

# 16-Channel VoIP Gateway Card Getting Started

# Model No. KX-TDA0490



Thank you for purchasing a Panasonic 16-Channel VoIP Gateway Card. Please read this manual carefully before using this product and save this manual for future use.

## **Table of Contents**

1 0	verview	5
1.1	Example Network Diagram	6
1.2	Network Devices and Numbering Plan	7
1.2.1	Network Application	8
1.2.2	Numbering Plan Example	9
1.2.3	Numbering Plan Summary	12
2 Ir	nstalling in the PBX	13
2.1	Installation	14
2.1.1	Names and Locations	14
2.1.2	Installing the VoIP Gateway Card in the PBX	15
2.2	Cable Connection	17
2.2.1	Attaching a Ferrite Core to the Cable	17
2.2.2	Connection for Programming	
2.2.3	Connection to the LAN	19
3 P	rogramming the VoIP Gateway Card	21
3.1	Preparations	22
3.1.1	Preparing the PC	22
3.2	Programming the VoIP Gateway Card in the Los Angeles Office	25
3.2.1	Starting the IP-GW16 Maintenance Utility	25
3.2.2	Changing the Status of the VoIP Gateway Card	27
3.2.3	Assigning the IP Address	
3.2.4	Assigning the Hunt Pattern	29 21
326	Downloading the Address Translation Table from the VoIP Gateway Card	۲۵ ۸۲
327	Bebooting the VolP Gateway Card	
3.2.8	Confirming the IP Address Assignment	
3.3	Programming the VoIP Gateway Card in the Chicago Office	
/ D	rogramming the PRY	/11
т Г // 1	Brogramming the PBV in the Lee Angeles Office	ו <del>ד</del> 10
4.1		
A G	iuidance for VoIP Installation	45
A1	VoIP Requirements	46
A1.1	Bandwidth Assessment	
A1.2	Network Configuration	
A1.3	Network Devices	51
A1.4 A2	VolP Requirements Checklist	
В A	Iternative Numbering Plan Example	
DI B11	Extension Number Method	
B1.1 B1 2	Numbering Plan Example	
B1.2	Programming for the Extension Number Method	59
B2.1	Programming the VoIP Gateway Card	
B2.2	Programming the PBX in the Los Angeles Office	61
	· · · ·	

С	Initialisation of the VoIP Gateway Card	63
<b>C1</b>	Initialising the VoIP Gateway Card	64
D	Using the KX-TDA0490 and KX-TDA0480 in One Network	67
D1	Considerations in Installation	68

# Section 1 Overview

Panasonic PBX with VoIP Gateway Card will allow organisations to route both voice and fax communications over digital data networks.

The VoIP Gateway Card, designed to be easily integrated into existing IP networks, seamlessly bridges Public Switched Telephone Network (PSTN) and analogue telephones with digital data networks without interrupting pre-existing data communications. Because communications do not take place over conventional telephone networks, the high cost of long distance communications is virtually eliminated.

## 1.1 Example Network Diagram

The following diagram illustrates a simple VoIP network connecting PBXs at 2 locations. The VoIP Gateway Card converts outgoing voice or fax signals into IP packets for transmission. On the incoming side, it reverses this process and translates the packets back into appropriate voice or fax signals.



## 1.2 Network Devices and Numbering Plan

You will need to have network configuration information available to install VoIP Gateway Cards. Referring to this example diagram, consult your network administrator to obtain necessary information to configure your own VoIP network.



### 1.2.1 Network Application

#### **QSIG Network Interface**

QSIG is a protocol based on ISDN (Q.931) that offers enhanced PBX features in a private network. The QSIG network supports private communications by the TIE line service method. Implementation of VoIP Gateway Cards provides a VoIP interface to employ a QSIG network between PBXs at different locations by using an IP network instead of conventional telephone networks.

### **Types of IP Network**

The VoIP Gateway Card's quality of performance depends on the type of IP network in use. Managed IP networks provide better quality of service compared to unmanaged networks, where quality of service is not guaranteed.

#### **Examples of recommended IP networks**

- Digital Leased Line
- IP-VPN (Virtual Private Network)
- Frame Relay

#### <u>Notice</u>

The performance of the VoIP Gateway Card may deteriorate when it is used on the Internet. Delays and loss in data transmission can degrade speech quality, and impair the card's capability to use the enhanced networking features of the PBX (for more information about these features, refer to the relevant sections of the Hybrid IP-PBX documentation.)

#### **Firewall**

A firewall protects the internal networks of an organisation against unauthorised penetration from outside. When routing a VoIP network through a firewall, some performance degradation may result. If for practical reasons you must route the VoIP network through a firewall, refer to "A1.3 Network Devices" for more details.

### Using the KX-TDA0490 with Other KX-TDA Series VoIP Gateway Cards

When using the KX-TDA0490 in a network that contains other KX-TDA series VoIP Gateway Cards, keep in mind the following points:

1. Making and Receiving Calls

Calls can be made and received between the KX-TDA0490 and other KX-TDA series VoIP Gateway Cards. However, the KX-TDA0480 requires a special setting to be able to communicate with the KX-TDA0490 on the network. Refer to "D1 Considerations in Installation" for more details.

2. Using QSIG Services

All QSIG services available with the PBX can be used between the KX-TDA0490 and KX-TDA0484/KX-TDA3480. However, CLIP service is the only available QSIG service between the KX-TDA0490 and KX-TDA0480.

## 1.2.2 Numbering Plan Example

There are 2 methods to plan your numbering system, as follows:

PBX code method	In addition to the destination number, the caller dials the unique PBX code of the PBX to which the called party is connected. Therefore, extension numbers at separate PBXs in the network can overlap. For example, each PBX in the network can have an extension whose number is 201.
Extension number method	The caller dials only the destination number of the called party to call through PBXs at different locations (hence there are fewer digits to dial than with the PBX code method). To employ the extension number method, no 2 PBXs can have extensions sharing the same number. For example, if one PBX in the network has an extension whose number is 201, no other PBX can have an extension with the same number (201).

This section provides a network numbering mechanism using the PBX code method based on the previous example diagram. Configure your network referring to this example.

#### <u>Note</u>

An example using the extension number method is provided in "B Alternative Numbering Plan Example".

### **IP Addressing Information**

IP addressing information is typically supplied by a network administrator. Consult your network administrator for specific values.

	Los Angeles Office	Chicago Office	Description
Card IP Address 200.45.11.35 199.176.64.41		Identifies the location of each VoIP Gateway Card in the network during VoIP communications. A unique IP address must be assigned to each card.	
Default Gateway Address 200.45.11.1 199.176.64.1		Identifies the IP address of the primary gateway (typically a router or similar device) that exchanges IP packets with the other gateways on the VoIP network.	
Subnet Mask Address 255.255.0 255.255.0 255.255.0 a		Defines which digits of an IP address are used for the network address and the host address at each network location. A card IP address must fall within the same subnet as that of the default gateway (e.g., router) that is connected to the card.	

### **PBX Numbering Information**

PBX numbering information is necessary to set up phone numbers for a VoIP network. Set the numbers conforming to existing PBX numbering systems.

	Los Angeles Office	Chicago Office	Description
			A unique number (ranging from 1 to 7 digits) assigned to identify each PBX within a network.
PBX Code	35 41		In this example, for convenience, each PBX code corresponds to the last portion of the IP address of its card; that is, because the Los Angeles office card has the IP address 200.45.11.35, Los Angeles PBX code is 35.
TIE Line Access Number	7	7	An access number to use the TIE line service.
PSTN Trunk Number	9	9	An access number to seize a local PSTN trunk.
Extension Number	200 to 299	300 to 399	A number assigned to each extension.
Fax Extension Number	500 to 599	600 to 699	A number assigned to each fax extension.

### **Dialling Examples**

The VoIP network allows you to access the PBX at one location from another to establish: (1) an extension call, or (2) an outside call through the local PSTN as if you are calling from the same area.

#### **Calling from Los Angeles to Chicago**

#### To extension 301 via VoIP network



#### To local telephone 123-4567 via VoIP network through local PSTN



#### **Calling from Chicago to Los Angeles**

To extension 201 via VoIP network





#### To local telephone 456-7890 via VoIP network through local PSTN

### **PBX Connection Information**

PBX connection information is created by combining IP Addressing Information and PBX Numbering Information. Referring to the sample below, create your own PBX connection information.

#### Leading Number:

A number composed of the PBX code followed by the first digit of the destination number. See the example on the right.

#### **Remaining Digits:**

The maximum number of digits to be dialled following the leading number to access the destination. (However, for example, setting the remaining digits to 7 does not mean that the user must dial all 7 digits when making a call.) See the example on the right.

#### Card IP Address:

The IP address of each card in the network (as the access destination).

	Los Angele	Los Angeles Office (PBX Code: 35)			Chicago Office (PBX Code: 41)		
	Extn.	FAX Extn.	PSTN Access	Extn.	FAX Extn.	PSTN Access	
Leading Number	352	355	359	413	416	419	
Remaining Digits	2	2	7	2	2	7	
Card IP Address 200.45.11.35			199.176.64.41				

#### Los Angeles extensions



## 1.2.3 Numbering Plan Summary

Print this page and write down your network information in the space provided below for each card in the network. Consult your network administrator to fill in the shaded entries.



#### **IP Address**

Card IP Address	
Default Gateway IP Address	
Subnet Mask Address	

#### **PBX Numbering**

PBX Code	
TIE Line Access Number	
PSTN Trunk Number	
Extension Number	
Fax Extension Number	

#### **PBX Connection**

	Extensions	Fax Extensions	PSTN Access
Leading Number			
Remaining Digits			
Card IP Address			

# Section 2 Installing in the PBX

This section describes the physical installation process of the VoIP Gateway Card covering the following topics: (1) installing the card in the PBX, and (2) connecting the card to a network device using a Category 5 (CAT5) Ethernet cable.

## 2.1 Installation

## 2.1.1 Names and Locations



#### Indication Light (LED)

When the VoIP Gateway Card is operating, each LED should show the status identified in **bold-face letters** under normal conditions.

Indication	Colour	Description	
CARD STATUS	Green/Red	<ul> <li>Card status indication</li> <li>OFF: Power Off</li> <li>Green ON: Normal (all ports are idle)</li> <li>Green Flashing (60 times per minute): Normal (a port is in use)</li> <li>Red ON: Fault (includes reset)</li> <li>Red Flashing (60 times per minute): Out of Service</li> </ul>	
ONLINE	Green	<ul> <li>On-line status indication</li> <li>ON: On-line mode</li> <li>OFF: Off-line mode</li> <li>Flashing: Maintenance mode</li> <li>Note If the LINK indicator is OFF, the ONLINE indicator will also be OFF. </li> </ul>	
ALARM	Red	Alarm indication <ul> <li>ON: Alarm</li> <li>OFF: Normal</li> </ul>	
VoIP BUSY	Green	<ul> <li>VoIP (H.323) process indication</li> <li>OFF: VoIP process inactive</li> <li>ON: VoIP process active</li> </ul>	

Indication	Colour	Description	
LINK	Green	<ul> <li>Link status indication</li> <li>ON: Normal connection</li> <li>OFF: Connection error</li> </ul>	
DATA	Green	<ul><li>Data transmission indication</li><li>ON: Data transmitting</li><li>OFF: No data transmitted</li></ul>	

## 2.1.2 Installing the VoIP Gateway Card in the PBX

Install the VoIP Gateway Card in a free slot of the PBX.

#### <u>Note</u>

The illustrations of the PBX shown in the installation procedure are based on the KX-TDA600.

**1.** Insert the card along the guide rails.



2. Holding the card as shown below, push the release lever in the direction of the arrow so that the card engages securely with the connector on the back board.



3. Turn the 2 screws clockwise to fix the card in place.



#### <u>Note</u>

Make sure the screws are tightened to earth the card securely.

## 2.2 Cable Connection

Use a Category 5 (CAT5) Ethernet cable (10BASE-T/100BASE-TX) with an RJ45 connector to connect the VoIP Gateway Card to a network device.

When connecting the card to a switching hub, use an Ethernet straight cable; when connecting directly to a router or PC, use an Ethernet cross cable.

#### <u>Note</u>

Use only CAT5 Ethernet cable for connection.

## 2.2.1 Attaching a Ferrite Core to the Cable

When connecting the VoIP Gateway Card to a network device, first attach a ferrite core (included with the card) to the cable.

- **1.** Wrap the cable once around the ferrite core, leaving 5 cm between the ferrite core and the connector.
- 2. Close the case of the ferrite core.



If you need to open the ferrite core, use a flathead screwdriver to unlatch the case of the ferrite core.



## 2.2.2 Connection for Programming

When assigning a new IP address to the VoIP Gateway Card for the first time, connect a PC directly to the card using an Ethernet cross cable.

- 1. Connect the Ethernet cable to the RJ45 connector of the card.
- 2. Connect the other end of the cable to the PC.



### 2.2.3 Connection to the LAN

Do not connect the VoIP Gateway Card to the LAN unless it has been assigned an IP address for actual VoIP operations on the network. Doing so may result in the default IP address of the card overlapping with an existing IP address on the LAN, or cause network failure.

- 1. Connect the Ethernet cable to the RJ45 connector of the card.
- 2. Connect the other end of the cable to the remote LAN equipment.

#### Connecting to a switching hub



#### <u>Notes</u>

- Make sure to connect to a switching hub. Do not connect to a repeater hub, as this will result in degradation in speech quality.
- Also, make sure to set the port of the switching hub that connects to the card to operate under "Auto Negotiation" mode. This will help assure error-free communication between the card and the switching hub.

#### Connecting directly to a router



2.2 Cable Connection

## Section 3

## Programming the VoIP Gateway Card

One way of setting up a VoIP network for the first time is to go through the whole programming process of a VoIP Gateway Card at one location in the network, then start programming the other cards at different locations.

Based on the theoretical network illustrated previously in this manual, this section demonstrates the procedure to programme the cards in the Los Angeles and Chicago offices.

## 3.1 Preparations

A web programming utility called the IP-GW16 Maintenance Utility is available for programming of the VoIP Gateway Card.

For a complete discussion of web programming, refer to the VoIP Gateway Card Programming Guide.

#### System Requirements

• The IP-GW16 Maintenance Utility requires Microsoft® Internet Explorer 5.0 or above.

#### Trademarks

- Microsoft is either a registered trademark or trademark of Microsoft Corporation in the United States and/or other countries.
- All other trademarks identified herein are the property of their respective owners.
- Screen shots reprinted with permission from Microsoft Corporation.

### 3.1.1 Preparing the PC

To prepare for programming using the IP-GW16 Maintenance Utility, configure your PC by (1) assigning an IP address that belongs to the same network as that of the VoIP Gateway Card, and (2) choosing the appropriate options for the Internet properties.

#### <u>Note</u>

The procedure below is based on the Windows XP operating system as an example.

nternet Protocol (TCP/IP) Prop	erties ? 🔀				
General					
You can get IP settings assigned automatically if your network supports this capability. Otherwise, you need to ask your network administrator for the appropriate IP settings.					
Obtain an IP address automatica	ally				
• Use the following IP address:					
IP address:	192.168.1.100				
S <u>u</u> bnet mask:	255 . 255 . 255 . 0				
Default gateway:					
Obtain DNS server address auto	matically				
Output the following DNS server address of the server address of the following DNS server address of the s	Idresses:				
Preferred DNS server:					
Alternate DNS server:	· · ·				
Advanced					
	OK Cancel				

- 1. Open Internet Protocol (TCP/IP) Properties from the Start menu.
- 2. a. Click Use the following IP address.
  - In the IP address box, type 192.168.1.100.
     This is an example entry for the case when the card has the default IP address (192.168.1.200).
  - c. In the Subnet mask box, type 255.255.255.0.
  - d. Click OK.

- 3. a. Start Internet Explorer from the Start menu.
  - b. Click Internet Options from the Tools menu.

