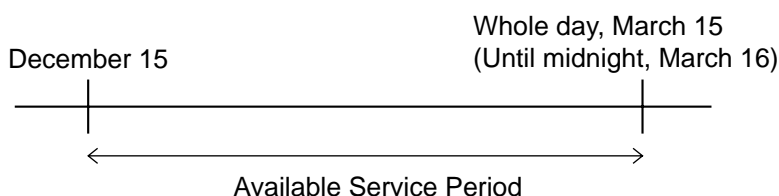*1   Please use a router that has been tested by Panasonic for use with this service (Page 7).

Service Period Overview

To use this service, registration is necessary. By registering using the Activation Key Sheet included with the product, you can use this service for 3 months at no charge. The service period starts as soon as registration is complete (i.e., after completing the procedure explained in "Registering the Registration Key to the Unit"). The service period will be effective on the whole day (until midnight when the date changes) 3 months from the start of the service period.

Example 1: Registration is completed on April 1

Whole day, July 1
(Until midnight, July 2)

April 1

Available Service Period

Example 2: Registration is completed on December 15

Whole day, March 15
(Until midnight, March 16)

December 15

Available Service Period

Note

- You can check the service expiration date using the unit. For details, see "Confirming the Service Period".

To continue using this service after the trial service period has ended, you must purchase an Activation Key Card to extend the service period. The length of the service period depends on the card. For details about the card, contact your dealer.
For details about the procedure for extending the service period, see "Extending the Service Period of KX-VC Series NAT Traversal Service".

Security Overview

This service uses a standard Internet connection, so if encryption is not enabled, it is possible for others to listen in on your conversation. It is strongly recommended that you enable encryption when you use this service. For details about enabling encryption, see "Making Encryption Settings".

Connect to the Internet

To use KX-VC Series NAT Traversal Service, a network environment and devices that meet the following specifications are necessary.

Network Environment

To use KX-VC Series NAT Traversal Service to establish video conference calls, a broadband connection is required. (A 3-party video conference call requires a 1.0 Mbps connection, and a 4-party video conference call requires a 2.0 Mbps connection.)

Router

Please use a router that has been tested by Panasonic for use with this service, and use the information from your provider to connect to the Internet. For details about tested routers, refer to the following web site: http://panasonic.net/psn/products/hdvc/nat_traversal/index.html
For details about configuring your router, refer to the router's documentation.

To connect the unit and router
1. Connect the router to the LAN jack on the back of the unit.
   • Connect a router to the LAN jack on the back of the unit using a category 5 or greater LAN cable. (The position of the LAN jack depends on the unit that you are using. For details, refer to the Operating Manual or User Manual.)

   Note
   • Operation cannot be guaranteed in the following cases:
     – You are using a router other than one tested by Panasonic.
     – Multiple HD Visual Communication Units are connected to one router.
     – The HD Visual Communication Unit is connected directly to the Internet, and not through a router.

Obtain a Registration Key

In this procedure, you will use a computer to access the KX-VC Series NAT Traversal Service registration page and obtain a Registration Key. The following information is necessary:
• **MPR ID**
  – This can be confirmed on the label on the back of the unit or through operating the unit. For details, see "To check the MPR ID (using the unit)".
• **Activation Key No.**
  – Recorded on an Activation Key Card or an Activation Key Sheet.
• **Registration ID**
  – Recorded on an Activation Key Card or an Activation Key Sheet.

To check the MPR ID (using the unit)

1. Press **[Menu]**.
   • The Menu screen is displayed.

2. Use **[▲][▼]** to select **"Settings"** and press **[Enter]**.
   • The system settings screen is displayed.

3. Press **[▶]** three times.
   • The fourth page is displayed.

4. Use [▲][▼] to select **"Enhancement"** and press **[Enter]**.
   - The enhanced feature confirmation screen is displayed. Check the field **"MPR ID"** (❶).
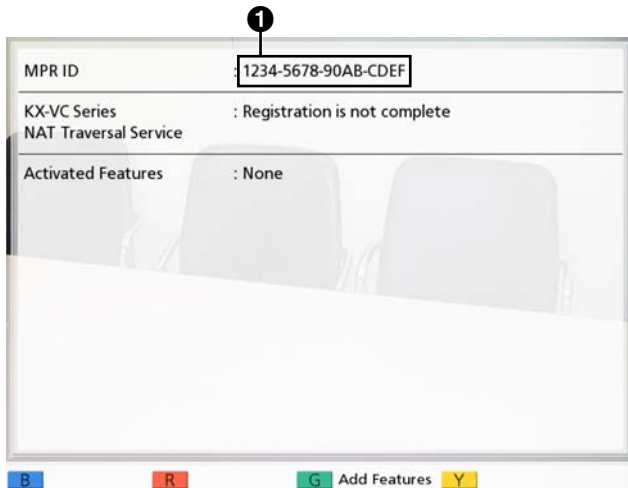
5. Press **[Home]**.
   - The Home screen is displayed.

To obtain a Registration Key (using a computer)

Note

- The following operating systems and web browsers are supported:
  Microsoft® Windows® 7
  – Microsoft® Windows® Internet Explorer® 8
  – Windows Internet Explorer 10
  Microsoft Windows 8
  – Windows Internet Explorer 10
  – Mozilla® Firefox®

1. From a computer, access the KX-VC Series NAT Traversal Service registration page (https://www.tsunagarunet.com/hdcom/main).
   - The login screen is displayed.

   Note

   - The login screen is displayed in English. You can change the language from the drop-down list in the upper right of the screen.

2. Enter the characters displayed in the image, and then click **"Apply"**.

- The function selection screen is displayed.

   Note

   - The fields are case sensitive.

3. Click **"Apply new"** next to HDVC.

- The new application screen is displayed.

4. Fill in the following items:

   "MPR ID"
   "Activation Key No."
   "Registration ID"

5. Click **"Next"**.
   - The Terms of Use screen is displayed.

6. Read the Terms of Use thoroughly, and if you agree to the terms, click **"Accept"**.
   - The Terminal ID selection screen is displayed.

7. Select the Terminal ID you want to use, and then click **"Next"**.

- The information confirmation screen is displayed.

Note
- Clicking **"Click to Show next Terminal IDs"** displays more Terminal IDs available for use. You can repeat this operation up to 5 times. Once you click **"Click to Show next Terminal IDs"**, Terminal IDs that have been displayed up to that point cannot be recalled.

8. Click **"Register"**.
   - The value displayed on the screen in **"Registration Key"** (16 characters) must be registered to the unit. Make a printout of the page or write down the Registration Key on the Activation Key Sheet or another piece of paper and store it in a safe place.

IMPORTANT
- If you misplace the Registration Key information, refer to "To display the Registration Key again (using a computer)".

9. Click **"Menu"**.
   - The function selection screen is displayed.

To display the Registration Key again (using a computer)

If you misplace the Registration Key information, you can display it again by following the procedure below.

1. From a computer, access the KX-VC Series NAT Traversal Service registration page (https://www.tsunagarunet.com/hdcom/main).
   • The login screen is displayed.

   Note
   • The login screen is displayed in English. You can change the language from the drop-down list in the upper right of the screen.

2. Enter the characters displayed in the image, and then click **"here"** at the bottom of the screen.

   • The unit information login screen is displayed.

   Note
   • The fields are case sensitive.

3. Fill in the following items:

   "Type": select HDVC
   "MPR ID"
   "Activation Key No."

"Registration ID"

4. Click **"Next"**.
   • The unit information screen is displayed. Check the **"Registration Key"** information on the screen. When you are finished, close the browser.

Register the Registration Key

In this procedure, you will register the Registration Key you obtained to the unit. To perform registration, network settings must be configured first.

Making Network Settings

### If this is the first time you are using the unit

After turning the unit on, you need to set the language, connection mode, device name, date and time, and network settings. These settings can be changed later.