Jeneral         Security         Privacy         Content         Connections         Programs         Advanced           To set up an Internet connection, click         Setup         Setup         Setup	Б. С.	Click LAN Settings.
Diał-up and Virtual Private Network settings Add Remove		
Choose Settings if you need to configure a proxy Settings		
Never dial a <u>connection</u> Dial <u>whenever</u> a network connection is not present     Always dial my default <u>connection</u>		
Current None S <u>et Default</u>		
Local Area Network (LAN) settings		
LAN Settings do not apply to dial-up connections.		
OK Cancel Apply		
OK Cancel Apply	-	
OK Cancel Apply	5. a.	Click to clear all check boxes.
OK Cancel Apply Cal Area Network (LAN) Settings	5. a. b.	Click to clear all check boxes. Click <b>OK</b> .
OK Cancel Apply cal Area Network (LAN) Settings Automatic configuration Automatic configuration may override manual settings. To ensure the use of manual settings, disable automatic configuration.	5. a. b.	Click to clear all check boxes. Click <b>OK</b> .
OK Cancel Apply Cal Area Network (LAN) Settings	5. a. b.	Click to clear all check boxes. Click <b>OK</b> . ur PC is now ready for programming through
DK       Cancel       Apply         cal Area Network (LAN) Settings       Image: Configuration         Automatic configuration may override manual settings. To ensure the use of manual settings, disable automatic configuration.       Image: Configuration may override manual settings. To ensure the use of manual settings, disable automatic configuration.         Image: Configuration may override manual settings. To ensure the use of manual settings, disable automatic configuration.         Image: Configuration may override manual settings.	<b>5. a.</b> <b>b.</b> You dire	Click to clear all check boxes. Click <b>OK</b> . ur PC is now ready for programming through ect access to the card.
OK       Cancel       Apply         cal Area Network (LAN) Settings       ? X         Automatic configuration       ? X         Automatic configuration may override manual settings. To ensure the use of manual settings, disable automatic configuration.       ? X         Automatically detect settings          Use automatic configuration script          Address	5. a. b. You dire	Click to clear all check boxes. Click <b>OK</b> . ur PC is now ready for programming through ect access to the card.
DK       Cancel       Apply         cal Area Network (LAN) Settings       ? X         Automatic configuration       ? X         Automatic configuration may override manual settings. To ensure the use of manual settings, disable automatic configuration.       Automatically detect settings         Automatic configuration gcript       Address       Address	5. a. b. You dire	Click to clear all check boxes. Click <b>OK</b> . ur PC is now ready for programming through ect access to the card.
OK       Cancel       Apply         cal Area Network (LAN) Settings       ? X         Automatic configuration       ? X         Automatic configuration may override manual settings. To ensure the use of manual settings, disable automatic configuration.       ? X         Automatic configuration may override manual settings. To ensure the use of manual settings, disable automatic configuration.       ? X         Automatic configuration gcript       Addgess         Proxy server       Use a proxy server for your LAN (These settings will not apply to dial-up or VPN connections).	5. a. b. You dire	Click to clear all check boxes. Click <b>OK</b> . ur PC is now ready for programming through ect access to the card.
DK       Cancel       Apply         cal Area Network (LAN) Settings       Image: Configuration         Automatic configuration may override manual settings.       To ensure the use of manual settings, disable automatic configuration.         Automatic configuration may override manual settings.       To ensure the use of manual settings, disable automatic configuration.         Automatic configuration gcript       Address         Proxy server       Use a proxy server for your LAN (These settings will not apply to dial-up or VPN connections).         Address:       Porty:       Advanged	5. a. b. You dire	Click to clear all check boxes. Click <b>OK</b> . ur PC is now ready for programming through ect access to the card.
DK       Cancel       Apply         cal Area Network (LAN) Settings       Image: Configuration         Automatic configuration may override manual settings. To ensure the use of manual settings, disable automatic configuration.       Image: Configuration may override manual settings. To ensure the use of manual settings, disable automatic configuration.         Image: Automatic configuration may override manual settings.       To ensure the use of manual settings. To ensure the use of manual settings, disable automatic configuration.         Image: Automatic configuration script       Address         Image: Automatic configuration script       Address <tr< td=""><td>5. a. b. You dire</td><td>Click to clear all check boxes. Click <b>OK</b>. ur PC is now ready for programming through ect access to the card.</td></tr<>	5. a. b. You dire	Click to clear all check boxes. Click <b>OK</b> . ur PC is now ready for programming through ect access to the card.
DK       Cancel       Apply         cal Area Network (LAN) Settings       Image: Configuration         Automatic configuration       Automatic configuration may override manual settings. To ensure the use of manual settings, disable automatic configuration.         Image: Imag	5. a. b. You dire	Click to clear all check boxes. Click <b>OK</b> . ur PC is now ready for programming through ect access to the card.

#### Notice When Programming the Card through an IP Network

When the card is put in actual operation on an IP network, you can access and programme the card through the network. However, if the network has a proxy server installed, you must apply appropriate proxy settings to your PC. In this case, follow the steps below in substitution for step 5 above:

Local Area Network (LAN) Settings	5. (
Automatic configuration Automatic configuration may override manual settings. To ensure the	
use of manual settings, disable automatic configuration.	
Use automatic configuration script	
Address	
Proxy server Use a pro⊻y server for your LAN (These settings will not apply to dial-up or VPN connections).	
Address: 200.45.1.100 Port: 8080 Advanced	
Bypass proxy server for local addresses	
OK Cancel	

5. Click Advanced.



- 6. a. Under Do not use proxy server for addresses beginning with:, type the IP address of the card.
  - b. Click OK.

Your PC is now ready for programming the card through an IP network.

## 3.2 Programming the VoIP Gateway Card in the Los Angeles Office

Based on the example network in "1.2 Network Devices and Numbering Plan", this section demonstrates the procedure to programme a VoIP Gateway Card for use in the Los Angeles office, as the first step of setting up a VoIP network. VoIP communications between the 2 offices will be possible when the cards, as well as the PBXs, in both offices are fully programmed.

The procedure to programme the card in the Chicago office is given in "3.3 Programming the VoIP Gateway Card in the Chicago Office". In addition, the procedure to programme the PBX in the Los Angeles office is given in "4.1 Programming the PBX in the Los Angeles Office".

### 3.2.1 Starting the IP-GW16 Maintenance Utility

Make sure that a PC is connected directly to the VoIP Gateway Card with an Ethernet cross cable (see "2.2.2 Connection for Programming").

The card should not be connected to the LAN at this point.

File	Edit	View	Favorites	Tools	Help	
Addre	ess 🦉	http://	192.168.1.2	00		
IP-GW	'16 Mainte	nance Utili	ty - Microsoft Inter	rnet Explore	}	
IP-GW le <u>E</u> dit	16 Mainte : View F	enance Utili igvorites To	ty - Microsoft Inte Js ∐elp	rnet Explore	1	
IP-GW le Edit	<mark>16 Mainte</mark> yiew F 한 http://19	e <mark>nance Utili</mark> igvorites <u>T</u> oi 32,168,1,200	ty-MicrosoftInter ks 분야	rnet Explore	,	
IP-GW le Edit dress &	16 Mainte : Yew F 을 http://19	mance Utili avorites Io 92.168.1.200 nic	ty - Microsoft Inter als Help	rnet Explore	r	
IP-GW le Edit Idress a Pal IP-G	16 Mainte Vew F http://19 naso W16 Ma	nance Utili avortes Io 22.168.1.200 <b>nic</b> aintenance	ty - Microsoft Inter sk 원하 e Utility	r net. Explore		
IP-GW le Edit Idress & IP-G' Inter U	16 Mainte yew F 위 http://19 NASO W16 Ma sername a	nance Utili gvortes Io 32.168.1.200 <b>nic</b> aintenance and Passwor	ty - Microsoft Inte Isk Help • • • Utility rd, and click the LO	rnet Explore	1	

LOGIN CLEAR

- 1. Start Internet Explorer from the Start menu.
- In the Address box of Internet Explorer, type http://192.168.1.200 (default IP address of the card).
  - **b.** Press the ENTER key on the keyboard.

#### <u>Notes</u>

- If you cannot see the log-in screen, return to "3.1.1 Preparing the PC" and confirm that your PC has been configured appropriately.
- If you forget the IP address, you must initialise the card to the default setting (see "C1 Initialising the VoIP Gateway Card").
- **3. a.** In the **Username** box, type **Administrator** (default user name).
  - **b.** In the **Password** box, type **Administrator** (default password).
  - c. Click LOGIN.

#### Note

If you forget the user name or password, you must initialise the card to the default setting (see "C1 Initialising the VoIP Gateway Card").



The main menu appears.

#### <u>Note</u>

For readability of the text on the screen, it is recommended that you adjust the text size of Internet Explorer to below medium.

#### <u>Note</u>

If you finish a programming session without logging out from the card (e.g., quitting Internet Explorer, or returning to the log-in screen with the "Back" button of Internet Explorer), you cannot log in again for the period of time specified by the parameter **Programming Auto Disconnect Time** (default: 10 min).

For the log-out procedure and **Programming Auto Disconnect Time** setting, refer to "2.5.2 Log Out" and "2.3.2 Maintenance Settings" of the VoIP Gateway Card Programming Guide, respectively.

## 3.2.2 Changing the Status of the VoIP Gateway Card

When programming the VoIP Gateway Card, place the card in the "STOP" status.

P-GW16 Maintenance Utility - Microsoft Internet Explorer	1. Click 2.1 Change RUN/STOP status in the main
File Edit View Favorites Tools Help	menu.
Address 🕘 http://192.168.1.200/ad_menu.html	
MENU	
1. Programming	
1.1 Network Settings, General	
1.2 H.323 Detailed Settings	
1.3 Voice Communication Detailed Settings	
1.4 VoIP Gateway/IP-PBX Interface Settings	
1.5 Hunt Pattern (for Incoming Calls)	
1.6 DN2IP (Dialed Number to IP Address Translation)	
1.7 Initialization	
2. Maintenance	
2.1 Change RUN/STOP status	
0.036 interest dentes	
P-GW16 Maintenance Utility - Microsoft Internet Explorer	2. a. Click STOP for Status after changing.
Address http://192.168.1.200/state_cho.html	<b>b.</b> Click <b>OK</b> .
2. Maintenance 2.1 Change RUN/STOP status	
Current RUN/STOP Status RUN	
Status after changing O RUN • STOP	
Forced Disconnect when executing STOP Ves	
OK MENU LOGOUT	
	2 Click OK
2 IP-GW16 Maintenance Utility - Microsoft Internet Explorer File Edit View Favorites Tools Help	S. CIICK OR.
Address 🕘 http://192.168.1.200/state_chg_conf.html	
Change the status to STOP.	
If you are sure, click OK. If you don't change the status, click BACK button on your browser.	
OK .	
IP-GW16 Maintenance Utility - Microsoft Internet Explorer     File Edit View Eavorites Tools Help	
Address @ http://192.168.1.200/state_chg_ok.html	
RUN/STOP status was successfully changed.	
ОК	

### 3.2.3 Assigning the IP Address

When programming the VoIP Gateway Card for the first time, a new IP address must be assigned. Once this is done and the card is on-line, it will be able to communicate with the other cards over the VoIP network.

The specific setting values are based on the table under "IP Addressing Information" in "1.2.2 Numbering Plan Example".

🕘 I	P-GW1	6 Mai	intena	nce	Utility	7 -	- Mi	сто	sof	t Inte	rnet	Ex	plore	er -		1		Clic
File	Edit	View	Favo	rites	Tools	;	He	lp										men
Addr	ess 🧉	http:/	/192.16	8.1.2	00/ad_	me	nenu.	html										
м	ENU																	
1.	Progra	unmin	g															
	<u>1.1 N</u>	etworl	k Setti	ings,	Gene	ra	<u>al</u>											
	<u>1.2 H</u>	<u>323 I</u>	Detaile	d Se	ttings													
	<u>1.3 V</u>	oice C	lomm	inica	tion D	)e	etaile	ed S	Sett	tings								
	<u>1.4 V</u>	oIP G	atewa	y/IP∙	PBX	Ŀ	Inter	fac	e S	Setting	<u>(S</u>							
	<u>1.5 H</u>	unt Pa	ttern (	for I	ncomi	ing	ig C	alls)	2									
	<u>1.6 D</u>	N2IP	(Diale	d Ni	umber	t	to II	<u>2 A</u>	ddı	ress I	rans	lati	<u>on)</u>					
	1 7 Ini	tializa	tion															
@ P	GW16 Ma	intenan	ce Utility	/ - Mic	rosoft Int	ter	ernet E	Explo	rer							2	2.	a.
File	Edit Viev	v Favori	ites Tools	s Help	h hard													h
Fiddre.	e nep		.1.200/80_	TREWARK			_											υ.
	K AI	L CLEAR	R M	ENU	LOGO	UT	л											C.
1. P 1.1	rogrammi Network	ng Settings	, General															d.
c	urrent IP	Address	;										192.	168.1.:	200			
C	urrent Su	bnet Ma	isk										255.3	255.25	5.0			
	urrent De	fault Ga	teway										0.0.0	.0				
1.1.	1 IP Add	ress Sett	tings															
# 11	Address	;											200.4	15.11.3	5			
# S	ubnet Ma	sk											255.2	255.255	.0			
# D	efault Ga	teway											200.4	15.11.1				
an n	CW4.6.11-				anaft lat		and P										2	Con
File	Edit View	Favorit	es Tools	Help	osont int	en	rnet c	.xptoi	rer									0011
Addres	s 🕘 http:	//192.168.	1.200/ad_	network,	_conf.html													
1. Pr	ogrammi	ıg																
Are	the follow	ing settir	ngs OK?															
1.11	Vetwork	Settings,	General															
1.1.1	IP Add	ess Setti	ings															

00.45.11.3

255.255.255.0 200.45.11.1 . Click 1.1 Network Settings, General in the main menu.

- a. In the IP Address box, type 200.45.11.35.
- b. In the Subnet Mask box, type 255.255.255.0.
- c. In the Default Gateway box, type 200.45.11.1.
- d. Click OK.

6. Confirm your entry, and then click OK.

#### <u>Note</u>

IP Address Subnet Mask

For more details about IP address assignment, refer to "2.2.1 Network Parameters" of the VoIP Gateway Card Programming Guide.

## 3.2.4 Assigning the Hunt Pattern

The hunt pattern determines how to route incoming calls through the VoIP Gateway Card to the PBX.

🗿 IP-GW16 Maintenar	nce Utility - Microsoft Internet Explorer
File Edit View Favor	ites Tools Help
Address 🙆 http://192.168	3.1.200/ad_menu.html
MENU	
1. Programming	
1 1 Maturaule Catti	nan General
1.1 INELWOIR DELLI	igs, General
1.2 H.323 Detailed	d Settings
1.3 Voice Commu	nication Detailed Settings
1.4 VolP Gateway	MP-PBX Interface Settings
1.5 Hunt Pattern (f	for Incoming Calls)
<u></u>	
1.6 DN2IP (Dialed	d Number to IP Address Translation)
1.7 Initialization	
🗿 ID. GW44 Maintenance Litili	ity Alissanaft Internat Evalurar
File Edit View Favorites To	bols Help
Address 💰 http://192.168.1.200/a	id_hunt_pattern.html
1. Programming	
1.5 Hunt Pattern (for Incomir	ng Calls)
1.5.1 Hunt Group	
Port1	Hunt group 1 🗸
Port2	Hunt group 1 V
Port3	Hunt group 1
* Port5	Hunt group 1
Port6	Hunt group 1
Port7	Hunt group 1 V
Port8	Hunt group 1 👻
1.5.2 Hunt Pattern Entry	
Hunt Pattern No. (1-16)	1
Receive Leading Number	35
Hunt Group (Priority1)	1 🗸
Hunt Group (Priority2)	- 💌
* Hunt Group (Priority3)	- 💌
Hunt Group (Priority4)	- 💌
Hunt Group (Priority5)	- 🗙
Hunt Group (Priority6)	- •
Hunt Group (Priority7)	- •
Hunt Group (Priority8)	- •
* indicates setting must be do	one in the STOP status, and is not followed by a REBOOT.