1. Press the Power button to turn on the unit.
   - The language selection screen is displayed.

2. Press **[Enter]**, use **[▲][▼]** to select the language, then press **[Enter]**.
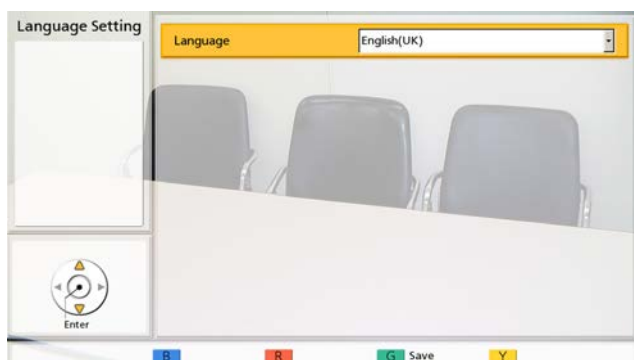
3. Press **[G]**.

4. Select **"Yes"** using **[◀][▶]**, then press **[Enter]**.
   - The connection mode setting screen is displayed.

5. Press **[Enter]**, use [▲][▼] to select **"NAT Traversal Mode"**, then press **[Enter]** again.
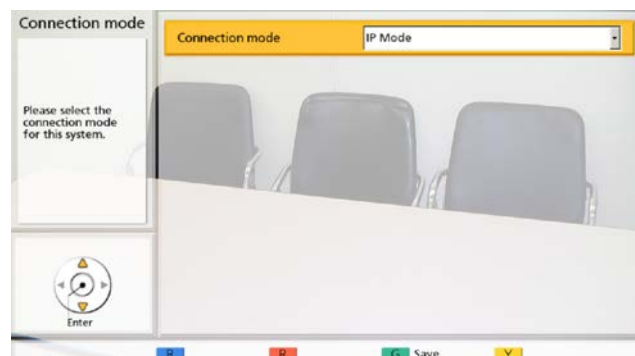
   Note
   - Communication cannot be established with a party whose connection mode setting differs from yours.

6. Press **[G]**.
   - A dialogue box to confirm the saving of settings is displayed.

7. Select **"Yes"** using **[◀][▶]**, then press **[Enter]**.
   - The device name setting screen is displayed.

8. Enter a name for the device (up to 24 characters).
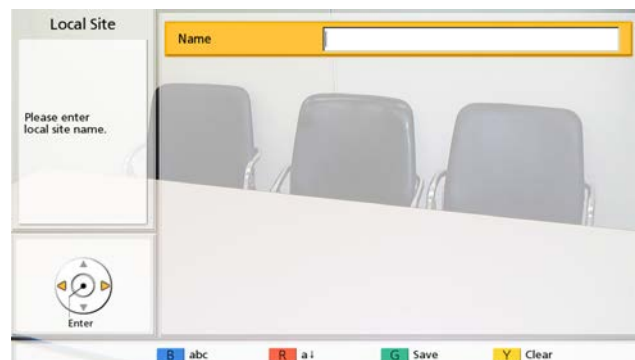
9. Press **[G]**.
   - A dialogue box to confirm the saving of settings is displayed.

10. Select **"Yes"** using **[◀][▶]**, then press **[Enter]**.
    - The date and time setting screen is displayed.

11. Select the item using **[▲][▼]**, then input information.

- Enter the year (4 digits), month (1–2 digits), day (1–2 digits), time (24 hour display), and select the date format (Month/Day/Year, Day/Month/Year, Year/Month/Day) and the hour display format (12h/24h).

12. Press **[G]**.
- A dialogue box to confirm the saving of settings is displayed.

13. Select **"Yes"** using **[◀][▶]**, then press **[Enter]**.
- The network settings screen is displayed.

14. Use **[▲][▼]** to select the following items for input:

"IP Address": Use **[◀][▶]** to select whether the IP address information for this unit (**"IP Address"**, **"Subnet mask"**, **"Default Gateway"**) will be obtained automatically from a DHCP server or will be set manually.
- **"Auto"** (default): Obtain the IP address information automatically.
- **"Manual"**: Set the IP address information manually.

"IP Address": Enter the IP address of the unit.
"Subnet mask": Enter the subnet mask.
"Default Gateway": Enter the IP address of the default gateway.

Note

- **"IP Address"**, **"Subnet mask"**, and **"Default Gateway"** can be entered only if **"IP Address"** is set to **"Manual"**.
- If the value for **"IP Address"**, **"Subnet mask"**, or **"Default Gateway"** contains 1 or 2 digits numbers, enter these numbers as they are. Do not enter like [.001].
  Example: The IP address is [192.168.0.1].
  Correct entry: [192.168.0.1]
  Wrong entry: [192.168.000.001]

"DNS Server": Use **[◀][▶]** to select whether the IP address information for the DNS servers (**"Primary DNS Server"**, **"Secondary DNS Server"**) will be obtained automatically from a DHCP server or will be set manually.
- **"Auto"** (default): Obtain the IP address information automatically.
- **"Manual"**: Set the IP address information manually.

Note

- To select **"Auto"**, **"IP Address"** must be set to **"Auto"**.

"Primary DNS Server": Enter the IP address of the primary DNS server.
"Secondary DNS Server": Enter the IP address of the secondary DNS server.

Note

- **"Primary DNS Server"** and **"Secondary DNS Server"** can be entered only if **"DNS Server"** is set to **"Manual"**.
- If the value for **"Primary DNS Server"** or **"Secondary DNS Server"** contains 1 or 2 digits numbers, enter these numbers as they are. Do not enter like [.001].
  Example: The IP address is [192.168.0.1].
  Correct entry: [192.168.0.1]
  Wrong entry: [192.168.000.001]

15. Press **[G]**.
A dialogue box to confirm the saving of settings is displayed.

16. Select **"Yes"** using **[◀][▶]**, then press **[Enter]**.
The port number setting screen is displayed.
Confirm that **"Port Number of WAN"** and **"Port Number of LAN"** are set to **"Auto"** (default).
If **"Auto"** is not set, follow the next step to change the setting.
    1. Use [▲][▼] to select **"Port Number of WAN"** or **"Port Number of LAN"**.
    2. Use **[◀][▶]** to select **"Auto"**.

17. Press **[G]**.
- A dialogue box to confirm the saving of settings and system restart after saving is displayed.

18. Select **"Yes"** using **[◀][▶]**, then press **[Enter]**.
- The system will automatically restart to reflect changes to system settings. After the unit restarts, check that **"NAT Traversal Mode"** is displayed in the upper right of the Home screen.

If the unit has been used before

If you are already using this unit in IP Mode, follow the procedure below to configure the network settings.
1. Press **[Menu]**.
- The Menu screen is displayed.

2. Use **[▲][▼]** to select **"Settings"** and press **[Enter]**.
- The system settings screen is displayed.

3. Press **[▶]** three times.
- The fourth page is displayed.

4. Use **[▲][▼]** to select **"Admin login"** and press **[Enter]**.
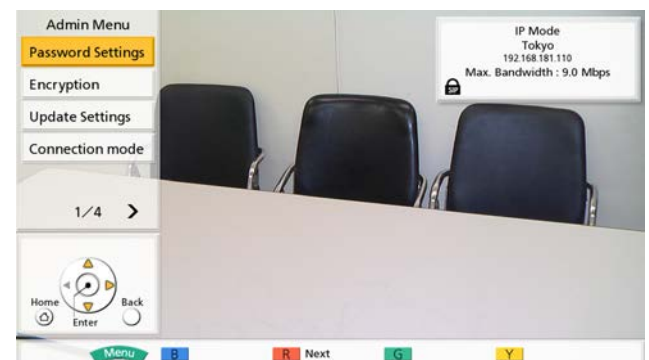- The login screen is displayed.