1. Click 1.5 Hunt Pattern (for Incoming Calls) in the main menu.

- a. In the Hunt Pattern No. box, type 1. A hunt pattern will be created with this numbering.
  - b. In the Receive Leading Number box, type 35 (PBX code).
  - c. Click ENTRY.
  - d. Click OK.

IP-GW16 Maintenance	Utility - Microsoft Internet F	xplorer		<b>3.</b> Confirm your entry, and then click <b>OK</b> .
File Edit View Favorites	Tools Help			
Address 👸 http://192.168.1.2	:00/ad_hunt_pattern_conf.html			
1. Programming				
Are the following settings	OK?			
1.5 Hunt Pattern (for Inc	oming Calls)			
1.5.1 Hunt Group				
Port1	Hunt group 1			
Port2	Hunt group 1			
Port3	Hunt group 1			
Port4	Hunt group 1			
Port5	Hunt group 1			
Port6	Hunt group 1			
Port7	Hunt group 1			
Port8	Hunt group 1			
Hunt Pattern No	o. Receive	Leading Number	Hunt Group	
1	35		1	
OK CANCEL				

<u>Note</u>

For more details about hunt pattern assignment, refer to "2.2.5 Hunt Pattern Parameters" of the VoIP Gateway Card Programming Guide.

### 3.2.5 **Programming the Address Translation Table**

The function of an address translation table in a VoIP network is to provide 2-way translation of telephone numbers and IP addresses<sup>\*1</sup>. The address translation table is owned jointly by all VoIP Gateway Cards in the network. Therefore, whenever the address translation table is changed, it is important to update all the cards in the network with the latest information; otherwise VoIP communications cannot be established.

It is possible, at one location in the network, to programme the address translation table that contains information for the entire network. The completed address translation table can then be distributed across the network, so that all the cards share the same information (see "3.2.6 Downloading the Address Translation Table from the VoIP Gateway Card", and "Uploading Address Translation Table to the VoIP Gateway Card" in "3.3 Programming the VoIP Gateway Card in the Chicago Office").

#### <u>Note</u>

The address translation table created for the KX-TDA0490 can be shared with the KX-TDA0484 and KX-TDA3480.

The procedure below demonstrates the process of programming the address translation table necessary for VoIP communications between the Los Angeles and Chicago offices.

The specific setting values are based on the table under "PBX Connection Information" in "1.2.2 Numbering Plan Example".



1. Click 1.6 DN2IP (Dialed Number to IP Address Translation) in the main menu.

<sup>\*1</sup> IP address-to-telephone number translation can also be handled by using an H.323 Gatekeeper device. To configure Gatekeeper devices, refer to the manufacturer's documentation. This manual focuses on the method using the VoIP Gateway Card's internal address translation capabilities.

P-GW16 Maintenance Utility - Microsoft Internet Explorer						
File Edit View Favorites Tools Help						
Address 截 http://192.168.1.200/ad_register	_gw.html					
OK MENU PREVIOUS LOGOUT  1. Programming 1.6 DN2/P (Dialed Number to IP Address Translation)						
1.6.1 GW Entry						
GW No. (0-511)	0					
* Comment	Los Angeles					
IP Address	200.45.11.35					
Group No.	0					
troup 110     indicates setting must be done in the STOP status, and is not followed by a REBOOT.      ENTRY						

IP-GW16 Maintenance Utility - Mic	rosoft Internet Explorer				
File Edit View Favorites Tools Help					
Address 💩 http://192.168.1.200/ad_register	_gw.html				
OK MENU PREVIOUS LOGOUT					
1. Programming					
1.6 DN2IP (Dialed Number to IP Ac	ddress Translation)				
1.6.1 GW Entry					
GW No. (0-511)	1				
Comment	Chicago				
IP Address	199.176.64.41				
Group No.	0				
*indicates setting must be done in the	STOP status, and is not followed by a PEROOT				
indicates setting must be done in the	5 STOP status, and is not followed by a fEEDOOT.				
ENTRY					

🕙 IP-GW16 Mainten	ance Utility - Microsoft Internet E	xplorer				
File Edit View Fav	Edit Wew Favorites Tools Help					
Address 🙆 http://192.1	68.1.200/ad_register_gw_conf.html					
1. Programming	1. Programming					
Are the following se	ttings OK?					
1.6 DN2IP (Dialed	1.6 DN2IP (Dialed Number to IP Address Translation)					
1.6.1 GW Entry						
GW No.	Comment	IP Address	Group No.			
0	Los Angeles	200.45.11.35	-			
0	Los Angeles Chicago	200.45.11.35 199.176.64.41	-			

- **3.** Do the following to configure the gateway entry for the Los Angeles office:
  - a. In the GW No. box, type 0.
     A gateway entry for the card will be created with this numbering.
  - **b.** In the **Comment** box, type **Los Angeles** (a unique identifier of the card in the VoIP network).
  - c. In the IP Address box, type 200.45.11.35.
  - d. In the Group No. box, type 0.

#### <u>Note</u>

Having the value **0** for **Group No.** means that the card does not belong to any gateway group. Grouping is useful when installing multiple cards at one location. For details, refer to "2.2.6 Address Translation Table—GW Entry" of the VoIP Gateway Card Programming Guide.

- e. Click ENTRY.
- **4.** Do the following to configure the gateway entry for the Chicago office:
  - a. In the GW No. box, type 1.
  - b. In the Comment box, type Chicago.
  - c. In the IP Address box, type 199.176.64.41.
  - d. In the Group No. box, type 0.
  - e. Click ENTRY.
  - f. Click OK.
- Confirm your entry, and then click OK.
   The gateway entries for the Los Angeles and Chicago offices are now configured.

IP-GW16 Maintenance Utility - Microsoft Internet Explorer	6.	Click	PREVIOUS.
File Edit View Favorites Tools Help Address 🖓 http://192.168.1.200/ad register gw.html			
1. Programming 1.6 DN2IP (Dialed Number to IP Address Translation)			
1.6.1 GW Entry           GW No. (0-511)           0           Comment           IP Address           Group No.			
* indicates setting must be done in the STOP status, and is not followed by a REBOOT.			
ENTRY			
🗿 IP-GW16 Maintenance Utility - Microsoft Internet Explorer	7.	Click	1.6.2 DN2IP Entry.
File Edit View Favorites Tools Help			
Address 🕘 http://192.168.1.200/ad_phone_no_menu.html			
1. Programming 1.6 DN2IP (Dialed Number to IP Address Translation)			
1.6.1 GW Entry			
1.6.2 DN2IP Entry			
(Note) If the Gatekeeper is used, this DN2IP function dosen't work. Refer to 1.2.3 Gatekeeper Settings.			
A ID CW14 Haistanange Hillitu - Hissonaft Internat Suplaces	8.	Do th	ne following to configure the Los Angeles
File Edit View Favorites Tools Help		exter	nsions:
Address Addres		-	
OK MENU PREVIOUS LOGOUT		a. (	code [35] + extension starting digit [2]).
1. Programming 1.6 DN2IP (Dialed Number to IP Address Translation)		<b>b.</b>	In the <b>Remaining Number of Digits</b> box, type
1.6.2 DN2IP Entry Leading Number 352 Remaining Number of Digits 2			<b>2</b> (2 digits to dial [00 to 99] following the leading number).
GW No/Group No. Selection O GW O Group		с.	Click <b>GW</b> for <b>GW No/Group No. Selection</b> .
		d I	In the <b>GW No/Group No</b> , box, type <b>0</b> (the
* indicates setting must be done in the STOP status, and is not followed by a REBOOT.		u. (	nateway entry for the card)
ENTRY		•	
		<b>c</b> . (	
Oran 16 Mandelsmanna Ultitity Microsoft Internet Explorer     Tek Edit New Faceters Note Held     Control (Second Second Se	9.	<b>a.</b> 1	Referring to step 8, complete the address translation table as shown on the left.
Are the following settings OK?		<b>b</b> . (	Click <b>OK</b>
162DN2P Entry DN2P Table No. Leading Number Remaining Number of Digits Group No. GW No. Comment			
0         552         2         -         0         Loc Augist           1         355         2         -         0         Loc Augist           2         359         7         -         0         Loc Augist           3         413         2         -         1         Otrage           4         416         2         -         1         Otrage		C. (	Confirm your entry, and then click <b>OK</b> .
5 419 7 - 1 Chinago OK CANCEL			

#### <u>Note</u>

For more details about address translation programming, refer to "2.2.6 Address Translation Table—GW Entry" and "2.2.7 Address Translation Table—DN2IP Entry" of the VoIP Gateway Card Programming Guide.

#### Downloading the Address Translation Table from the VoIP 3.2.6 **Gateway Card**

After the address translation table has been fully programmed, download the data from the VoIP Gateway Card.

The downloaded data can be uploaded to the other cards on the VoIP network (see "Uploading Address Translation Table to the VoIP Gateway Card" in "3.3 Programming the VoIP Gateway Card in the Chicago Office"), so that all the cards can communicate with each other over the network.

P-GW16 Maintenance Utility - Microsoft Internet Explorer	<b>1.</b> Clie	ck 3.4 Download of DN2IP data (VoIP Gateway
File Edit View Favorites Tools Help	$\rightarrow$	PC) in the main menu.
Address 🕘 http://192.168.1.200/ad_menu.html		
MENU		
1. Programming	_	
3. Data Management		
3.1 Upload of Configuration data (PC -> VoIP Gateway)		
3.2 Download of Configuration data (VoIP Gateway -> PC)		
3.3 Upload of DN2IP data (PC -> VoIP Gateway)		
3.4 Download of DN2IP data (VoIP Gateway -> PC)		
REBOOT		
LOGOUT		
P-GW16 Maintenance Utility - Microsoft Internet Explorer	2. a.	Click DOWNLOAD
File Edit View Favorites Tools Help		
Address 🕘 http://192.168.1.200/ad_routing_data_down.html	<b>b</b> .	Specify the file name and the folder in which to save the file.
3. Data Management		
3.4 Download of DN2IP data (VoIP Gateway -> PC)		
DOWNLOAD		

#### Note

For more details about downloading the address translation table, refer to "2.4.4 Download of Address Translation Table" of the VoIP Gateway Card Programming Guide.

## 3.2.7 Rebooting the VoIP Gateway Card

For all the changes to the parameters to become effective, you must reboot the VoIP Gateway Card.

P-GW16 Maintenance Utility - Microsoft Internet Explorer	1. Click REBOOT in the main menu.
File Edit View Favorites Tools Help	
Address 🗃 http://192.168.1.200/ad_menu.html	
MENU	
1. Programming	
3. Data Management	
3.1 Upload of Configuration data (PC -> VoIP Gateway)	
3.2 Download of Configuration data (VoIP Gateway -> PC)	
3.3 Upload of DN2IP data (PC -> VoIP Gateway)	
3.4 Download of DN2IP data (VoIP Gateway -> PC)	
REBOOT	
LOGOUT	
P-GW16 Maintenance Utility - Microsoft Internet Explorer	2. Click REBOOT.
File Edit View Favorites Tools Help	
Address 🙆 http://192.168.1.200/restart.html	
Are you give it is OK to rehoot?	
When rebooting, click REBOOT button.	
To cancel REBOOT, click CANCEL button.	
REBOOT	

## 3.2.8 Confirming the IP Address Assignment

After programming of the VoIP Gateway Card is finished, try to access the card with the new IP addressing information. If you can connect to the card without problems, the card can be placed on the LAN for VoIP operations (see "2.2.3 Connection to the LAN").

Follow the procedure below, referring to "3.1.1 Preparing the PC" and "3.2.1 Starting the IP-GW16 Maintenance Utility".

- 1. Set the IP address settings of the PC to the following values:
  - IP address: 200.45.11.100
  - Subnet Mask address: 255.255.255.0
- 2. Start Internet Explorer from the Start menu.
- 3. In the Address box of Internet Explorer, type http://200.45.11.35 (the new IP address of the card).
- Press the ENTER key on the keyboard.
   If you can log in, then the card has been successfully programmed.

After you have confirmed that the card has been successfully programmed, it is strongly recommended that you download the configuration data from the card and save it on your PC for backup and archive purposes.

The procedure for downloading the configuration data is provided in "2.4.2 Download of Configuration Data" of the VoIP Gateway Card Programming Guide.
# 3.3 Programming the VoIP Gateway Card in the Chicago Office

This section details the procedure to programme the VoIP Gateway Card in the Chicago office, which for the most part is a duplication of that for the Los Angeles office. For general information that is not discussed here, refer to the relevant sections in "3.2 Programming the VoIP Gateway Card in the Los Angeles Office".

There are differences in the procedure where distinct setting values are required for parameters that are dependent on the specific network configuration of the Chicago office. Also, the address translation table does not need to be programmed, because the one downloaded from the card in the Los Angeles office already contains the information for the entire network. You can simply upload the address translation table from the Los Angeles office, and the cards can communicate with each other on the network.

### Starting the IP-GW16 Maintenance Utility

🕘 IP	-GW1	6 Mair	itenance l	Jtility -	Micros	oft li
File	Edit	View	Favorites	Tools	Help	
Addre	ss 🙋	http://:	192.168.1.2	00		
<b>2</b> ID - 014						
Ello Edit	16 Mainte	nance Utilit	y - Microsoft Inter k Holo	rnet Explore	ř	
Address	bttp://19	2 168 1 200	is Delh			
Par IP-GV Enter U	NASO W16 Ma semame ar	nic intenance nd Passwor	<b>e Utility</b> d, and click the LO	OGIN buttor	L	
Userna: Passwo	ne Admin rd •••••	istrator				
₽-GW	16 Program	n Version: 2	2.004 / DSP Prog	ram Version:	t4_00_3 (Pa	uge-0)
LOGIN		R				

- 1. Start Internet Explorer from the Start menu.
- In the Address box of Internet Explorer, type http://192.168.1.200 (default IP address of the card).

Make sure that the PC has the appropriate IP address setting to access the card (refer to "3.1.1 Preparing the PC").

- **b.** Press the ENTER key on the keyboard.
- **3. a.** In the **Username** box, type **Administrator** (default user name).
  - **b.** In the **Password** box, type **Administrator** (default password).
  - c. Click LOGIN. The main menu appears.

### Changing the Status of the VoIP Gateway Card

IP-GW16 Maintenance Utility - Microsoft Intern	net Explorer					
File Edit View Favorites Tools Help						
Address 🕘 http://192.168.1.200/state_chg.html	Address 🕘 http://192.168.1.200/state_chg.html					
2. Maintenance 2.1 Change RUN/STOP status						
Current RUN/STOP Status	RUN					
Status after changing	Status after changing O RUN • STOP					
Forced Disconnect when executing STOP 📃 Yes						

- 1. Click 2.1 Change RUN/STOP status in the main menu.
- 2. a. Click STOP for Status after changing.
  - b. Click OK.
  - c. Click OK.
  - d. Click OK.

### **Assigning the IP Address**

Note that the card in the Chicago office requires different IP address settings from the card in the Los Angeles office.

P-GW16 Maintenance Utility - Microsoft Internet Explorer			
Hie Edit View Pavontes Tools Help			
Address e http://192.168.1.200/ad_network.html			
OK ALL CLEAR MENU LOGOUT			
1. Programming			
1.1 Network Settings, General			
Current IP Address	192.168.1.200		
Current Subnet Mask	255.255.255.0		
Current Default Gateway	0.0.0.0		
1.1.1 IP Address Settings			
# IP Address	199.176.64.41		
# Subnet Mask 255.255.255.			
# Default Gateway 199.176.64.1			
🗿 IP-GW16 Maintenance Utility - Microsoft Internet Explorer			
File Edit View Favorites Tools Help			
Address 🕘 http://192.168.1.200/ad_network_conf.html			
1. Programming			
Are the following settings OK?			
1.1 Network Settings, General			
1.1.1 TP Address Settings			

55.255.255.0

- 1. Click 1.1 Network Settings, General in the main menu.
- 2. a. In the IP Address box, type 199.176.64.41.
  - b. In the Subnet Mask box, type 255.255.255.0.
  - c. In the Default Gateway box, type 199.176.64.1.
  - d. Click OK.
- 3. Confirm your entry, and then click OK.