5. Use **[▲][▼]** to select **"Password"**, then enter the administrator password (4–10 digits).
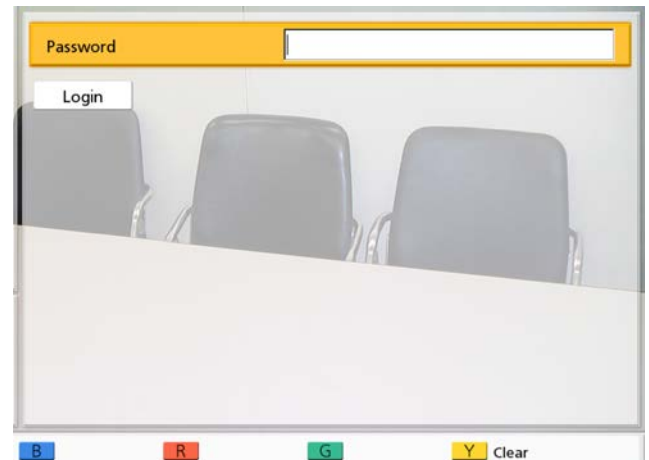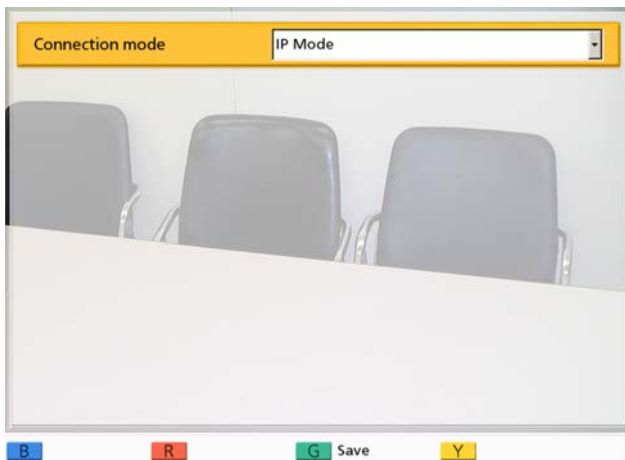

Note
- Please enter the administrator password that was set during installation.
- If you forget the administrator password, please contact your dealer.

6. Use **[▲][▼]** to select **"Login"** and press **[Enter]**.
- The administrator menu screen is displayed.

7. Use **[▲][▼]** to select **"Connection mode"** and press **[Enter]**.

- The connection mode setting screen is displayed.

8. Press **[Enter]** and use **[▲][▼]** to select **"NAT Traversal Mode"**.

Connection mode	IP Mode	▾

B   R   **G** Save   Y

Note

- Communication cannot be established with a party whose connection mode setting differs from yours.

9. Press **[G]**.
- A dialogue box to confirm the saving of settings and system restart after saving is displayed.
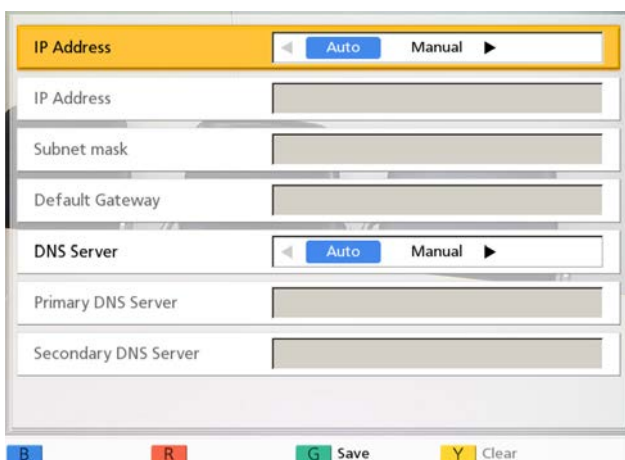
10. Select **"Yes"** using **[◀][▶]**, then press **[Enter]**.
- After the unit restarts, the network settings screen is displayed.

Note

- Restarting may take some time depending on the current network load.

11. Use **[▲][▼]** to select the following items for input:

IP Address	◀ Auto Manual ▶
IP Address	
Subnet mask	
Default Gateway	
DNS Server	◀ Auto Manual ▶
Primary DNS Server	
Secondary DNS Server	

B   R   **G** Save   Y Clear

"IP Address": Use **[◀][▶]** to select whether the IP address information for this unit (**"IP Address"**, **"Subnet mask"**, **"Default Gateway"**) will be obtained automatically from a DHCP server or will be set manually.
– **"Auto"** (default): Obtain the IP address information automatically.
– **"Manual"**: Set the IP address information manually.
"IP Address": Enter the IP address of the unit.
"Subnet mask": Enter the subnet mask.
"Default Gateway": Enter the IP address of the default gateway.

Note

- **"IP Address"**, **"Subnet mask"**, and **"Default Gateway"** can be entered only if **"IP Address"** is set to **"Manual"**.
- If the value for **"IP Address"**, **"Subnet mask"**, or **"Default Gateway"** contains 1 or 2 digits numbers, enter these numbers as they are. Do not enter like [.001].
Example: The IP address is [192.168.0.1].
Correct entry: [192.168.0.1]
Wrong entry: [192.168.000.001]

"DNS Server": Use **[◀][▶]** to select whether the IP address information for the DNS servers (**"Primary DNS Server"**, **"Secondary DNS Server"**) will be obtained automatically from a DHCP server or will be set manually.
– **"Auto"** (default): Obtain the IP address information automatically.
– **"Manual"**: Set the IP address information manually.

Note

- To select **"Auto"**, **"IP Address"** must be set to **"Auto"**.

"Primary DNS Server": Enter the IP address of the primary DNS server.
"Secondary DNS Server": Enter the IP address of the secondary DNS server.
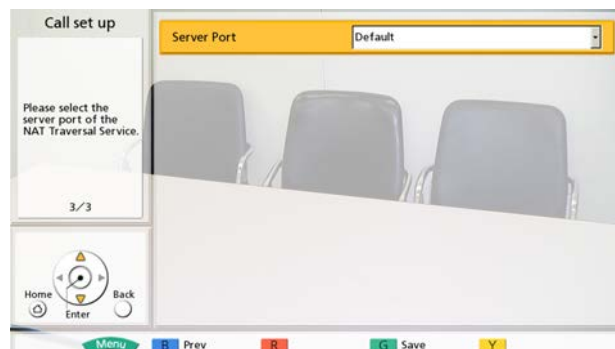
Note

- **"Primary DNS Server"** and **"Secondary DNS Server"** can be entered only if **"DNS Server"** is set to **"Manual"**.
- If the value for **"Primary DNS Server"** or **"Secondary DNS Server"** contains 1 or 2 digits numbers, enter these numbers as they are. Do not enter like [.001].
Example: The IP address is [192.168.0.1].
Correct entry: [192.168.0.1]

Wrong entry: [192.168.000.001]

12. Press **[G]**.
A dialogue box to confirm the saving of settings is displayed.

13. Select **"Yes"** using **[◀][▶]**, then press **[Enter]**.
The port number setting screen is displayed.
Confirm that **"Port Number of WAN"** and **"Port Number of LAN"** are set to **"Auto"** (default).
If **"Auto"** is not set, follow the next step to change the setting.
    1. Use [▲][▼] to select **"Port Number of WAN"** or **"Port Number of LAN"**.
    2. Use **[◀][▶]** to select **"Auto"**.

14. Press **[G]**.
- A dialogue box to confirm the saving of settings and system restart after saving is displayed.

15. Select **"Yes"** using **[◀][▶]**, then press **[Enter]**.
- The system will automatically restart to reflect changes to system settings. After the unit restarts, check that **"NAT Traversal Mode"** is displayed in the upper right of the Home screen.

Setting the Server Port of KX-VC Series NAT Traversal Service

1. Press **[Menu]**.
- The Menu screen is displayed.

2. Use **[▼][▲]** to select **"Settings"** and press **[Enter]**.
- The system settings screen is displayed.

3. Use **[▲][▼]** to select **"Call set up"** and press **[Enter]**.
- The call settings screen is displayed.

4. Press **[R]** twice.
- The KX-VC Series NAT Traversal Service server port settings screen is displayed.

5. Ensure that **"Server Port"** is set to **"Default"** (default).
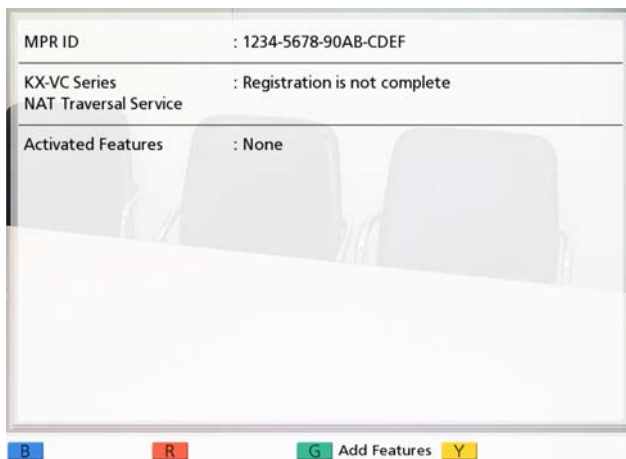
Note

- Depending on the router used, you may not be able to make a video conference call when **"Default"** is selected. In this case, select **"Alternate"**.