### **Assigning the Hunt Pattern**

t Mas

Note that the card in the Chicago office requires a different PBX code from the card in the Los Angeles office.

P-GW16 Maintenance Utility	Microsoft Inte	rnet Explore	er					
File Edit View Favorites Tools Help								
Address 🕘 http://192.168.1.200/ad_hunt_pattern.html								
1. Programming 1.5 Hunt Pattern (for Incoming	Calls)							
1.5.1 Hunt Group								
Porti	Hunt group 1 N							
Port2	Hunt group 1 🔌							
Port3	Hunt group 1 N							
* Port4	Hunt group 1 🔻							
Port5	Hunt group 1 N							
Port6	Hunt group 1 💊	•						
Port7	Hunt group 1 🔻	•						
Port8	Hunt group 1 🔌							
1.5.2 Hunt Pattern Entry								
Hunt Pattern No. (1-16)	1							
Receive Leading Number	41							
Hunt Group (Priority1)	1	<b>~</b>						
Hunt Group (Priority2)	-	~						
Hunt Group (Priority3)	- [	~						
Hunt Group (Priority4)	-	~						
Hunt Group (Priority5)	-	~						
Hunt Group (Priority6)	Hunt Group (Priority6)							
Hunt Group (Priority7)								
Hunt Group (Priority8) - 👻								
* indicates setting must be done	in the STOP sta	tus, and is r	not follow	zed by a I	EBOOT.			
ENTRY								

- 1. Click 1.5 Hunt Pattern (for Incoming Calls) in the main menu.
- 2. a. In the Hunt Pattern No. box, type 1.
  - b. In the Receive Leading Number box, type 41 (PBX code).
  - c. Click ENTRY.
  - d. Click OK.

IP-GW16 Maintenance	Utility - Microsoft Internet	Explorer	
File Edit View Favorites	s Tools Help		
kiddress 🗃 http://192.168.1.	200/ad_hunt_pattern_conf.html		
1. Programming			
Are the following setting	ps OK?		
1.5 Hunt Pattern (for Inc	coming Calls)		
Port1	Hunt group 1		
Port2	Hunt group 1		
Port3	Hunt group 1		
Port4	Hunt group 1		
Port5	Hunt group 1		
Port6	Hunt group 1		
Port7	Hunt group 1		
Port8	Hunt group 1		
Hunt Pattern N	to. Receiv	e Leading Number	Hunt Group
1	41		1
OK CANCEL			

3. Confirm your entry, and then click OK.

### **Uploading Address Translation Table to the VoIP Gateway Card**

For the VoIP Gateway Cards in the Los Angeles and Chicago offices to communicate properly over the VoIP network, the cards must share the same address translation table.

Follow the procedure below to upload the address translation table downloaded from the card in the Los Angeles office (see "3.2.6 Downloading the Address Translation Table from the VoIP Gateway Card") to the card in the Chicago office.

P-GW16 Maintenance Utility - Microsoft Internet Explorer	1
File Edit View Favorites Tools Help	
Address 🗃 http://192.168.1.200/ad_menu.html	
MENU	
1. Programming	
3. Data Management	
3.1 Upload of Configuration data (PC -> VoIP Gateway)	
3.2 Download of Configuration data (VoIP Gateway -> PC)	
3.3 Upload of DN2IP data (PC -> VoIP Gateway)	
3.4 Download of DN2IP data (VoIP Gateway -> PC)	
REBOOT	
LOGOUT	
P-GW16 Maintenance Utility - Microsoft Internet Explorer	2
File Edit View Favorites Tools Help	
Address 🗃 http://192.168.1.200/ad_data_upload.html	
3. Data Management 3.1 Upload of Configuration data (PC -> VoIP Gateway)	
Enter upload file name	
Browse	
If you are sure, click UPLOAD.	
UPLOAD (PC->VoIP Gateway)	

 Click 3.3 Upload of DN2IP data (PC → VoIP Gateway) in the main menu.

- 2. a. Click Browse and choose a file to upload.
  - b. Click UPLOAD(PC→VoIP Gateway).



#### <u>Note</u>

For more details about uploading the address translation table, refer to "2.4.3 Upload of Address Translation Table" of the VoIP Gateway Card Programming Guide.

#### Confirming the IP Address Assignment

Note that the card in the Chicago has been assigned a different IP address from the card in the Los Angeles office.

- 1. Set the IP address settings of the PC to the following values:
  - IP address: 199.176.64.100
  - Subnet Mask address: 255.255.255.0
- 2. Start Internet Explorer from the Start menu.
- In the Address box of Internet Explorer, type http://199.176.64.41 (the new IP address of the card).
- 4. Press the ENTER key on the keyboard.

If you can log in, then the card has been successfully programmed.

After you have confirmed that the card has been successfully programmed, it is strongly recommended that you download the configuration data from the card and save it on your PC for backup and archive purposes.

The procedure for downloading the configuration data is provided in "2.4.2 Download of Configuration Data" of the VoIP Gateway Card Programming Guide.

## Section 4 Programming the PBX

This section details the procedure to programme the PBX to use the VoIP Gateway Card.

## 4.1 Programming the PBX in the Los Angeles Office

For successful operation of a VoIP network using the VoIP Gateway Card as a QSIG network interface, the PBX at each location in the network must be programmed appropriately. For a detailed discussion of related features, refer to the Hybrid IP-PBX Feature Guide.

This section details the procedure to programme the PBX in the Los Angeles office using the Maintenance Console (PC programming software of the PBX). After the PBX in the Los Angeles office has been fully programmed, repeat the procedure for the PBX in the Chicago office with the appropriate setting values.

#### <u>Notes</u>

- It is assumed that you have already installed the Maintenance Console (KX-TDA100/KX-TDA200: KXTDA Maintenance Console; KX-TDA600: KX-TDA600 Maintenance Console) in your PC.
- The screenshots shown in the installation procedure are based on the KX-TDA600 Maintenance Console.
- The contents and design of the software are subject to change without notice.

2.

📮 Login		? 🛛
	Enter Programmer Code:	INSTALLER
Connect to PBX		Show Information
	ОК( <u>О</u> )	Cancel(C) Help(H)





- 1. Start the Maintenance Console from the **Start** menu.
  - **a.** Type the Installer Level Programmer Code (default: **INSTALLER**).
    - **b.** Click **OK**.
  - **a.** Click **Connect**  $\rightarrow$  **RS-232C** or **USB**.
    - **b.** In the next screen, type the system password for installer (default: **1234**).
    - c. Click OK. The system menu appears.
  - a. Under Configuration, click Slot.
    - b. Move the mouse pointer over the installed VoIP Gateway Card to display the menu of options.
    - c. Click Port Property.



KX-T0A500 Maintenasce	Console	- [10, 60 8 Inco	ning Gall	- 1. 60	Line Se	ttings]		
File(E) Connect(C) Tool(_) Util	NU View	(Y) Window(M) Help	в					
11 II I I II								
System Menu	1.1 Skt	10.1 CO Line Setting	pa .					
1.Configuration								
2 System		N(2) Cancel(3		pph(&)				
Э.Отовр		Calert Churt & Ch						
4 Extension		000010101000						
ś.Optional Device		CO Line Number		Physics	4	Card Type	CO Name (20 characters)	Trunk Group Number
5 Feedure			Shelf	Sid	Port			
TRS	9	1	1	2	1	P-ONIG D-CMAR	P-1750P1	2
ARS .		2		-	2	P-GA15	P-TROPA	2
3 Private Network		4	1	-	2	P-GM15	P-1004	2
10.00 & Incoming Call		5	1	5	3	P-CANE	P-TROPS	2
641001 the Setting		6	1	5	3	P-CM16	P-1190/6	2
A 2 Fill Table & Divit Settings		7	1	5	4	P-CANE	P-191087	2
A 2 101 100 Term		8	1	5	4	P-CANE	P-175085	2
A ANTI LANA		9	1	5	5	P-CANE	P-195049	2
R. Chicaberrow		10	1	5	5	P-CANE	P-TROPIO	2
	- S	11	1	5	б	P-CM16	P-TROP11	2
		12	1	5	6	P-CM16	P-1190/12	2
		13	1	5	7	P-CANIS	P-190913	2
		14	1	5	7	P-CANIS	P-TROFI4	2
		15	1	5	ō	P-CANE	P-TROPIS	2

File(E) Connect(C) Tool() Utility	(U) View(V) Window(V) Help(H)	
System Menu X	1.1 Skt 2.6.1 Main	
1.Configuration		
2.System	OK(Q) Cancel(C) Apply(A)	
3 1 Date & Time / Daviight Saving		
1 2.Operator & BGM	Extension Features Other PBX Extension KX-T7710	
3.Timers & Counters	No. Takes	District stream
😪 4./Veck Table	- IN. Peace	Diar(+ digits)
5 Holiday Table	Coperator can	*
5 6 Numbering Plan	2 Ide Life Access (Local Access)	0
1 Map	3 India Group Access	8
	4 IE Line Access	· · · · ·

🚝 KX-TDA600 Maintenance (	ons	ole -	[9. P	rivate Networ	k = 1. TIE Ta	able]		
File(E) Connect(C) Tool(1) Utility	ų.	/iew()	_) Wn	dow( <u>M)</u> Help( <u>H</u> )				
🖿 🖬 🖸 🗃 🚨 🚇 🥰								
System Menu X	1.1	Slot	9.1 TI	E Table				
1.Configuration								
2.System		OH	0	Cancel(C)	Apply(A)			
3.Group								
4.Extension			01	TPDA Code (7 dig	10) 00			
5.Optional Device		Priority	/1-2	Priority 3 - 4	Priority 5 - 6	Priority 7 - 8	Centralise	d VM
6 Feature		<u> </u>	1			Priority 1		
7.TRS			No.	Leading Number	Removed	Added Nur	nber Trur	ж.
8.ARS				(3 aigits)	Number of Digi	ts (32 digits)	Gro	up
9.Private Network			]1	41	0		2	~
🛷 1. TE Table			2		0		None	•

Confirm that ports 1 through 8 are in service (INS).

- 5. a. From the System Menu, click CO & Incoming Call.
  - b. Click CO Line Settings.
  - c. Type the CO Name and assign an unused Trunk Group Number to be used for all VoIP gateway trunks.
  - d. Click OK.
  - a. From the System Menu, click System.
    - b. Click Numbering Plan.
    - c. Click Main.
    - d. Click the Features tab.
    - e. In the TIE Line Access box, type the dialling number.
    - f. Click OK.
- 7. a. From the System Menu, click Private Network.
  - b. Click TIE Table.
  - **c.** In the **Own PBX Code** box, type **35** (the PBX code of the local PBX in the network).
  - d. In the first unused Leading Number box, type
    41 (the PBX code of the remote PBX in the network).
  - e. In the corresponding **Trunk Group** list, select the number of the trunk group to be used when making calls.
  - **f.** Set the number modification pattern, if necessary.
  - g. Click OK.