6. Press **[G]**.
- A dialogue box to confirm the saving of settings is displayed.

7. Select **"Yes"** using **[◀][▶]**, then press **[Enter]**.
- The system settings screen is displayed.

8. Press **[Home]**.
- The Home screen is displayed.

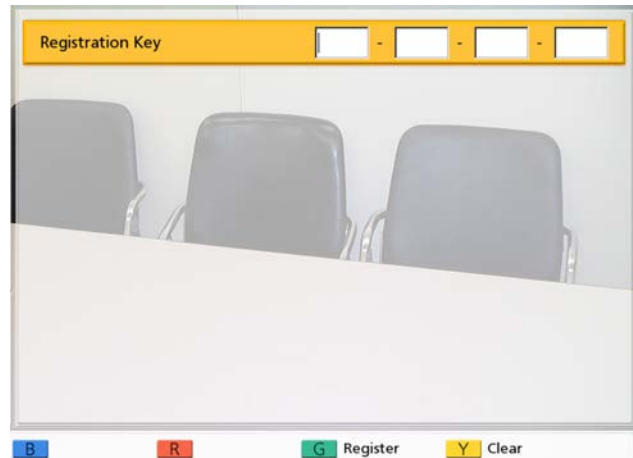# Registering the Registration Key to the Unit

Note

- Check that **"NAT Traversal Mode"** is displayed in the upper right of the Home screen. If it is not displayed, change the connection mode to **"NAT Traversal Mode"** (Page 13).

1. Perform steps **1**–**6** in "If the unit has been used before".
   - The administrator menu screen is displayed.

2. Press **[▶]** three times.
   - The fourth page is displayed.

3. Use **[▲][▼]** to select **"Enhancement"** and press **[Enter]**.
   - The software enhancement screen is displayed.

4. Press **[G]**.

MPR ID	: 1234-5678-90AB-CDEF
KX-VC Series NAT Traversal Service	: Registration is not complete
Activated Features	: None

B   R   G Add Features Y

- The Registration Key input screen is displayed.

5. Enter the 16-digit Registration Key.

Registration Key   ☐ - ☐ - ☐ - ☐

B   R   G Register   Y Clear

6. Press **[G]**.
   - A dialogue box to confirm the saving of settings and system restart after saving is displayed.

7. Select **"Yes"** using **[◀][▶]**, then press **[Enter]**.
   - The system will automatically restart to reflect changes to system settings. After the unit restarts, the Terminal ID is displayed in the upper right of the Home screen.

   Note

   - If the Registration Key you entered is invalid, **"Failed Registration Key code authentication."** is displayed. Recheck the information of the Registration Key that was issued (Page 10), then repeat the procedure from step **5**. If this message is displayed even when you have correctly input the Registration Key that was issued, contact your dealer.
   - After the unit restarts, **"Terminal ID not assigned"** may be displayed in the upper right of the Home screen. It may take some time until the Terminal ID is displayed. If the Terminal ID is still not displayed after 5 minutes, try the following:
     a. Check that the LAN cable is correctly connected to the unit, and then restart the unit.
     b. Connect the router to a computer, and then check whether the computer can connect to the Internet. If it cannot, check whether the router's Internet connection settings are configured properly.

c. Ensure that the following settings are disabled on the router, and then restart the unit.

- – Packet filtering settings
- – Port forwarding settings

If the Terminal ID is not displayed even after trying the steps above, there may be a problem with your Internet connection. Contact your dealer.

Making Encryption Settings

If you configure the encryption settings, you will only be able to establish video conference calls with a party that has the same encryption key, so you can prevent making calls to, or receiving calls from, unknown parties unintentionally. The following two methods are available for configuring the encryption settings.

Set a shared encryption key
Use this method if it is not necessary to change encryption keys when communicating with different parties. All parties set the same encryption key, which makes this method appropriate within a company or organization.

Set an encryption key for each local site
With this method, an encryption key is set for each local site, and the encryption key is switched when you select a local site. For example, if you make video conference calls with several different clients, you can change the encryption key for each client and avoid sharing encryption keys between the various clients.

Note

- • If an encryption key is not set, you cannot enable encryption.
- • You can configure both the shared encryption key method and the local site encryption key method at the same time, and use the two methods separately. When you select a local site, the local site encryption key method is used, and when you cancel the local site selection, the shared encryption key method is used.
- • If you configure the encryption settings following the procedure in "Setting a Shared Encryption Key", the same settings will automatically be applied in IP Mode. Note that after configuring the settings, you may not be able to establish a video conference call with parties you had been communicating with in IP Mode.
  If you do not want to apply the settings to IP Mode, configure the encryption settings following the procedure in "Setting an Encryption Key for Each Local Site".
- • When establishing a video conference call, even if one party is using the shared encryption key method and the other party is using the local site encryption key method, a video conference

call can still be established if the encryption keys match.

Setting a Shared Encryption Key

Note

- There is a danger that encryption settings will be changed by a third party. Therefore, be careful when managing the administrator password and giving users the authority to change encryption settings.

1. Perform steps **1**–**6** in "If the unit has been used before".
- The administrator menu screen is displayed.

2. Use **[▲][▼]** to select **"Encryption"** and press **[Enter]**.
- The encryption settings screen is displayed.

3. Use **[▲][▼]** to select the following items for input:
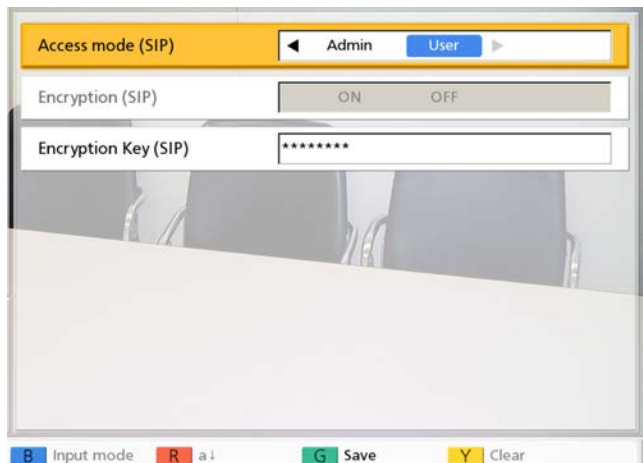
"Access mode (SIP)": Use **[◀][▶]** to select **"Admin"**.
"Encryption (SIP)": Use **[◀][▶]** to select **"ON"**.

Note

- If the **"Encryption (SIP)"** setting does not match that of the other party in a video conference call, the video conference call will not start.

"Encryption Key (SIP)": Enter an encryption key (4 to 256 characters [alphanumeric, space, symbols]).

Note

- &, <, >, comma (,), double quotation mark (") cannot be entered.

- While being entered, the characters of the encryption key are displayed, but once the settings are saved, all the characters will be displayed as asterisks (*), and you will no longer be able to check the encryption key on the screen. Record the encryption key beforehand, and store it in a safe location.
- If the value specified in **"Encryption Key (SIP)"** does not match the other party's, the video conference call will not start even if encryption is enabled.
- When the encryption key is displayed as asterisks (*), pressing **[Y]** deletes the entire encryption key.

4. Press **[G]**.
   - A dialogue box to confirm the saving of settings is displayed.

5. Select **"Yes"** using **[◀][▶]**, then press **[Enter]**.
   - The administrator menu screen is displayed.

6. Press **[Home]**.
   - The Home screen is displayed.

Setting an Encryption Key for Each Local Site

You can specify different encryption settings for each local site. You can register a maximum of 5 local sites.

Configuration Preparation

To configure the encryption settings or encryption key from the local site settings, you must use the following procedure to apply settings privileges to normal users.