E KX-TDADUU Maintenance Gr	onsole - [1. Configuration - 1. Slot]	ö.
File(E) Connect(C) Tool(I) Utility(L	) View(V) Window(W) Help(H)	
8 🖬 🖬 🗲 8 🚮 😥 🔐		
System Menu X	1.1 Slot	
1.Configuration		
1.Slot	Refresh(E) Close(L) Summary(S) Shelf : 1	
2 Portable Station		
4.Clock Priority		
	Card Property	
	Port Property	
	u 6 Ous	
EXX TRACOR Maintenance Co		
Ele(E) Connect(C) Tool(T) LNRv(L	View(V) Mindred00 Helv(H)	
	THE THE THE TOP	
System Menu X	1.1 Slot	
1.Configuration		
Tig 1.Slot	Refresh(E) Close(L) Summary(S) Shelf : 1	
2.Portable Station		
😋 3.Option		
C 4.Clock Phoney		
	Port Property	
	© 15 NS	
	Delete	
		9
🚝 KX-TDA600 Maintenance C	Console - [1.Configuration - 1.Slot - Card Property - IP	9.
File(E) Connect(C) Tool(E) Utility	Sonsole = [].Configuration = 1.Slot = Gard Property = IP (J) View(2) Window(2) Hep(1)	9.
File(E) Connect(C) Tool(E) Utility	Console – [1.Configuration – 1.Slot – Card Property – IP (I) View(1) Window(19) Help(1)	9.
KX-TDA600 Maintenance C Fie(E) Connect(C) Too(T) Utility System Menu X	Console - [].Configuration - 1.Slot - Card Property - IP (I) View(Y) Window(Y) Help(I) 1.1 Slot Card Property - P Gateway	9.
KX-TDA600 Maintenance C Flet; Connect(C) Too(T) Utity System Menu X 1.Configuration	Console - []. Configuration - 1. Slot - Card Property - IP.       (L) Vew(V) Window(M) Hep(b)       11. Sol. Card Property - P Caleway       (WCC)     Caref (b)	9.
KX-TDA600         Maintenance (C)           Fle(E)         Connect(C)         Tool(T)         Ulley           System New         Image: System New         Image: System New         Image: System New           1. Configuration         Image: System New	Sonsole - 1: Configuration - 1:Slot - Card Property - IP       W Vew(y) Window(ty) Help(t)       11 Slot     Card Property - P Gateway       OK(g)     Cancel(g)     Apply( <u>A</u> )	9.
KX-TDA600 Maintenance C Flet® Connect(C) Too(D) Utility System New X 1.Contiguration System State 2. Ontable Station State State 3. Ontable Station State State 3. Ontable Station	Console - [1 Configuration - 1.Silot - Card Property - IP (1) View() Window() Help() 1.1 Silot Card Property - IP Gateway (N(Q) Cancel(Q) Apply( <u>A</u> ) Shelf 1 Silot 5	9.
KX-TDA600 Maintenance C Flet     Connect(C) Too(T) Uilty     System Menu X      Connigueation     The State     Z Portable Station     G Stoton     G Stoton     G A Cock Priority	Console - [I Configuration - 1.Slot - Card Property - IP       (U) View(-) Window(-) Help(t)       1.1 Stot     Card Property - P Gateway       (K(-))     Cancel(-)       (K(-))     Cancel(-)       Sheft     1       Sheft     1       Description     Value	9.
KX-TDA600 Maintenance (C)     Fletp Connect(C) Too(T) Utility      System Meral X      Configuration      Torfiguration      Torfiguration      Solution      Contrabe Station      Solution      Solution	Console - []. Configuration - 1. Slot - Card Property - IP       (L) Vew(V) Window(V) Hep(b)       1.1 Sot       Card Property - P Gateway       CK(Q)     Cancel(C)       Apply(b)       Sheft 1     Slot 5       Description     Value       En-bloc Dialing setting     Overap	9.
KX-TDA600 Maintenance (C) Flet(C) Correct(C) Too(() Usity System Neru      X     Configuration     Toot State     Z Portable Station     Solution     4 Clock Priority	Console - 1: Configuration - 1:Siot - Card Property - IP       (U) Vew(V) Vendow(V) Hea(t)       11:Siot Card Property - P Gateway       CH(O) Cancel(C) Apply(A)       Shelt 1       Shelt 1 </th <th>9.</th>	9.
KX-TDA600 Maintenance (C)       Fle(E) Connect(C) Tool(T) Utility       Fle(E) Connect(C) Tool(T) Utility       System New X       1. Contiguration       Fle(T) Solt       Fle(T	Sonsole - [1 Configuration - 1.5lot - Card Property - IP       (U) Vlew(V) Window(V) Help(t)       11 Sot       Card Property - P Gateway       OK(Q)       Cancel(C)       Apply(A)       Shelt       Shelt       Shelt       Shelt       Shelt       Shelt       Shelt       OSIG-CF	9.
KX-TDA600 Maintenance C Flet     Connect(C) Too(D Utity System Menu       System Menu       Configuration     Torn Stat     P 2 Portable Station     S 3 Option     4 Clock Priority	Console - [1 Configuration - 1.Silot - Card Property - IP       (1) View(2) Window(9) Hep(2)       1.1 Sit       Card Property - P Gateway       OK(Q)       Cancel(C)       Apply( <u>A</u> )       Shelf       Shelf       Shelf       Shelf       Shelf       Description       Value       En-bloc Dialing setting       Overlap       QSIS-CF	9.
KX-TDA600 Maintenance C     Fletp Connect(C) Too(T) Utility      System Menu       1 Configuration      To 1 Std      2 Portabe Station      3 Option      4 Clock Priority      XX-TDA600 Maintenance C      XX-TDA60	Console - []. Configuration - 1. Slot - Card Property - IP       (L) Vew(V) Window(V) Hep(t)       11. Solt       Card Property - P Galeway       CM(Q)     Cancel(C)       Apphy(A)       Sheft 1     Slot 5       Description     Value       En-bloc Dialing setting     Overlap       OSIG-CF     En-bloc	9.
KX-TDA600 Maintenance C FletC Correct(C) Too(C) Usity System Mer # # # # # # 1.Configuration     System Xet 2 Portale Sation     d; 3.Option     4.Clock Priority      KX-TDA600 Maintenance C FletC Correct(C) Too(C) 18840	Console - [1. Configuration - 1. Slot - Card Property - IP       (U) Vew(V) Vendow(Vg) Heb(tg)       1.1 Slot       Cerd Property - P Gateway       CH(Q)     Cancel(C)       Apply(A)       Sheft     Slot 5       Description     Value       En-bloc Dating setting     Creating       OSIG-CF     En-bloc	9.
KX-TDA600       Maintenance (C)         Flet()       Cornect(C)       Tool()       Utility         System New       Image: Cornect(C)       Tool()       Utility         System New       Image: Cornect(C)       Tool()       Utility         System New       Image: Cornect(C)       Tool()       Utility         Image: Cornect(C)       Tool()       Utility         Image: Cornect(C)       Tool()       Utility	Sonsole - [I Configuration - 1.Slot - Card Property - IP       (U) Vew(V) Window(M) Heip(E)       11 Sot       Card Property - P Gateway       OK(O)       Cancel(C)       Apply(A)       Sheir 1       Sheir 1       Sheir 1       Sheir 1       Description       Pa-bloc Dialing setting       Overlap       OSIG-CF       En-bloc	9. 10.
KX-TDA600 Maintenance C     Fletp Connect(C) Too(D Utility      System Mersu      X      Configuration     G Solidon     G Solidon     G Solidon     G Solidon     G Solidon     KX-TDA600 Maintenance C     Fletp Connect(C) Too(D Utility     System Mersu     X      X      Yatem Mersu     X      X	Sonsele - []. Configuration - 1. Slot - Card Property - IP       (1) View(y) Window(y) Help(t)       1.1 Slot       Circle Property - P Galeway       OK(g)       Cancel(g)       Apply(b)       Shelf 1       Shelf 1       Site 5       Description       Value       En-bloc Dailing setting       Orerlap       OSIG-CF       En-bloc       Onsole - []. Configuration - 1. Shot]       D. View(y) Window(y) Help(b)       11 Sid	9. 10.
KX-TDA600 Maintenance C Flet(C) Connect(C) Tool(T) Utility System Menu      System Menu      A Clock Pronty      KX-TDA600 Maintenance C Flet(C) Connect(C) Tool(T) Utility      System Menu      XX-TDA600 Maintenance C Flet(C) Tool(T) Utility      System Menu      XX-TDA600 Maintenance C	Console - []. Configuration - 1. Slot - Card Property - IP       (L) Vew(V) Window(Y) Hep(E)       11. Solt       CR(Q)       Cancel(C)       Apphy(A)       Sheft 1       Sheft 1       Sheft 1       Sheft 1       Sheft 1       Description       Value       En-bloc Dialing setting       OSIG-CF       Onsole - []. Configuration - 1. Slot]       D       Vew(V) Window(Y)       Hep(E)	9. 10.
KX-TDA600 Maintenance C Flet© Connect(C) Too([) Utility System Meria     Configuration     A Clock Priority      KX-TDA600 Maintenance C Flet© Connect(C) Too([) Utility     Configuration     C Flet© Connect(C) Too([) Utility	Console - [1 Configuration - 1 Slot - Card Property - IP       (1) Vew(2) Vendow(2) Heb(1)       11 Stot       CR(2)       CR(2)       CR(2)       Cancel(2)       Apply(A)       Sheft 1       Sheft 1 <th>9. 10.</th>	9. 10.
Image: State Stat	Sonsole - [1 Configuration - 1.5iot - Card Property - IP         (U) Vew(Q) Window(Q) Heb(t)         11 Sot       Card Property - P Gateway         CH(O)       Cancel(C)       Apply(A)         Sheft 1       Slot 5         Description       Value         En-bloc       Description         OSIG-CF       En-bloc         Sheft 2       Description         Value       En-bloc         Shote/F       En-bloc         ONDOLE - [1, Configuration - 1, Stot]       Description         Vew(Y)       Window(M)       Heb(t)         11 Stot       Cose(L)       Summary(S)         Sheff: 1       Sheff: 1	9. 10.
KX=TDA600 Maintenance C     Fleter Connect(C) Tool() Utility      System Mercu      X      Configuration      A Clock Pronty      KX=TDA600 Maintenance C     Fleter Connect(C) Tool() Utility      XX=TDA600 Maintenance C     XX=TDA600 Maintenance	Sonsole - []. Configuration - 1. Slot - Card Property - IP       (1) Vew(y) Window(y) Help(t)       1.1 Slot       CR(Q)       Cencel(x)       Apply(A)       Shelf 1       Slot 5       Description       Value       En-Moc Deling setting       OSIG-CT       Overlap       OSIG-CF       En-Moc Deling setting       Overlap       OSIG-CF       Develop Vew(y) Window(y) Help(t)       11 Skt       Refresh(E)       Close(L)     Summary(S)       Shelf : 1	9.
KX-TDA600 Maintenance C Flet     Correct(C) Tool(T) Utility      System Menu     X     Configuration     4 Clock Priority      XX-TDA600 Maintenance C Flet     Correct(C) Tool(T) Utility      XX-TDA600 Maintenance C Flet     Correct(C) Tool(T) Utility      XX-TDA600 Maintenance C Flet     Correct(C) Tool(T) Utility      System Menu     X     X     System Menu     X	Console - []. Configuration - 1. Slot - Card Property - IP       (i) Vew(y) Vendow(y) Hep(t)       11 Sot       Cercl Property - P Cateway       OK(Q)     Cancel(C)       Apply(A)       Sheft 1     Slot 5       Description     Value       En-bloc Dialing setting     Overlap       OSC-CT     Snelf       OSC-CT     Snelf       OSC-CT     Snelf       Description     Value       En-bloc     Station	9.
KX-TDA600 Maintenance C Flet     Correct(C) Too([) Utility      System Meri     X     Configuration     System State     State     Z Portable Station     System Meria     X     Concert(C) Too([) Utility     X     Concert(C) Too([) Utility     X     Concert(C) Too([) Utility     X     System Meria     X     Concert(C) Too([) Utility     X     System Meria     X     Concert(C) Too([) Utility     X     System Meria     X     Concert(C) Too([) Utility     Y     System Meria     X     Concert(C) Too([) Utility     X     Concert(C) Too([) Utility     X     System Meria     X     Concert(C) Too([) Utility     X     System Meria     X     Concert(C) Too([) Utility     X	Console - [1 Configuration - 1.Slot - Card Property - IP       (1) Vew(2) Vendow(2) Heb(1)       11 Stot       CR(2)       CR(2)       Cancel(2)       Apply(A)       Sheft       Overlap       Value       En-bloc Dating setting       Overlap       Overlap       Overlap       Vew(2)       Vindow(20)       Heb(2)       11       Sheft       Sheft   <	9.
KX=TDA600 Maintenance C Flet() Connect() Too() Utility      System Mersu X      Configuration     Configuration     A Clock Priority      KX=TDA600 Maintenance C Flet() Connect() Too() Utility      System Mersu X      Configuration     Solution     Configuration     Solution     Soluti	Console - [1 Configuration - 1.5iot - Card Property - IP (U) Vew(2) Vendow(2) Heb(2) 11 Sot Card Property - P Gateway CH(3) Cancel(2) Apply(A) Shelr 1 Sot 5 Description Value En-bloc Dialing setting Overlap V OSIG-CF En-bloc Since - [1, Configuration - 1, Stot] 2) Vew(2) Vendow(2) Heb(2) 11 Sot Refrech(5) Occes(2) Summary(3) Shelf : 1 0 Card Incently 0 Card Incentl	9.
KX-TDA600 Maintenance C Flet: Connect(C) Too(T) Utility      System Manu       Configuration      System Manu      XX-TDA600 Maintenance C Flet: Connect(C) Too(T) Utility      XX-TDA600 Maintenance C Flet: Connect(C) Too(T) Utility      System Manu       System Manu       Solution      Solu	Sonsole - []. Configuration - 1. Slot - Card Property - IP       (U) Verv(y) Verdov(ty) Help(t)       1.1 Slot       (K(Q)       Cancel(C)       Apply(A)       Shelf 1       Sit 5       Description       Value       En-bloc Dialing setting       OSIG-CT       Oserlap       OSIG-CF       En-bloc	9.
KX-TDA600 Maintenance C Flet     Cornect(C) Toot(T) Utility      System Menu     X1 Configuration     4 Clock Priority      XX-TDA600 Maintenance C Flet     Cornect(C) Toot(T) Utility      XX-TDA600 Maintenance C Flet     Cornect(C) Toot(T)      XX-TDA600 Maintenance C Flet     XX-TD	Console - []. Configuration - 1. Slot - Card Property - IP       (1) Vew(y) Window(y) Hep(t)       11 Slot       CR(Q)       Cancel(C)       Apphy(A)       Sheft 1       Sheft 1       Side 5       Description       Value       En-bloc Dialing setting       OSC-CT       Oncole - []. Configuration - 1. Slot]       D       Vew(y) Window(y) Hep(tp)	9.

- a. From the System Menu, click Configuration.
  - **b.** Click **Slot**.
  - **c.** Move the mouse pointer over the installed VoIP Gateway Card to display the menu of options.
  - **d.** Click **OUS**. You will see a confirmation message.
- e. Click OK.
- Move the mouse pointer over the installed VoIP Gateway Card to display the menu of options.
- g. Click Card Property.
- a. Select the preferred En-bloc Dialling setting (Overlap [default] or En-bloc<sup>\*1</sup>).
- b. Click OK.
- A. Move the mouse pointer over the installed VoIP Gateway Card to display the menu of options.
  - b. Click INS.

\*1 When "En-bloc" is selected, users need to press "#" after dialling the phone number to enter the dialled digits.

#### <u>Note</u>

For details about network parameter settings, refer to the relevant sections of the Hybrid IP-PBX PC Programming Manual.

## Appendix A

## **Guidance for VoIP Installation**

## A1 VoIP Requirements

## A1.1 Bandwidth Assessment

When using the VoIP Gateway Card, you must ensure that the IP network in use has enough bandwidth to support VoIP communications. If the amount of bandwidth required for VoIP communications is larger than what the network can accommodate, speech quality will be compromised. In addition, there may be some adverse effect on the performance of other applications (e.g., email or web applications) that use the same network. Therefore, care must be taken when assessing bandwidth requirements.

Inform your network administrator of the required bandwidth, and make sure that the network can support VoIP communications even under conditions of maximum network traffic.

#### **Bandwidth Calculation**

Provided below is the formula to find out the amount of bandwidth required for VoIP communications:

#### **Required Bandwidth**

= (No. of Fax Machines × Required Bandwidth for the G.711 CODEC) +

[(16 - No. of Fax Machines) × Required Bandwidth for Voice Communication]

Required bandwidth for one VoIP channel is shown in the tables below (for more details, refer to "2.2.3 Voice Communication Parameters" in the VoIP Gateway Card Programming Guide).

#### **Required Bandwidth for One VolP Channel**

The required bandwidth depends on what combination of CODEC and packet sending interval is used. Keep in mind the following points about the type of CODEC and packet sending interval, in terms of the speech quality:

- The speech quality of the CODECs varies as follows: (High) G.711, G.729A, G.723.1 (Low)
- The shorter the packet sending interval, the higher the speech quality.
- The higher the speech quality the VoIP Gateway Card provides, the more bandwidth the card requires.

CODEC	Packet Sending Interval							
CODEC	20 ms	30 ms	40 ms	60 ms	90 ms			
G.711	87.2 kbps	79.5 kbps	75.6 kbps	71.7 kbps	—			
G.729A	31.2 kbps	23.5 kbps	19.6 kbps	15.7 kbps	_			
G.723.1 5.3 kbps	—	20.8 kbps	_	13.1 kbps	10.5 kbps			
G.723.1 6.3 kbps	—	21.9 kbps	_	14.1 kbps	11.6 kbps			

#### Via LAN

#### Via WAN (PPP: Point-to-Point Protocol)

CODEC	Packet Sending Interval						
CODEC	20 ms	30 ms	40 ms	60 ms	90 ms		
G.711	84 kbps	77.3 kbps	74 kbps	70.7 kbps	—		
G.729A	28 kbps	21 kbps	18 kbps	14.7 kbps	—		
G.723.1 5.3 kbps	—	18.7 kbps	—	12 kbps	9.8 kbps		
G.723.1 6.3 kbps	—	19.7 kbps	—	13.1 kbps	10.8 kbps		

#### Example

Consider the following case as an example:

- Communication: via LAN
- No. of Fax Machines: 2
- G.711 Packet Sending Interval: 20 ms (requiring 87.2 kbps per channel)
- G.729A Packet Sending Interval for Voice Communication: 20 ms (requiring 31.2 kbps per channel)

In this case, the required bandwidth will be as follows:

#### **Required Bandwidth**

= (2 × 87.2) + [(16 - 2) × 31.2] = 611.2 (kbps)

Therefore, inform your network administrator and make sure that the network can support a bandwidth of 611.2 kbps even when the network is under conditions of maximum traffic.

#### <u>Note</u>

It is recommended that all cards in a VoIP network have the same packet sending interval.

#### **Additional Information**

As described above, it is possible to control the required bandwidth by selecting a certain combination of CODEC and packet sending interval. However, it is also possible to control required bandwidth by limiting the number of available VoIP channels.

The card supports a total of 8 ports, each having 2 separate channels. By disabling some of the ports, you can reduce the bandwidth required for VoIP communications.

#### To limit the number of VoIP channels:

• Set the status of the ports you wish to disable (starting from the highest-numbered port) to **OUS**. For example, if you wish to use only 10 of the available 16 VoIP channels (i.e., disable 6 channels), set the ports 8, 7, and 6 to **OUS** as shown below:



In this case, the equation for bandwidth calculation, based on the previous example, will be changed as follows:

#### **Required Bandwidth**

```
= (No. of Fax Machines × Required Bandwidth for the G.711 CODEC) +

[(\underline{10} - No. of Fax Machines) × Required Bandwidth for Voice Communication]

= (2 × 87.2) + [(\underline{10} - 2) × 31.2]

= 424 (kbps)
```

## A1.2 Network Configuration

You must evaluate the structure of the existing network to see if a VoIP network can be implemented. Below are the points that should be taken into your evaluation.

#### Is it possible to have static IP addressing?

Because the maintenance of the VoIP Gateway Card is carried out from a personal computer (PC) through an IP network, the card must be assigned a static IP address.

Static IP addressing must be made possible even when the DHCP feature is used. For more details, refer to "2.2.1 Network Parameters" in the VoIP Gateway Card Programming Guide.

#### Is network address translation (NAT/NAPT) disabled?

In a network where address translation techniques (e.g., NAT/NAPT) are used to convert between global and local IP addresses, VoIP communications based on the H.323 protocol cannot be carried out appropriately. Generally, NAT/NAPT are features that are available with routers.



#### <u>Note</u>

If the router on the network supports the "H.323 NAT" feature, it may be possible to have VoIP communications over the network. For more information, consult your network administrator.

#### Does only a single router provide access to the IP network?

In a dual network, 2 routers provide access to the IP network as shown in the diagram below. However, the VoIP Gateway Card cannot take the advantage of having 2 routers as access points to the IP network.

For example, if router A, whose IP address is assigned as the default gateway IP address of the card, fails, VoIP communications are no longer possible; the card is not able to switch its default gateway from router A to router B to access the IP network. For more details about the default gateway setting, refer to "2.2.1 Network Parameters" of the VoIP Gateway Card Programming Guide.



## Is there only a single IP network between 2 ends of a call?

A huge degradation in speech quality will be produced when calls are made through multiple IP networks as shown below; therefore, it is recommended that you avoid establishing a VoIP network in this fashion.



### Is the card located appropriately?

Transmission delays can cause pauses and loss in VoIP communications. The more network devices (e.g., routers and switches) there are between the communicating cards, the larger the transmission delays, because a certain amount of delay is inevitable when packets go through each network device (hop).

One preventative measure is to install the card so that the number of transmission hops is kept to a minimum. In the diagram below, the card is located as close to the IP network interface as possible.



### A1.3 Network Devices

You must evaluate the network devices that are used in the existing network to see if a VoIP network can be implemented. Below are the points that should be taken into your evaluation.

### Can the firewall pass packets from the VoIP Gateway Card?

If the VoIP network contains a firewall, the firewall must be configured appropriately to allow VoIP packets, which are listed in the table below, to pass through the network without being blocked by filtering.

Protocol	TCP/UDP	Default Port No.
HTTP <sup>*1</sup>	ТСР	80
RTP/RTCP*2	UDP	5004 to 5035
H.225.0 Call Signalling*2	ТСР	1720
H.245 <sup>*2</sup>	ТСР	1712 to 1724
H.225.0 RAS*2	UDP	1719
QSIG Connectionless Tunnelling*1	ТСР	1718

For more information, consult your network administrator.

\*1 For the actual setting values, refer to "2.2.1 Network Parameters" in the VoIP Gateway Card Programming Guide.

\*2 For the actual setting values, refer to "2.2.2 H.323 Parameters" in the VoIP Gateway Card Programming Guide.

#### Are layer 2 or higher switches used?

Use of repeater hubs can increase the network load, and therefore will result in degradation in speech quality.

To ensure high speech quality, use only layer 2 or higher switches.

#### <u>Note</u>

Also note that the port of the switch that connects to the card should be set to operate under "Auto Negotiation" mode. This will help assure error-free communication between the card and the switch.

#### Are Category 5 (CAT5) cables used?

When connecting network devices, make sure to use CAT5 cables. If other types of cables are used, communications may not be carried out normally.

### A1.4 QoS (Quality of Service)

Some routers permit the configuration of priority control features. This allows the router to give higher priority to voice packets and lower the rate of loss and delays during transmissions, hence improving speech quality. It is strongly recommended that you use this feature, especially in networks where traffic is heavy.

Typically, a router identifies what packets to pass in priority by checking the value in the ToS field of the header of IP packets. The VoIP Gateway Card has the ability to set the ToS field of outgoing voice packets (see "2.2.3 Voice Communication Parameters" in the VoIP Gateway Card Programming Guide). When the card is appropriately configured, the router can give voice packets from the card higher priority.

Consult your network administrator when setting the ToS field, as the setting value must conform to the router's specifications.

#### <u>Note</u>

Some switches also permit the configuration of priority control features. For more information, consult your network administrator.

## A2 VoIP Requirements Checklist

Use the following checklists to see if you can implement a VoIP network. The answers identified in **<u>underlined bold-face letters</u>** are the required answers for the corresponding questions.

#### **Bandwidth Assessment**

No.	Question	Answer	Memo	Ref.
1	Does the network have enough bandwidth to support VoIP communications? Make sure that there is more bandwidth available for VoIP communications than the amount actually required.	□ <u>Yes</u> □ No	<ul> <li>IP network bandwidth         <ul> <li>kbps</li> </ul> </li> <li>Available bandwidth for VoIP             <ul> <li>kbps</li> </ul> </li> <li>Required bandwidth for VoIP             <ul> <li>kbps</li> </ul> </li> </ul>	p. 46

#### Network Configuration

No.	Question	Answer	Memo	Ref.
2-a	Is it possible to have static IP addressing?	□ <u>Yes</u>		p. 48
		- 110		
2-b	Is network address translation (NAT/NAPT)			n 49
disabled?	disabled?	□ No		p. 10
2-c	Does only a single router provide access to	□ <u>Yes</u>		n 49
20	the IP network?	□ <sub>No</sub>		p. 10
2-d	Is there only a single IP network between 2	□ <u>Yes</u>		p. 50
~	ends of a call?	🗆 No		p. 00
2-е	Is the card located appropriately?	□ <sub>Yes</sub>	No. of hops (routers/switches) within one location:	n 51
		□ No		P. 51

#### **Network Devices**

No.	Question	Answer	Memo	Ref.
3-а	Can the firewall pass packets from the VoIP Gateway Card? When a firewall is used, make sure to configure the firewall appropriately to allow VoIP packets to pass through the network without being blocked by filtering.	□ <u>Yes</u> □ No	Model of the firewall:	p. 51

#### A2 VoIP Requirements Checklist

No.	Question	Answer	Memo	Ref.
	Are layer 2 or higher switches used?		Model of the switch:	
3-b	Do not use repeater hubs as they can increase the network load.	□ <u>Yes</u>		n 52
0-0	Also note that the port of the switch that connects to the card should be set to operate under "Auto Negotiation" mode.	□ No		p. 52
3-с	Are Category 5 (CAT5) cables used?	□ <u>Yes</u>		p. 52
		□ No		P. 02

### QoS (Quality of Service)

No.	Question	Answer	Memo	Ref.
4	Can the router or switch be configured to use priority control features?	□ Yes □ No	Model of the router/switch: VoIP Gateway Card's ToS field setting:	p. 52

Appendix B

## Alternative Numbering Plan Example

## **B1** Extension Number Method

This section provides a numbering plan example using the extension number method, as supplementary information to the PBX code method discussed in "1.2.2 Numbering Plan Example".

## B1.1 Example Network

The following diagram illustrates a simple VoIP network configured for the extension number method.



## B1.2 Numbering Plan Example

### **IP Addressing Information**

The following table is a duplication of the table used for the PBX code method.

	Los Angeles Office	Chicago Office	Description
Card IP Address	200.45.11.35	199.176.64.41	Identifies the location of each VoIP Gateway Card in the network during VoIP communications. A unique IP address must be assigned to each card.
Default Gateway Address	200.45.11.1	199.176.64.1	Identifies the IP address of the primary gateway (typically a router or similar device) that exchanges IP packets with the other gateways on the VoIP network.
Subnet Mask Address	255.255.255.0	255.255.255.0	Defines which digits of an IP address are used for the network address and the host address at each network location. A card IP address must fall within the same subnet as that of the default gateway (e.g., router) that is connected to the card.

## **PBX Numbering Information**

The following table contains "VoIP Gateway Trunk Access Number", instead of "PBX Code" and "TIE Line Access Number" as used in the PBX code method.

	Los Angeles Office	Chicago Office	Description
VoIP Gateway Trunk Access Number	802	803	An access number to seize a VoIP gateway trunk.
PSTN Trunk Number	92	93	An access number to seize a local PSTN trunk.
Extension Number	200 to 299	300 to 399	A number assigned to each extension.
Fax Extension Number	500 to 599	600 to 699	A number assigned to each fax extension.

### **Dialling Examples**

With the extension number method, the caller dials only the destination number of the called party to call through PBXs at different locations.

#### **Calling from Los Angeles to Chicago**

To extension 301 via VoIP network

extension no.		
Dial <b>301</b> .		

#### To local telephone 123-4567 via VoIP network through local PSTN

VoIP Gateway trunk access no.	Chicago PBX PSTN trunk no.	phone no.
Dial <b>802</b> .	Dial <b>93</b> .	Dial <b>123-4567</b> .

#### **Calling from Chicago to Los Angeles**

To extension 201 via VoIP network

extension no.		
Dial <b>201</b> .		

#### To local telephone 456-7890 via VoIP network through local PSTN



### **PBX Connection Information**

	Los	s Angeles Of	fice	C	Chicago Offic	е
	Extn.	FAX Extn.	PSTN Access	Extn.	FAX Extn.	PSTN Access
Leading Number	2	5	92	3	6	93
Remaining Digits	2	2	7	2	2	7
Card IP Address	200.45.11.35				199.176.64.41	

## B2 Programming for the Extension Number Method

When programming the VoIP Gateway Cards and PBXs for use in a network configured for the extension number method instead of the PBX code method, some of the steps in the programming procedures require different setting values.

The following 2 sections provide specific steps that require different setting values. The steps other than those provided here have common setting values, and are therefore omitted from this explanation.

## B2.1 Programming the VoIP Gateway Card

The hunt patterns and address translation table need different setting values for the extension number method, as shown in the screen shots provided below.

#### Programming the VoIP Gateway Card in the Los Angeles Office

Create hunt patterns with the setting values shown below, following the procedure in "3.2.4 Assigning the Hunt Pattern".

🕘 IP-GW16 Maintenance	Utility - N	Aicrosoft Internet E	xplorer			
File Edit View Favorites	s Tools I	Help				
Address 🕘 http://192.168.1.	.200/ad_hun	t_pattern_conf.html				
1. Programming Are the following setting	1. Programming Are the following settings OK?					
1.5 Hunt Pattern (for In	coming Ca	Шs)				
1.5.1 Hunt Group						
Port1	H	unt group 1				
Port2	Н	unt group 1				
Port3	Н	unt group 1				
Port4	Н	unt group 1				
Port5	H	unt group 1				
Port6	Н	unt group 1				
Port7	H	unt group 1				
Port8	H	unt group 1				
Hunt Pattern N	To.	Receive	Leading Number		Hunt Group	
1		2			1	
2		5			1	
3		92			1	
OK CANCEL						

Programme an address translation table with the setting values shown below, following the procedure in "3.2.5 Programming the Address Translation Table".

🖹 IP-GW16 Maintenance Utility - Microsoft Internet Explorer								
File Edit View Favorites Tools Help								
Address 🕘 http://192.16	8.1.200/ad_register_phoneno_con	if.html			🔽 🄁 Go 🛛 Link			
1. Programming	1. Programming							
1.6 DN2IP (Dialed I 1.6.2 DN2IP Entry	Are the following settings OK ? 1.6 DN2IP (Dialed Number to IP Address Translation) 1.6 2 DN2IP Faster							
DN2IP Table No.	Leading Number	Remaining Number of Digits	Group No.	GW No.	Comment			
0	2	2	-	0	Los Angeles			
1	5	2	-	0	Los Angeles			
2	92	7	-	0	Los Angeles			
3	3	2	-	1	Chicago			
4	6	2	-	1	Chicago			
5	93	7	-	1	Chicago			
OK CANCEL								

#### Programming the VoIP Gateway Card in the Chicago Office

Create hunt patterns with the setting values shown below, following the procedure in "Assigning the Hunt Pattern" under "3.3 Programming the VoIP Gateway Card in the Chicago Office".

🗿 IP-GW16 Maintenance	Utility - I	Microsoft Internet E	xplorer				
File Edit View Favorites Tools Help							
Address 🙆 http://192.168.1	.200/ad_hun	t_pattern_conf.html					
1. Programming	1. Programming						
Are the following setting	s OK?						
1.5 Hunt Pattern (for In	coming Ca	alls)					
1.5.1 Hunt Group							
Port1	Н	lunt group 1					
Port2	H	lunt group 1					
Port3	Н	lunt group 1					
Port4	H	lunt group 1					
Port5	H	lunt group 1					
Port6	H	lunt group 1					
Port7	Н	lunt group 1					
Port8	H	lunt group 1					
Hunt Pattern N	₹o.	Receive	e Leading Number	Hunt Group			
1		3		1			
2		6		1			
3		93		1			
OK CANCEL							

## B2.2 Programming the PBX in the Los Angeles Office

The steps below are provided in substitution for steps 6 and 7 of the procedure detailed in "4.1 Programming the PBX in the Los Angeles Office". Programme the PBX in the Los Angeles office using the extension number method, following these steps.

After programming the PBX in the Los Angeles office, follow the same procedure to programme the PBX in the Chicago office with the appropriate setting values.

#### Step 6

Assign the PSTN trunk access number:

In the Idle Line Access (Local Access) box, type 92 (for Los Angeles office PSTN access).



#### Step 7

Assign the leading number used to reach the extensions of the remote PBX:

In the **Other PBX Extension Numbering (TIE)** box (01 and 02), type **3** (for the Chicago office extensions) and **6** (for the Chicago office fax extensions).

🛱 KX-TDA600 Maintenance Console - [2. System - 6. Numbering Plan - 1. Main]							
File(E) Connect(C) Tool(T) Utility(U) View(V) Window(M) Help(H)							
8 💼 💼 💣 8 📾 🚉 🖊 🖌							
System Menu X 1.1 S	Slot 2.6.1 Main						
1.Configuration							
2.System	OK(O) Cancel(C) Apply(A)						
n 1.Date & Time / Daylight Saving	Annual Contract Other DBY Extension 1/1/ 77710						
// 2.Operator & BGM	extension reatures Other PBX Extension KX-17/10						
😻 3.Timers & Counters	No. Feature	Dial (3 digits)					
😪 4.Week Table	1 Other PBX Extension Numbering (TIE) 01	3					
💥 5.Holiday Table	2 Other PBX Extension Numbering (TIE) 02	6					
😹 6.Numbering Plan	3 Other PBX Extension Numbering (TIE) 03						
🎆 1.Main	4 Other PBX Extension Numbering (TIE) 04						

#### Step 8

Assign the routing information to route calls to the remote PBX:

In the **Leading Number** box, type **3** (for the Chicago office extensions), **6** (for the Chicago office fax extensions), and **93** (for Chicago office PSTN access).

#### <u>Note</u>

Do not set any value in the Own PBX Code box.

💭 KX-TDA600 Maintenance C	onsole -	- <u>[</u> 9. P	rivate Network	k – 1. TIE Table	e]	
File(E) Connect(C) Tool( <u>1</u> ) Utility(	U View(	⊻) Win	dow( <u>W)</u> Help( <u>H</u> )			
8 🖬 🗰 🖸 8 📶 😥 🔐 👘						
System Menu 🗙	1.1 Slot	9.1 T	E Table			
1.Configuration		_				
2.System	OF	(())	Cancel( <u>C</u> )	Apply( <u>A</u> )		
3.Group	3.Group					
4.Extension		01				
5.Optional Device	Priorit	y 1 - 2	Priority 3 - 4	Priority 5 - 6 Prio	ority 7 - 8 Cen	tralised VM
6.Feature		1			Priority 1	
7.TRS	-	No.	Leading Number	Removed	Added Number	Trunk
8.ARS			(s aigits)	Number of Digits	(32 digits)	Group
9.Private Network		]1	3	0		2
1.TIE Table		2	6	0		2
🙊 2.Network Data Transmission		3	93	0		2 🗸

After the above step, follow the procedure in "4.1 Programming the PBX in the Los Angeles Office", starting from step 8.

Appendix C

Initialisation of the VoIP Gateway Card

## C1 Initialising the VoIP Gateway Card

In case you have forgotten, for example, the IP address or log-in password you set to the VoIP Gateway Card, follow the procedure below to return the settings of the card to the factory default.

#### Note

Resetting the card will restore all settings, not just the IP address and log-in password, to the factory default.

1. Install the card to the PBX, and then turn on the power to the PBX.



2. Using the Maintenance Console, confirm that the card is in service (INS).



**3.** Set the System Initialise Switch to the "SYSTEM INITIALIZE" position.



System Initialise Switch

#### **CAUTION**

Do not press the Reset Button nor turn the power off then on while the System Initialise Switch is in this position. Doing so will initialise the PBX.