1. Perform steps **1**–**6** in "If the unit has been used before".

2. Use **[▲][▼]** to select **"Encryption"** and press **[Enter]**.
   - The encryption settings screen is displayed.

3. Use **[▲][▼]** to select the following items for input:
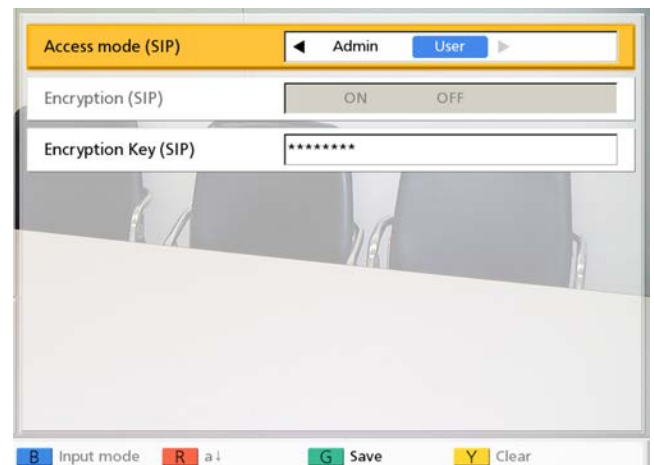
   "Access mode (SIP)": Use **[◀][▶]** to select **"User"**.

4. Press **[G]**.
   - A dialogue box to confirm the saving of settings is displayed.

5. Select **"Yes"** using **[◀][▶]**, then press **[Enter]**.
   - The administrator menu screen is displayed.

6. Press **[Home]**.
   - The Home screen is displayed.

Registering a Local Site

1. Press **[Menu]**.
   - The Menu screen is displayed.

2. Use **[▲][▼]** to select **"Select local site"** and press **[Enter]**.
   • The select local site screen is displayed.

3. Use **[▲][▼]** to select **"Not Registered"** and press **[B]**.
   • The local site settings screen is displayed.

4. Use **[▲][▼]** to select the following items for input:

"Connection mode": Press **[Enter]** and use **[▲]** **[▼]** to select **"NAT Traversal Mode"**.
"Local site name": Enter a name for the local site.
"Max. Bandwidth": Press **[Enter]** and use **[▲]** **[▼]** to select the maximum allowed bandwidth to be used (**256 kbps**, **384 kbps**, **512 kbps**, **768 kbps**, **1.0 Mbps**, **1.2 Mbps**, **1.5 Mbps**, **2.0 Mbps**, **2.5 Mbps**, **3.0 Mbps**, **3.5 Mbps**, **4.0 Mbps**, **4.5 Mbps**, **5.0 Mbps**, **5.5 Mbps**, **6.0 Mbps**, **6.5 Mbps**, **7.0 Mbps**, **7.5 Mbps**, **8.0 Mbps**, **8.5 Mbps**, **9.0 Mbps** [default], **10.0 Mbps**).

Note

   • The maximum bandwidth during a video conference call adjusts to that of the party that has set the lowest bandwidth for the maximum bandwidth setting among all participating parties.
   • You cannot select a value that is higher than the maximum bandwidth set by the dealer. For details, contact your dealer.
   • When you make a 3-party video conference call, select a value of **"1.0 Mbps"** or higher. Otherwise, the image quality and the sound quality cannot be guaranteed.

   • When you make a 4-party video conference call, select a value of **"1.5 Mbps"** or higher. Otherwise, the image quality and the sound quality cannot be guaranteed.

"Encryption (SIP)": Use **[◄][►]** to select **"ON"**.

Note

   • You cannot have an encrypted video conference call with a party with different encryption settings.

"Encryption Key (SIP)": Enter an encryption key (4 to 256 characters [alphanumeric, space, symbols]).

Note

   • &, <, >, comma (,), double quotation mark (") cannot be entered.
   • While being entered, the characters of the encryption key are displayed, but once the settings are saved, all the characters will be displayed as asterisks (*), and you will no longer be able to check the encryption key on the screen. Record the encryption key beforehand, and store it in a safe location.
   • If the value specified in **"Encryption Key (SIP)"** does not match the other party's, the video conference call will not start even if encryption is enabled.
   • When the encryption key is displayed as asterisks (*), pressing **[Y]** deletes the entire encryption key.

"Video Quality": Use **[◄][►]** to select between prioritising smooth movement or image quality for video.
   – **"Motion"** (default): Prioritise smooth movement.
   – **"Sharpness"**: Prioritise image quality.

Note

   • If one of the other parties is using an older software version, **"Motion"** will be selected.

"Max Resolution": Use **[◄][►]** to select the maximum display resolution of the main video camera and sub video camera used during a video conference call.
   – **"Full HD"**: Maximum resolution: 1920 × 1080i (This mode switches the display resolution according to the condition of the network.)
   – **"HD"** (default [for KX-VC300]): Maximum resolution: 1280 × 720p (This mode switches the display resolution according to the condition of the network.)

– **"Auto"** (default [for KX-VC600]): This mode selects either **"Full HD"** or **"HD"** according to the available bandwidth.

Note

- Selecting **"Auto"** or **"HD"** is recommended.
- If you are using the KX-VC300, **"Auto"** or **"Full HD"** can only be selected after purchasing an activation key card (KX-VCS401) to enable sending images in Full HD resolution. For details, contact your dealer.
- When **"Full HD"** is selected, if the other party has a low bandwidth, the display resolution may be lower than when **"HD"** or **"Auto"** is selected.
- If the other party's unit is located outside your country/area, the field frequency between your units may be different. In this case, the maximum resolution will be **"HD"**, even if you have specified **"Full HD"**.
- When making a 3-party video conference call, the main video camera will be automatically set to **"HD"**, even if you have specified **"Full HD"**.
- When making a 4-party video conference call, the main video camera and sub video camera will be automatically set to **"HD"**, even if you have specified **"Full HD"**.
- When **"Video Quality"** is set to **"Sharpness"**, **"Full HD"** and **"HD"** are fixed to the maximum resolution. If you want to change the resolution according to the condition of the network, select **"Auto"**.
- When you are using a low bandwidth network or when the network is configured to be used with limited bandwidth, if **"Video Quality"** is set to **"Sharpness"**, there may be delays in displaying images.

5. Press **[G]**.
- A dialogue box to confirm the saving of settings is displayed.

6. Use **[◀][▶]** to select **"Yes"** and press **[Enter]**.
- The select local site screen is displayed.

7. Press **[Home]**.
- The Home screen is displayed.

Selecting a Local Site

1. Press **[Menu]**.
- The Menu screen is displayed.

2. Use **[▲][▼]** to select **"Select local site"** and press **[Enter]**.
- The select local site screen is displayed.

3. Use **[▲][▼]** to select the local site for which **"NAT Traversal"** is displayed in **"Connection mode"**.

Selected	Local site name	Connection mode
	room 1	IP
	room 2	IP
	room 3	IP
	"Not Registered"	
	"Not Registered"	
	room 6	NAT Traversal
	room 7	NAT Traversal
	room 8	NAT Traversal
	"Not Registered"	
	"Not Registered"	

B Edit	R Delete	G Set	Y Release

Note

- For the currently selected local site, " ➡ " is displayed in **"Selected"**.
- **"Not Registered"** is displayed for sites that have not been registered.

4. Press **[G]**.
- A dialogue box to confirm the saving of settings is displayed.

5. Use **[◀][▶]** to select **"Yes"** and press **[Enter]**.
- The Home screen is displayed.

Note

- When you select a local site, the name entered in **"Local site name"** is displayed instead of the unit name in the unit information.
- If you cancel the local site selection, the encryption key will return to the value specified on the administrator menu. Whether encryption is enabled or disabled depends on the value specified for **"Access mode (SIP)"** in the following manner:
  – If **"Admin"** is specified: The setting will return to the value specified on the administrator menu.

– If **"User"** is specified: The setting will return to the value specified in the connection settings. For details, refer to the Operating Manual or User Manual.

- To cancel the local site selection, turn off the power and then turn it back on, or use the following procedure:

  1. Repeat steps **1–2**.
  2. Use **[▲][▼]** to select the currently selected local site.
  3. Press **[Y]**.
     - A dialogue box to confirm whether you want to cancel the local site selection is displayed.
  4. Use **[◀][▶]** to select **"Yes"** and press **[Enter]**.
     - The Home screen is displayed.