4. Using the Maintenance Console, set the status of the card to OUS, then set it back to INS.

5. Return the System Initialise Switch to the "NORMAL" position.

## Appendix D

Using the KX-TDA0490 and KX-TDA0480 in One Network

## D1 Considerations in Installation

Provided below are the points to consider when the VoIP network contains both the KX-TDA0490 and KX-TDA0480 VoIP Gateway Cards.

## Adding the KX-TDA0490 to the Network Using the KX-TDA0480 Maintenance Console Software

For the KX-TDA0480 to recognise the KX-TDA0490 in the network, you must add it as an "Other Unit" in a Unit Group (network) when programming with the MCS as shown below:

🖪 Maintenance Console Sof	tware			
<u>U</u> nit <u>E</u> dit <u>T</u> ools <u>V</u> iew <u>H</u> elp				
🧰 Main	Unit name	IP address	Туре	Comment
🦾 🔄 New group	💾 KX-TDA0480	192.168. 1.100	BV1250 System V1.62-BRIT-QSIG	
	24 KX-TDA0490	192.168. 1.200	Other Unit	
	<			>
Click F1 for help		GW=	1 GK= 0 VoIP-TA= 0 Other= 1	

#### <u>Note</u>

For programming instructions and other information about the KX-TDA0480, refer to the documentation for the KX-TDA0480.

#### **Restrictions on Feature Compatibility**

Some restrictions exist when using the KX-TDA0490 with the KX-TDA0480, as detailed below:

- CLIP service is the only QSIG service available between the KX-TDA0490 and KX-TDA0480. There is no compatibility for other QSIG services.
- Fax communications cannot take place between the KX-TDA0490 and KX-TDA0480.

#### Panasonic Communications Co., Ltd.

1-62, 4-chome, Minoshima, Hakata-ku, Fukuoka 812-8531, Japan

#### Copyright:

This material is copyrighted by Panasonic Communications Co., Ltd., and may be reproduced for internal use only. All other reproduction, in whole or in part, is prohibited without the written consent of Panasonic Communications Co., Ltd.

© 2005 Panasonic Communications Co., Ltd. All Rights Reserved.

# Panasonic

## 16-Channel VoIP Gateway Card Programming Guide

## Model No. KX-TDA0490



Thank you for purchasing a Panasonic 16-Channel VoIP Gateway Card. Please read this manual carefully before using this product and save this manual for future use.

## **Table of Contents**

1 IP	-GW16 Maintenance Utility	3
1.1	Starting the IP-GW16 Maintenance Utility	4
		_
2 A	dministrator Functions	7
2.1	Main Menu for the Administrator	8
2.2	Programming	10
2.2.1	Network Parameters	10
2.2.2	H.323 Parameters	14
2.2.3	Voice Communication Parameters	18
2.2.4	VoIP Gateway/IP-PBX Interface Parameters	26
2.2.5	Hunt Pattern Parameters	28
2.2.6	Address Translation Table—GW Entry	34
2.2.7	Address Translation Table—DN2IP Entry	37
2.2.8	Initialisation	41
2.3	Maintenance	42
2.3.1	Status Control	42
2.3.2	Maintenance Settings	43
2.3.3	Diagnosis	46
2.3.4	Log Information	47
2.4	Data Management	48
2.4.1	Upload of Configuration Data	48
2.4.2	Download of Configuration Data	50
2.4.3	Upload of Address Translation Table	51
2.4.4	Download of Address Translation Table	53
2.5	Others	54
2.5.1	Reboot	54
2.5.2	Log Out	55
2 In	staller Eurotions	57
<b>J</b> III	Main Manu fay the Installey	J/
3.1	Maintenence	
<b>3.2</b>	Maintenance	
3.2.1	Status Control	
3.2.2	Maintenance Settings	60
3.3	Data Management	
3.3.1	Upload of Firmware Data	
3.3.2	Handling of Firmware Page	65
3.4	Utners	67
3.4.1		
3.4.2	Log Out	68
Index	,	69
# Section 1

# **IP-GW16 Maintenance Utility**

Programming of the VoIP Gateway Card is carried out through a web programming utility called the IP-GW16 Maintenance Utility. This section provides the start-up procedure for the IP-GW16 Maintenance Utility.

# 1.1 Starting the IP-GW16 Maintenance Utility

The IP-GW16 Maintenance Utility is a web programming utility for the VoIP Gateway Card. There are 2 different log-in levels available: Administrator level and Installer level. These levels provide different programming options.

For full discussions of Administrator-level programming and Installer-level programming, refer to "2 Administrator Functions" and "3 Installer Functions", respectively.

#### **System Requirements**

• The IP-GW16 Maintenance Utility requires Microsoft® Internet Explorer 5.0 or above.

### Trademarks

- Microsoft is either a registered trademark or trademark of Microsoft Corporation in the United States and/or other countries.
- All other trademarks identified herein are the property of their respective owners.
- Screen shots reprinted with permission from Microsoft Corporation.
- 1. Run Internet Explorer from the Start menu.
- In the Address box of Internet Explorer, type http://192.168.1.200.
   192.168.1.200 is the default IP address of the VoIP Gateway Card.

🕘 IP	-GW1	6 Mair	ntenance l	Jtilit <mark>y</mark> ·	- Microsoft Internet Explorer
File	Edit	View	Favorites	Tools	Help
Addre	iss 🙋	http://	192.168.1.20	00	

- 3. Press the ENTER key on the keyboard.
- 4. In the **Username** box, type the user name.
  - Default Administrator-level user name: Administrator
  - Default Installer-level user name: Installer
- 5. In the Password box, type the password.
  - Default Administrator-level password: Administrator
  - Default Installer-level password: Installer

🗿 IP-0	W16 Mai	ntenance l	Jtility	- Microsoft Internet Explorer	
<u>Eile</u>	dit ⊻iew	F <u>a</u> vorites	Tools	Help	
Address	http://	192.168.1.2	00/		
Pa	nas	onic			
<b>IP</b> -	GW16 I	Mainten	ance	Utility	
Enter Username and Password, and click the LOGIN button.					
User	name				
Pass	word				
IP-GW16 Program Version: 2.004 / DSP Program Version: t4_00_3 (Page-0)					
LO	GIN CL	EAR			

6. Click LOGIN.

To clear your entry, click **CLEAR**.

# <u>Notes</u>

- If another user is already logged in, you will be rejected.
- For readability of the text on the screen, it is recommended that you adjust the text size of Internet Explorer to below medium.
- If you finish a programming session without logging out from the card (e.g., quitting Internet Explorer, or returning to the log-in screen with the "Back" button of Internet Explorer), you cannot log in again for the period of time specified by the parameter **Programming Auto Disconnect Time** (default: 10 min).

For the log-out procedure and **Programming Auto Disconnect Time** setting, refer to "2.5.2 Log Out"/"3.4.2 Log Out" and "2.3.2 Maintenance Settings", respectively.

1.1 Starting the IP-GW16 Maintenance Utility

# Section 2

# **Administrator Functions**

This section provides operating instructions for the IP-GW16 Maintenance Utility when logged in as the Administrator.

# 2.1 Main Menu for the Administrator

The IP-GW16 Maintenance Utility provides the following menu to a user logged in as the Administrator.

IP-GW16 Maintenance Utility - Microsoft Internet Explorer				
File Edit View Favorites Tools Help				
Address 🛃 http://192.168.1.200/ad_menu.html				
MENU				
1. Programming				
<u>1.1 Network Settings, General</u>				
1.2 H.323 Detailed Settings				
1.3 Voice Communication Detailed Settings				
<u>1.4 VoIP Gateway/IP-PBX Interface Settings</u>				
1.5 Hunt Pattern (for Incoming Calls)				
1.6 DN2IP (Dialed Number to IP Address Translation)				
1.7 Initialization				
2. Maintenance				
2.1 Change RUN/STOP status				
2.2 Maintenance Settings				
<u>2.3 Diagnosis</u>				
2.4 Log Information (of interest to engineers only)				
3. Data Management				
3.1 Upload of Configuration data (PC -> VoIP Gateway)				
3.2 Download of Configuration data (VoIP Gateway -> PC)				
3.3 Upload of DN2IP data (PC -> VoIP Gateway)				
3.4 Download of DN2IP data (VoIP Gateway -> PC)				
REBOOT				
LOGOUT				

# Programming

Menu		Section Reference		
1.1	Network Settings, General	2.2.1 Network Parameters		
1.2	H.323 Detailed Settings	2.2.2 H.323 Parameters		
1.3	Voice Communication Detailed Settings	2.2.3 Voice Communication Parameters		
1.4	VoIP Gateway/IP-PBX Interface Settings	2.2.4 VoIP Gateway/IP-PBX Interface Parameters		
1.5	Hunt Pattern (for Incoming Calls)	2.2.5 Hunt Pattern Parameters		
1.6	DN2IP (Dialed Number to IP Address Translation)	2.2.6 Address Translation Table—GW Entry 2.2.7 Address Translation Table—DN2IP Entry		
1.7	Initialization	2.2.8 Initialisation		

# Maintenance

Menu		Section Reference
2.1	Change RUN/STOP status	2.3.1 Status Control
2.2	Maintenance Settings	2.3.2 Maintenance Settings
2.3	Diagnosis	2.3.3 Diagnosis
2.4	Log Information	2.3.4 Log Information

# Data Management

Menu		Section Reference		
3.1	Upload of Configuration data (PC $\rightarrow$ VoIP Gateway)	2.4.1 Upload of Configuration Data		
3.2	Download of Configuration data (VoIP Gateway $\rightarrow$ PC)	2.4.2 Download of Configuration Data		
3.3	Upload of DN2IP data (PC $\rightarrow$ VoIP Gateway)	2.4.3 Upload of Address Translation Table		
3.4	Download of DN2IP data (VoIP Gateway $\rightarrow$ PC)	2.4.4 Download of Address Translation Table		

# Others

Menu	Section Reference
REBOOT	2.5.1 Reboot
LOGOUT	2.5.2 Log Out

# 2.2 Programming

# 2.2.1 Network Parameters

### 1. Click 1.1 Network Settings, General in the main menu.

🗿 IP-GW16 Maintenance Utility - Microsoft Internet Explorer	
<u>File Edit Vi</u> ew Favorites <u>T</u> ools <u>H</u> elp	
Address 🍓 http://192.168.1.200/ad_network.html	
OK ALL CLEAR MENU LOGOUT	
1. Programming 1.1 Network Settings, General	
Current IP Address	192.168.1.200
Current Subnet Mask	255.255.255.0
Current Default Gateway	0.0.0.0
1.1.1 IP Address Settings	
# IP Address	192.168.1.200
# Subnet Mask	255.255.255.0
# Default Gateway	0.0.0.0
1.1.2 DHCP Settings	
# DHCP Server	🔿 Use 💿 Don't use
# DHCP Server Port No.	67
# DHCP Client Port No.	68
#DHCP Lease Time (min) 0-1440min (of interest to engineers only)	1440
1.1.3 HTTP Settings	
# HTTP Port No.	80
1.1.4 QSIG Connectionless Tunneling Settings	
# QSIG Connectionless Tunneling Port No.	1718
1.1.5 Others	
# LAN Disconnect Threshold Time (s)	5 🕶

Current IP Address, Current Subnet Mask, and Current Default Gateway show the current IP address settings of the VoIP Gateway Card.

2. Assign each parameter referring to the descriptions below.

At any time during the session, you can:

- Click ALL CLEAR to return all parameters to their previous values.
- Click **MENU** to return to the main menu (see "2.1 Main Menu for the Administrator").
- Click LOGOUT to log out from the IP-GW16 Maintenance Utility (see "2.5.2 Log Out").
- 3. Click OK.

You will see a confirmation screen.

#### <u>Note</u>

If your entry contains an invalid value, you will be prompted to correct your input. Enter correct values for the parameters shown in red and try again.

4. Confirm your entry and click **OK**.

To return to the previous screen, click **CANCEL**.

# **Parameter Descriptions**

The parameters indicated with "#" must be changed while the card is in the "STOP" status (see "2.3.1 Status Control"). The changes must be followed by a reboot to become effective (see "2.5.1 Reboot").

# **IP Address Settings**

Parameter & Description	Default	Value Range	
<b># IP Address</b> Specifies the IP address of the card. For more information, consult your network administrator.	192.168.1.200	<ul> <li>The following addresses are invalid:</li> <li>Class D addresses</li> <li>Class E addresses</li> <li>Loopback addresses</li> <li>Addresses with host number all 0s or 1s</li> </ul>	
<b># Subnet Mask</b> Specifies the subnet mask address of the card. For more information, consult your network administrator.	255.255.255.0	Any address is valid.	
<b># Default Gateway</b> Specifies the default gateway IP address of the card. For more information, consult your network administrator.	0.0.0.0	Same as the parameter <b>IP Address</b> , except that the address 0.0.0.0. is allowed.	

# **DHCP Settings**

Parameter & Description	Default	Value Range
<b># DHCP Server</b> Specifies the use of a DHCP server. For details, refer to "Detailed Explanations".	Don't use	Use, Don't use
# DHCP Server Port No.	67	1 to 65535
Specifies the port number for DHCP communications by the DHCP server.		
Generally, there is no need to change the default value.		
# DHCP Client Port No.	68	1 to 65535
Specifies the port number for DHCP communications by the card (the DHCP client).		
Generally, there is no need to change the default value.		
<b># DHCP Lease Time (min) 1-1440min</b> This parameter is provided for engineer use only.	1440	0 (disable), 1 to 1440

# **HTTP Settings**

Parameter & Description	Default	Value Range
# HTTP Port No.	80	1 to 65535
Specifies the port number for HTTP communications by the card.		
Generally, there is no need to change the default value.		

# **QSIG Connectionless Tunneling Settings**

Parameter & Description	Default	Value Range
# QSIG Connectionless Tunneling Port No.	1718	1 to 65535
Specifies the port number for connectionless tunnelling between cards at different locations in a QSIG network.		
Generally, there is no need to change the default value.		
<u>Notes</u>		
<ul> <li>Connectionless tunnelling enables the PBXs on a QSIG network to use enhanced networking features. (For more information about these features, refer to the relevant sections of the Hybrid IP-PBX documentation.)</li> </ul>		
<ul> <li>If you are using a gatekeeper, and "Routed" is specified for the parameter Call Signaling Model (see "2.2.2 H.323 Parameters"), connectionless tunnelling is not possible. In this case, the PBX cannot use the enhanced networking features.</li> </ul>		

# Others

Parameter & Description	Default	Value Range
# LAN Disconnect Threshold Time (s)	5	1 to 10
Specifies the time (in seconds) until disconnection from the LAN is recognised.		
For example, even if a LAN cable is disconnected during a call, reconnecting the cable within this time period maintains the call.		

# **Detailed Explanations**

## **DHCP Server**

When using the DHCP feature, the IP address settings of the card (IP address, subnet mask, and default gateway) will be assigned by a DHCP server.

However, keep in mind that the maintenance of the card is performed through a web browser from a PC; hence you must know the IP address of the card. Therefore, it is necessary to set up the DHCP

server to assign a static IP address to the card from a pool of IP addresses that is defined in advance. For more information about DHCP server settings, consult your network administrator.

In addition, it is also necessary to specify the values for the parameters under **IP Address Settings** as they will be assigned by the DHCP server.

# 2.2.2 H.323 Parameters

#### 1. Click 1.2 H.323 Detailed Settings in the main menu.

IP-GW16 Maintenance Utility - Microsoft Internet Explorer	
File Edit View Favorites Tools Help	
Address 🧃 http://192.168.1.200/ad_h323.html	
OK ALL CLEAR MENU LOGOUT	
1. Programming 1.2 H.323 Detailed Settings	
1.2.1 Port No. Settings	
# H.225 Port No.	1720
# H.245 Port No.	1721
# RAS Port No.	1719
#RTP/RTCP Port No.	5004
1.2.2 Voice CODEC Settings	
* Voice CODEC Priority	1st G.729A ♥ 2nd None ♥ 3rd None ♥ 4th None ♥
1.2.3 Gatekeener Settings	
# Gatekeeper	○ Use ⊙ Don't use
* Primary Gatekeeper IP Address	192.168.1.3
* Primary Gatekeeper Port No.	1719
* Secondary Gatekeeper IP Address	192.168.1.4
* Secondary Gatekeeper Port No.	1719
* Gatekeeper Connection Checking Interval (min) 0-1440min	0
* Call Signaling Model	● Direct ○ Routed (via Gatekeeper)
1.2.4 Others	
# Fast Connect	O Use ○ Don't use
# indicates setting must be done in the STOP status, and must be follo	wed by a REBOOT.