Adding Contacts to the Contact List

Registering a Single-party Contact

1. Press **[Menu]**.
   - The Menu screen is displayed.

2. Use **[▲][▼]** to select **"New Contact"** and press **[Enter]**.
   - The contact list registration screen is displayed.

3. Use **[▲][▼]** to select the following items for input:

   "Group/Site": Enter a name for the contact (up to 24 characters).
   "Speed Dial": Enter a speed dial number (1–300).
   [Max. Bandwidth]: Press **[Enter]**, and use **[▲]** **[▼]** to select the maximum bandwidth (Not Specified, 256 kbps-10.0 Mbps).
   "Multi-Point": Use **[◀][▶]** to select **"No"**.
   "Terminal ID": Enter a Terminal ID (7 digits).

4. Press **[G]**.
   - A dialogue box to confirm the saving of settings is displayed.

5. Use **[◀][▶]** to select **"Yes"** and press **[Enter]**.
   - The contact list screen is displayed.

   Note
   - To continue entering another contact, press **[B]** and repeat steps **3**–**5**.

6. Press **[Home]**.
   - The Home screen is displayed.

Registering a Multiple-party Contact

Note
- If you are using the KX-VC300, registering a multiple-party contact can only be done after purchasing an activation key card (KX-VCS301) to activate multiple-party video conference calls. For details about the activation key, contact your dealer.

1. Press **[Menu]**.
   - The Menu screen is displayed.

2. Use **[▲][▼]** to select **"New Contact"** and press **[Enter]**.
   - The contact list registration screen is displayed.

3. Use **[▲][▼]** to select the following items for input:

   "Group/Site": Enter a name for the video conference call (up to 24 characters).
   "Speed Dial": Enter a speed dial number (1–300).
   [Max. Bandwidth]: Press **[Enter]**, and use **[▲]** **[▼]** to select the maximum bandwidth (Not Specified, 256 kbps-10.0 Mbps).
   "Multi-Point": Use **[◀][▶]** to select **"2 sites"** or **"3 sites"**.
   For **"Site 1"**/**"Site 2"**/**"Site 3"**: Use the following procedure to select these from the contact list screen.

1. Use **[▲][▼]** to select **"Site 1"**, **"Site 2"** or **"Site 3"**.
2. Press **[Enter]**.
   • The contact list screen is displayed.
3. Select a contact using **[▲][▼]**.
   • You can use **[◀][▶]** or the numeric buttons of the remote control to select the displayed tab (Page 28).
4. Press **[Enter]**.
   • The contact list registration screen is displayed.

4. Press **[G]**.
   • A dialogue box to confirm the saving of settings is displayed.

5. Use **[◀][▶]** to select **"Yes"** and press **[Enter]**.
   • The contact list screen is displayed.

   Note

   • To continue entering another contact, press **[B]** and repeat steps **3**–**5**.

6. Press **[Home]**.
   • The Home screen is displayed.

Starting a Video Conference Call

Note

- Check that **"NAT Traversal Mode"** or the terminal ID (7 digits) is displayed in the upper right of the Home screen. If **"NAT Traversal Mode"** is not displayed, change the connection mode to **"NAT Traversal Mode"** (Page 14). If the Terminal ID is not displayed, refer to "Page 35".

Making a Video Conference Call

Calling Using Speed Dial

Note

- To call using speed dial, you need to have a speed dial number programmed in **"Speed Dial"** in the contact list (Page 23).

Operation with the Remote Control

1 Press **[Home]**.
  - The Home screen is displayed.

2 With the dial keys, enter a One-Touch Connection number **(1 to 5)**.
  - The information registered in the selected One-Touch Connection number is displayed.
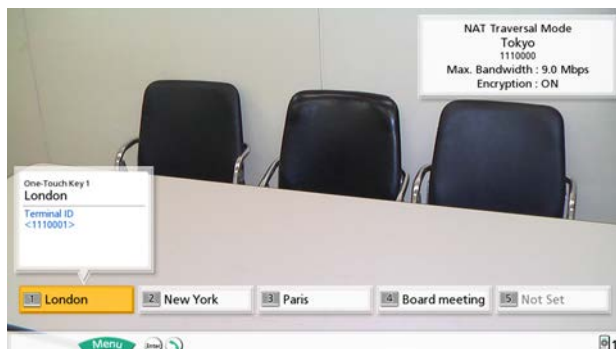
3 Press **[Start]**.
  - The party registered in the selected One-Touch Connection number is called.
  - You can also start the call pressing **[Enter]**.

4 When you want to end the call, press **[End]**.
  - The Home screen is displayed.
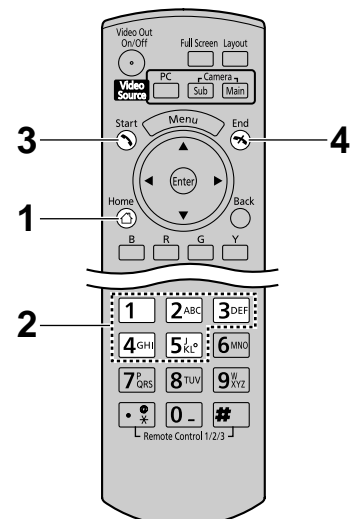
Calling by Entering a Terminal ID

You can make a video conference call by entering the Terminal ID (7 digits) of the party you want to call.

1 Press **[Menu]**.
   • The Menu screen is displayed.

2 Select **"Manual Dial"** using **[▲][▼]** and press **[Enter]**.
   • The display returns to the input screen.
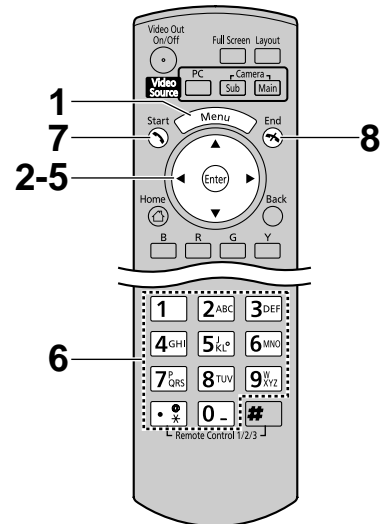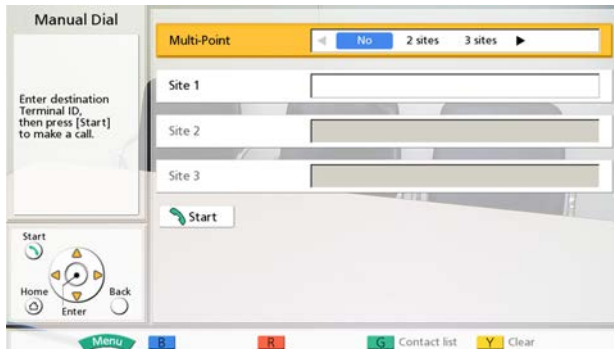
Note

> Instead of performing steps **1** and **2**, you can display the input screen by pressing **[Start]** in the Home screen.

3 Select **"Multi-Point"** using **[▲][▼]**.

4 Select one of the following values using **[◀][▶]**.
2-party video conference call: **"No"**
3-party video conference call: **"2 sites"**
4-party video conference call: **"3 sites"**

Note

> • If you are using the KX-VC300, inputting 2 or 3 sites is only available after purchasing an activation key card (KX-VCS301) to activate multiple-party video conference calls. For details about the activation key, contact your dealer.

5 Use **[▲][▼]** to select **"Site 1"**, **"Site 2"** or **"Site 3"**.

6 Enter the Terminal ID (7 digits).

Note

- You can refer to the contact list when entering the Terminal ID, by following the procedure below:
  1. Press **[G]**.
     - The contact list screen is displayed.
  2. Use **[▲][▼]** to select the contact you want to refer to.
     - You can use **[◀][▶]** or the numeric buttons of the remote control to select the displayed tab (Page 28).
  3. Press **[Enter]**.
     - The display returns to the input screen.
     - You cannot enter the Terminal ID using the call history.

7 Press **[Start]**.
- The Terminal ID you input is called.
- You can also start the call by pressing **[Enter]**.

8 When you want to end the call, press **[End]**.
- The Home screen is displayed.

Calling from the Contact List

1 Press **[Menu]**.
  • The Menu screen is displayed.

2 Select **"Contact List"** using **[▲][▼]** and press **[Enter]**.
  • The contact list screen is displayed. The entries are grouped in the index tabs and displayed in alphabetical order of **"Group/Site"**.
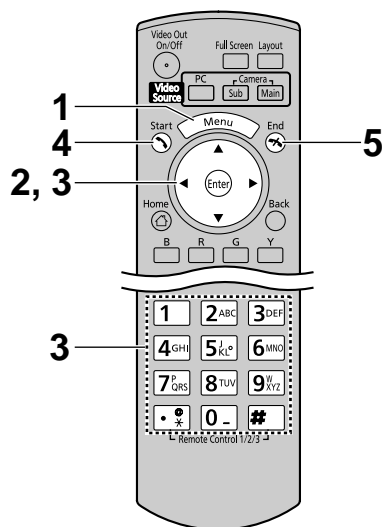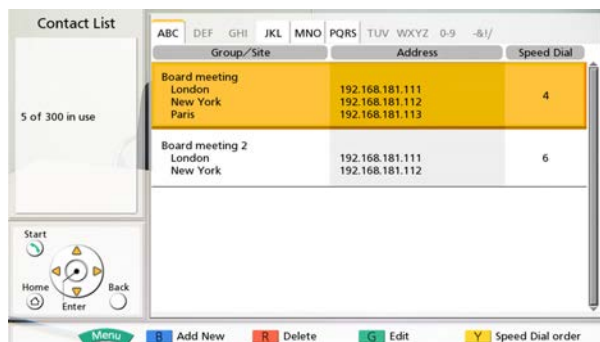
3 Select the entry you want to call using **[▲][▼]**.
  • You can switch the index tab back and forth using **[◀][▶]**. (Index tabs in which no entries exist will be skipped.)
  • Press a numeric button on the remote control to switch to the index tab assigned to that button, as shown below.

Numeric button	Index Tab
1	–
2	ABC
3	DEF
4	GHI
5	JKL
6	MNO
7	PQRS
8	TUV
9	WXYZ
0	0-9
✳	-&!/
#	–

4 Press **[Start]**.
  • The registered party you selected is called.

5 When you want to end the call, press **[End]**.
  • The Home screen is displayed.

<u>Note</u>

- You can also make a video conference call with one of the following methods:
    - Calling from the call history.
    - Calling using a speed dial number on the Menu screen. (You can select from a maximum of 300 speed dial numbers.)

For details about these procedures, see the Operating Manual or User Manual.

Answering a Video Conference Call

Depending on your setting, you can either respond to a request to participate in a video conference call manually (manual answer) or automatically (automatic answer). For details about the settings, refer to the Operating Manual or User Manual.

When Manual Answer is Set

When a video conference call is incoming there will be an incoming call ring, and a dialogue box is displayed.

- When calls are received from parties that are registered in the contact list, their group/site is displayed.
- When calls are received from parties that are not registered in the Contact List, their Terminal ID is displayed.

Operation with the Remote Control

1 Press **[Start]**.
   - The video conference begins.
   - You can also answer the video conference call by pressing **[Enter]**.
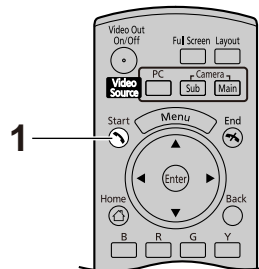
Note

- If you do not answer a video conference call within approximately 60 seconds, the call will be terminated automatically.

When Automatic Answer is Set

When a video conference call is incoming the call will be automatically answered after one ring, and transmission then begins.

Extending the Service Period of KX-VC Series NAT Traversal Service

The availability of KX-VC Series NAT Traversal Service expires after a certain period. To continue uninterrupted service, it is necessary to extend the service period.

Confirming the Service Period

You can use the unit to confirm the service period.

Note

- Even after the service period has expired, the same Terminal ID may be used within 6 months of expiration to perform a service period extension. After 6 months have passed following the expiration of the service period, the Terminal ID becomes invalid, and the service period cannot be extended. It is then necessary to acquire a new Registration Key and re-register to the unit (Page 7, Page 11).

Example: When a trial Activation Key Sheet was registered on January 1.
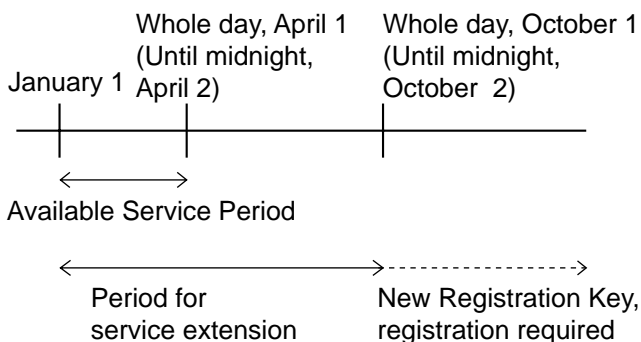
Whole day, April 1 (Until midnight, April 2)

Whole day, October 1 (Until midnight, October 2)

January 1

Available Service Period

Period for service extension

New Registration Key, registration required

1. Press **[Menu]**.
   - The Menu screen is displayed.

2. Use **[▲][▼]** to select **"Settings"** and press **[Enter]**.
   - The system settings screen is displayed.

3. Press **[▶]** three times.
   - The fourth page is displayed.

4. Use **[▲][▼]** to select **"Enhancement"** and press **[Enter]**.
   - The enhanced feature confirmation screen is displayed. Check the field **"KX-VC Series NAT Traversal Service"** (❶).

❶

MPR ID	: 1234-5678-90AB-CDEF
KX-VC Series NAT Traversal Service	: Expiration date is 31/DEC/2020 (GMT)
Activated Features	: None
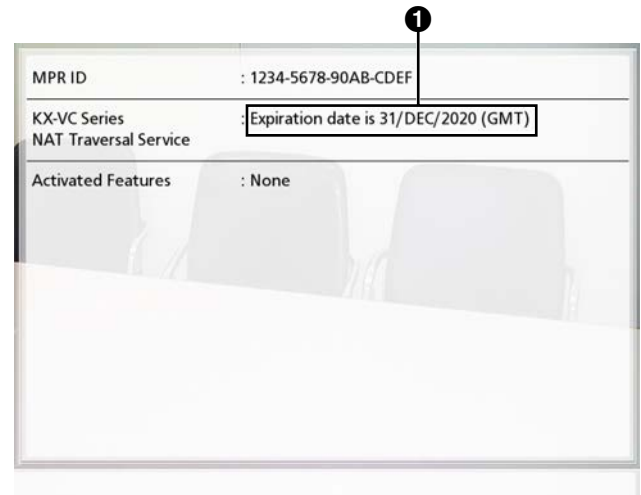
Understanding the Service Period

- If **"Expiration date is DEC/31/2020 (GMT)"** is displayed, the service period will expire at midnight on January 1, 2021.
- If **"Expired"** is displayed, you are still within 6 months since the service period expired. You can extend the service period.
- If **"Not registered"** is displayed, a Registration Key has never been registered to the unit, or 6 months or more have passed since the service period expired. After 6 months have passed following the expiration of the service period, the service period cannot be extended. It is then necessary to acquire a new Registration Key and re-register to the unit (Page 7, Page 11).

5. Press **[Home]**.
   - The Home screen is displayed.

Extending the Service Period

To extend the service period, it is necessary to purchase an Activation Key Card. The duration of the extension differs according to the card purchased. For details about cards, contact your dealer.

Note

- If the service period is extended while the service period is still in effect, the duration of the extension is added to the current service period. Example: During a 3-month duration service period, the service period is extended by 1 year.
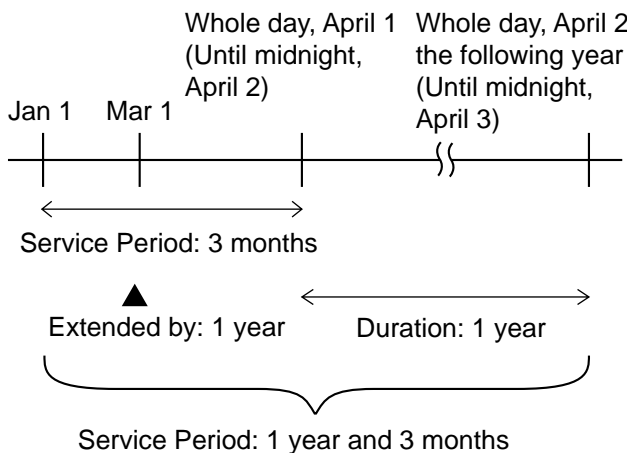
- If the service period is extended within 6 months following the expiration of a service period, the service period begins at the time the extension is performed.

1. From a computer, access the KX-VC Series NAT Traversal Service registration page (https://www.tsunagarunet.com/hdcom/main).
   - The login screen is displayed.

   Note

   - The login screen is displayed in English. You can change the language from the drop-down list in the upper right of the screen.

2. Enter the characters displayed in the image, and then click **"Apply"**.

- The function selection screen is displayed.

   Note

   - The fields are case sensitive.

3. Click **"Extension of period"** next to HDVC.
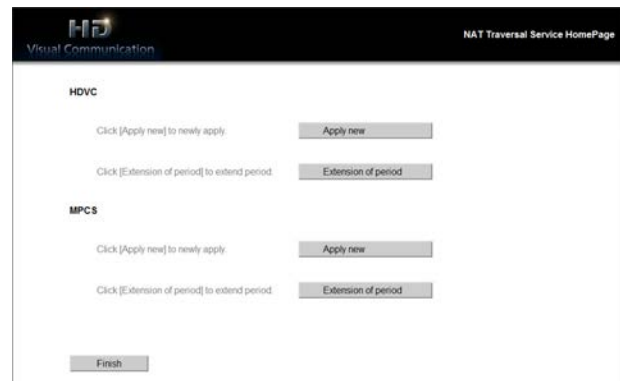
- The extension of period screen is displayed.

4. Fill in the following items:

"MPR ID": Input the MPR ID of the unit that you want to extend the service period for.

"Activation Key No.": Input the Activation Key No. printed on the Activation Key Card purchased for the service period extension.
"Registration ID": Input the Registration ID printed on the Activation Key Card purchased for the service period extension.

5. Click **"Next"**.
   - The Terms of Use screen is displayed.

6. Read the Terms of Use thoroughly, and if you agree to the terms, click **"Accept"**.
   - The extension confirmation screen is displayed.

7. Click **"Register"**.

   - The extension completion screen is displayed.

   Note
   - To register another Activation Key Card, click **"Register New"** and repeat steps **4** to **7**.
   - The total amount of the service period that can be registered using Activation Key Cards at one time is 6 years, which includes the amount of time remaining in the currently active service period. An Activation Key Card cannot be registered if doing so would extend the total service period beyond 6 years.

8. Click **"Menu"**.
   - The function selection screen is displayed.

9. Press the unit's power button to turn it off, and then on to restart the unit.
   - The extended service period is reflected on the unit.

10. Press **[Menu]**.
    - The Menu screen is displayed.

11. Use **[▲][▼]** to select **"Settings"** and press **[Enter]**.
    - The system settings screen is displayed.

12. Press **[▶]** three times.
    - The fourth page is displayed.

13. Use **[▲][▼]** to select **"Enhancement"** and press **[Enter]**.
    - The enhanced feature confirmation screen is displayed. Check the field **"KX-VC Series NAT Traversal Service"**, and confirm that the service period has been extended.

14. Press **[Home]**.
    - The Home screen is displayed.

Troubleshooting

When a problem occurs, first check the items below. If the problem is still not resolved, contact your dealer.

Registration Page of KX-VC Series NAT Traversal Service

Basic Operation

Problem	Cause and Solution
The language displayed on the screen is a foreign language.	• The language setting is incorrect. → In the upper right of the login screen, select your preferred language from the drop-down list (Page 8).

I cannot log in to the device application screen.	• The characters displayed in the image were not entered correctly.
	→ Check that the capitalization of characters is correct, and then try entering them again.
	→ Check that you have not entered any unused characters, and then try entering them again. The following characters are not used.
	   – Uppercase letters: I O
	   – Lowercase letters: c i j l o s u v w x z

If These Messages Appear

Message	Cause and Solution
Invalid Activation Key entered.	• The Activation Key No. or the Registration ID you entered is incorrect. → Check the information written on the Activation Key Card or the Activation Key Sheet to ensure it is entered correctly.
Activation Key already registered.	• The Activation Key No. and Registration ID you entered is already in use by another HD Visual Communication Unit. • You entered an Activation Key No. and Registration ID that have been used for registration in the past. → Enter the information written on an Activation Key Card or Activation Key Sheet that has not been used yet. If the message still appears, contact your dealer.
This Trial licence already registered.	• You are trying to use a different Activation Key Sheet after completing registration using the included Activation Key Sheet. → Do not use an Activation Key Sheet other than the one included with the product.

Unit

Basic Operation

Problem	Cause and Solution
I registered a Registration Key, but I cannot make a video conference call using KX-VC Series NAT Traversal Service.	• The connection mode is not set to **"NAT Traversal Mode"**. → Set the connection mode to **"NAT Traversal Mode"** (Page 13).
After registering a Registration Key and restarting the unit, the Terminal ID is not displayed in the upper right of the Home screen even after 5 minutes.	• The LAN cable is not connected correctly. → Check that it is connected to the unit properly. • Router settings for your Internet connection are incorrect. → Set your router correctly, following the router's documentation, and in accordance with setting information supplied by your Internet provider. • Packet filtering or port forwarding is enabled on the router. → Disable these features on the router. For details, refer to your router's documentation.
I extended the service period, but the Terminal ID is not displayed on the Home screen.	• You did not restart the unit after registering on the KX-VC Series NAT Traversal Service registration page. Restarting the unit is necessary to apply the registration information. → Turn off power to the unit, and then turn it back on to restart the unit.
The service period has not been extended even though a service period extension was performed.	• You did not restart the unit after registering on the KX-VC Series NAT Traversal Service registration page. Restarting the unit is necessary to apply the registration information. → Turn off power to the unit, and then turn it back on to restart the unit.

If These Messages Appear

Message	Cause and Solution
Failed Registration Key code authentication.	• You are trying to register an invalid Registration Key. → Recheck the information of the Registration Key that was issued (Page 10), then repeat the registration (Page 16).

Message	Cause and Solution
XXXXXXXX **Note** • An error code (containing alphanumeric characters) is displayed in "XXXXXXXX".	• The router or the LAN cable is not connected correctly to the unit, and therefore you cannot make a video conference call. The following table explains the error codes:

Error Code	Explanation
01000003	The DHCP lease expired.
01000006	There was a change due to an extension of the DHCP lease.
01000007	The DHCP network information is invalid.
05000008 0700000b	Registration to the SIP server failed.
05000009	TCP connection was lost in NAT Traversal Mode.
0600000a	TCP connection was lost in NAT Traversal Mode.

→ Check that the router and/or LAN cable are correctly connected to the unit. (Directly connect the router to the unit and check operation. Also try replacing the LAN cable, and then check operation.) If the devices are connected correctly, the router's settings may be incorrect, or the unit may be malfunctioning. Contact your dealer.

Note
   • When transmission between the unit and the router is interrupted because the LAN cable is connected incorrectly, it may take up to 10 minutes before the Terminal ID is displayed and video conference calls can be made after reconnecting the LAN cable.

Message	Cause and Solution
Service will expire soon! Please purchase and register new Registration Key Card to avoid interruption of NAT Traversal Service. Expiration date could be checked at Enhancement screen.	• Your service period may have passed 3 months. → Purchase a new Activation Key Card, and extend the service period (Page 31).
The service period has expired. Please purchase and register new Registration Key Card to activate NAT Traversal Service.	• The service period has expired. → If within 6 months since expiration: Purchase a new Activation Key Card, and extend the service period (Page 31). → If 6 months or more since expiration: Purchase a new Activation Key Card, and then acquire a new Registration Key, and re-register to the unit (Page 7, Page 11). **Note** • To determine whether it has been more than 6 months since the service period expired, see "Confirming the Service Period".

Message	Cause and Solution
Due to server issues, the NAT Traversal Service is temporarily unavailable. We are very sorry for any inconvenience.	• An error has occurred on the NAT Traversal Service server. → Wait a while, and then try connecting again. If you still cannot connect, contact your dealer.