# indicates setting must be done in the STOP status, and must be followed by a REBOOT \* indicates setting must be done in the STOP status, and is not followed by a REBOOT.

#### 2. Assign each parameter referring to the descriptions below.

At any time during the session, you can:

- Click ALL CLEAR to return all parameters to their previous values.
- Click **MENU** to return to the main menu (see "2.1 Main Menu for the Administrator").
- Click LOGOUT to log out from the IP-GW16 Maintenance Utility (see "2.5.2 Log Out").
- 3. Click OK.

You will see a confirmation screen.

## <u>Note</u>

If your entry contains an invalid value, you will be prompted to correct your input. Enter correct values for the parameters shown in red and try again.

4. Confirm your entry and click OK.

To return to the previous screen, click CANCEL.

# **Parameter Descriptions**

The parameters indicated with "#" must be changed while the VoIP Gateway Card is in the "STOP" status (see "2.3.1 Status Control"). The changes must be followed by a reboot to become effective (see "2.5.1 Reboot").

The parameters indicated with "\*" must be changed while the card is in the "STOP" status (see "2.3.1 Status Control"). The changes do not have to be followed by a reboot to become effective.

# Port No. Settings

Parameter & Description	Default	Value Range
# H.225 Port No.	1720	1 to 65535
Specifies the port number for the H.225 protocol (call control) in an H.323 protocol suite.		
Generally, there is no need to change the default value.		
# H.245 Port No.	1721	1 to 65504
Specifies the port number for the H.245 protocol (negotiation of channel usage and capabilities) in an H.323 protocol suite. 32 consecutive ports, starting with the specified port, will be used (by default, 1721 to 1752).		
Generally, there is no need to change the default value.		
# RAS Port No.	1719	1 to 65535
Specifies the port number for the H.225 protocol (RAS) in an H.323 protocol suite.		
Generally, there is no need to change the default value.		
# RTP/RTCP Port No.	5004	1 to 65472
Specifies the port number for RTP/RTCP. 64 consecutive ports, starting with the specified port, will be used (by default, 5004 to 5067).		
Generally, there is no need to change the default value.		

# **Voice CODEC Settings**

Parameter & Description	Default	Value Range
<ul> <li>* Voice CODEC Priority 1st–4th         Specifies the type of CODEC for voice communications.         Choose the appropriate CODEC for the network environment (e.g., bandwidth, CODEC conditions of the remote terminal).         When using multiple CODECs, set them in an appropriate priority order.         Prior to establishing a call, a negotiation takes place over the network and the CODEC to be used will be decided depending on the setting of this parameter.         For details about relations between bandwidth and CODEC, refer to "Detailed Explanations" in "2.2.3 Voice Communication Parameters".     </li> <li>Note         When the Fast Connect feature (see under "Others" below) is disabled, the communicating cards must have the network in the priority CODEC and the code of the code of the communication parameter of the communication cards must have the network in the priority code of the communication cards must have         Summer first priority CODEC and the code of the</li></ul>	1st: G.729A 2nd: No default 3rd: No default 4th: No default	G.723.1, G.729A, G.711Mu, G.711A

# **Gatekeeper Settings**

Parameter & Description	Default	Value Range
<b># Gatekeeper</b> Specifies the use of a gatekeeper. For details, refer to "Detailed Explanations".	Don't use	Use, Don't use
* Primary Gatekeeper IP Address Specifies the IP address of the primary gatekeeper.	192.168.1.3	<ul> <li>The following addresses are invalid:</li> <li>Class D addresses</li> <li>Class E addresses</li> <li>Loopback addresses</li> </ul>
* Primary Gatekeeper Port No. Specifies the port number of the primary gatekeeper.	1719	1 to 65535
* Secondary Gatekeeper IP Address Specifies the IP address of the secondary gatekeeper. Set this parameter when setting up a secondary gatekeeper as a redundant backup system.	192.168.1.4	<ul> <li>The following addresses are invalid:</li> <li>Class D addresses</li> <li>Class E addresses</li> <li>Loopback addresses</li> </ul>
* Secondary Gatekeeper Port No. Specifies the port number of the secondary gatekeeper. Set this parameter when setting up a secondary gatekeeper as a redundant backup system.	1719	1 to 65535

Parameter & Description	Default	Value Range
* Gatekeeper Connection Checking Interval (min) 0- 1440min	0	0 (disable), 1 to 1440
Specifies the time (in minutes) between periodic checks of connection to the gatekeeper.		
When the primary gatekeeper fails, these checks can detect the failure. In this case, the connection automatically switches to the secondary gatekeeper if it is available, so that the network remains functional.		
* Call Signaling Model	Direct	Direct,
Specifies whether to carry out a call control (H.225) process directly between the cards or through a gatekeeper.		Routed (via Gatekeeper)
Direct call control is typically preferred because it involves less network load.		

## Others

Parameter & Description	Default	Value Range
# Fast Connect	Use	Use,
Specifies the use of the Fast Connect feature.		Don't use
Using Fast Connect simplifies the communication process so that calls can be established quickly.		
Generally, there is no need to change the default value.		

# **Detailed Explanations**

## Gatekeeper

The following are the general functions of a gatekeeper:

- Dialled number-to-IP address translation
- Authentication
- Bandwidth control

It is possible to employ a VoIP network without the use of a gatekeeper, because the card is equipped with internal address translation capabilities. However, should the network contain dozens of cards, maintenance of address translation tables in individual cards can become a strain.

A gatekeeper is useful in this case, because with the gatekeeper it is possible to consolidate the maintenance. (However, you still need to programme each card on the network with its own address translation information. For details, refer to "2.2.6 Address Translation Table—GW Entry" and "2.2.7 Address Translation Table—DN2IP Entry".) For more information about gatekeeper functions, consult the documentation of the gatekeeper.

When using a gatekeeper, make sure to choose a compatible model. For more information about gatekeeper compatibility with the card, consult a certified dealer.

# 2.2.3 Voice Communication Parameters

1. Click 1.3 Voice Communication Detailed Settings in the main menu.

P-GW16 Maintenance Utility - Microsoft Internet Explorer			
File Edit View Favorites Tools Help			
Address 🕘 http://192.168.1.200/ad_sound.html	2		
OK ALL CLEAR MENU LOGOUT			
1. Programming 1.3 Voice Communication Detailed Settings			
1.3.1 QoS Field Settings			
• T₀S	Priority <mark>0 • Normal • Monetary Cost • Reliability • Throughput • Delay</mark>		
O DSCP			
● HEX			
1.3.2 Jitter buffer Settings (G.711/G.729A/G.723.1 for Voice)			
Jitter Buffer Minimum (ms)	20 💌		
Jitter Buffer Maximum (ms)	500 🗠		
Jitter Buffer Default (ms)	20 💌		
Jitter Buffer Recovery Start (ms)	20 💌		
Jitter Buffer Recovery Period (s)	10 🗸		
1.3.3 Jitter buffer Settings (G.711 for Fax)			
Jitter Buffer Minimum (ms)	50 💌		
Jitter Buffer Maximum (ms)	500 💌		
1.3.4 CODEC Frame Settings			
G.723.1 Packet Sending Interval (ms)	30 🗸		
G.729A Packet Sending Interval (ms)	20 🗸		
G.711 Packet Sending Interval (ms)	20 🕶		
1.3.5 Echo Canceller Settings			
Echo Canceller	● 48ms ● 128ms ● Don't use		
1.3.6 Gain Level Settings			
Gain Level PCM -> LAN (dB)			
Gain Level LAN -> PCM (dB)			
	· ·		
1.3.7 Voice Activity Detection(VAD) Settings			
G.723.1 VAD	💿 Use 🔘 Don't use		
G.729A VAD	○ Use ⊙ Don't use		
G.711 VAD	○ Use ⊙ Don't use		
1.3.8 Others			
G.723.1 Rate	O 5.3Kbps ⊙ 6.3Kbps		
	O Has O Darkuss		
FAX Signal Detection			
TTE Ogna Docouvi	Cost O Dont use		
DTMF Detection Level (dB) -46-0dB	-20		

2. Assign each parameter referring to the descriptions below.

At any time during the session, you can:

- Click ALL CLEAR to return all parameters to their previous values.
- Click MENU to return to the main menu (see "2.1 Main Menu for the Administrator").
- Click LOGOUT to log out from the IP-GW16 Maintenance Utility (see "2.5.2 Log Out").
- 3. Click OK.

You will see a confirmation screen.

#### <u>Note</u>

If your entry contains an invalid value, you will be prompted to correct your input. Enter correct values for the parameters shown in red and try again.

4. Confirm your entry and click OK.

To return to the previous screen, click CANCEL.

# **Parameter Descriptions**

# **QoS Field Settings**

The parameters below are used to set the ToS (Type of Service) field in the header of IP packets to control QoS of VoIP communications.

For more information about QoS, refer to "A1.4 QoS (Quality of Service)" of the VoIP Gateway Card Getting Started. For the actual setting values, consult your network administrator.

Parameter & Description	Default	Value Range
ToS	Priority: 0	0 to 7
Specifies the value in the ToS field by a generic term. For details, refer to "Detailed Explanations".	Normal	Normal, Monetary Cost, Reliability, Throughput, Delay
DSCP	No default	0 to 63
Specifies the value in the ToS field by a DSCP for DiffServ.		
HEX	No default	00 to FF
Specifies the value in the ToS field by a hexadecimal number.		

## **Jitter Buffer Settings**

When voice signals are packetised and transmitted, individual packets can take different paths through the network and arrive at the destination at varied timings. This is referred to as "jitter", and it can cause degradation in speech quality. To compensate for jitter problems, the "jitter buffer" accumulates the packets temporarily for processing.

The parameters below are used to adjust the size of the jitter buffer. However, in general, there is no need to change the default values.

# Jitter buffer Settings (G.711/G.729A/G.723.1 for Voice)

Parameter	Default	Value Range
Jitter Buffer Minimum (ms)	20	10 × n (n = 2–10)
Jitter Buffer Maximum (ms)	500	10 × n (n = 2–50)
Jitter Buffer Default (ms)	20	10 × n (n = 2–10)
Jitter Buffer Recovery Start (ms)	200	10 × n (n = 2–10)
Jitter Buffer Recovery Period (s)	10	1 to 20

Parameter	Default	Value Range
Jitter Buffer Minimum (ms)	50	10 × n (n = 4–10)
Jitter Buffer Maximum (ms)	500	10 × n (n = 4–50)

# Jitter buffer Settings (G.711 for Fax)

# **CODEC Frame Settings**

The parameters below are used to set the interval between packet transmissions for each type of CODEC. It is recommended that all VoIP Gateway Cards in a VoIP network have the same settings for these parameters. For details, refer to "Detailed Explanations".

Parameter	Default	Value Range
G.723.1 Packet Sending Interval (ms)	30	30, 60, 90
G.729A Packet Sending Interval (ms)	20	20, 30, 40, 60
G.711 Packet Sending Interval (ms)	20	20, 30, 40, 60

## **Echo Canceller Settings**

Parameter & Description	Default	Value Range
Echo Canceller	48	48, 128, Don't use
Specifies the length of the echo canceller (in milliseconds) when using the echo cancellation feature (G.168), or disables the feature.		
Echo is the audible duplication of a caller's voice on the return path; when echo exists, the caller hears his or her own voice after some delay. The echo canceller eliminates this echo.		
Generally, the default length of 48 ms will suffice. However, if an echo is still heard, it is recommended that you set the length to 128 ms.		
Note		
There are various factors that may cause an echo. In some cases, this feature does not eliminate the echo entirely.		

# **Gain Level Settings**

The parameters below are used to adjust the gain level. However, in general, there is no need to change the default values.

Parameter & Description	Default	Value Range
Gain Level PCM $ ightarrow$ LAN (dB)	0	-14 to 6
Specifies the gain level (in decibels) output from the PBX, through the card, to the LAN.		
Gain Level LAN $\rightarrow$ PCM (dB)	0	-14 to 6
Specifies the gain level (in decibels) output from the LAN, through the card, to the PBX.		

# Voice Activity Detection (VAD) Settings

Parameter & Description	Default	Value Range
G.723.1/G.729A/G.711 VAD	Use	Use,
Specifies the use of the VAD feature for each available CODEC (G.723.1, G.729A, and G.711).		Don't use
The VAD conserves bandwidth by detecting silent periods during a call and suppressing the packets of silence from being sent to the network.		
<u>Notes</u>		
<ul> <li>To use the VAD feature for a certain CODEC, be sure to enable it for that CODEC on both the local and remote cards.</li> </ul>		
• To use the VAD feature between the KX-TDA0490 and KX-TDA3480/KX-TDA0484, you must enable it for the G.723.1 CODEC. Otherwise, the VAD feature cannot be used between these cards (although calls can be made and received as normal).		

# Others

Parameter & Description	Default	Value Range
G.723.1 Rate Specifies the rate of the G.723.1 CODEC.	6.3Kbps	5.3Kbps, 6.3Kbps
DTMF Detection Specifies the use of the DTMF detection feature. DTMF detection enables end-to-end DTMF relay over the network. For details, refer to "Detailed Explanations".	Use	Use, Don't use

### 2.2 Programming

Parameter & Description	Default	Value Range
<ul> <li>FAX Signal Detection</li> <li>Specifies the use of the fax signal detection feature.</li> <li>Fax signal detection enables end-to-end fax signal relay over the network.</li> <li>For details, refer to "Detailed Explanations".</li> </ul>	Don't use	Use, Don't use
<b>DTMF Detection Level (dB) -46-0dB</b> Specifies the level (in decibels) of DTMF detection. Generally, there is no need to change the default value.	-20	-46 to 0

# **Detailed Explanations**

# **QoS Field Settings**

The following diagrams show the bit values of the ToS field in the IP header in relation to the setting values for the parameters under **QoS Field Settings**:

# ToS





# **CODEC Frame Settings**

The amount of required bandwidth depends on the type of CODEC and the selected packet sending interval. The tables below show the amount of bandwidth required for one VoIP channel in each case:

CODEC	Packet Sending Interval				
CODEC	20 ms	30 ms	40 ms	60 ms	90 ms
G.711	87.2 kbps	79.5 kbps	75.6 kbps	71.7 kbps	—
G.729A	31.2 kbps	23.5 kbps	19.6 kbps	15.7 kbps	—
G.723.1 5.3 kbps	—	20.8 kbps	—	13.1 kbps	10.5 kbps
G.723.1 6.3 kbps	_	21.9 kbps	_	14.1 kbps	11.6 kbps

CODEC	Packet Sending Interval				
CODEC	20 ms	30 ms	40 ms	60 ms	90 ms
G.711	84 kbps	77.3 kbps	74 kbps	70.7 kbps	—
G.729A	28 kbps	21 kbps	18 kbps	14.7 kbps	—
G.723.1 5.3 kbps	—	18.7 kbps	—	12 kbps	9.8 kbps
G.723.1 6.3 kbps	—	19.7 kbps	_	13.1 kbps	10.8 kbps

#### Required Bandwidth for Voice Communication via WAN (PPP: Point-to-Point Protocol)

When assessing your bandwidth requirements, keep in mind that the longer the packet sending interval, the smaller the amount of required bandwidth, and vice versa.

However, also consider that the shorter the packet sending interval, the clearer the expected speech quality, because delays in packet transmissions will be small. When the packet sending interval is long, delays are more likely to occur, resulting in overall degradation in speech quality with more pauses and loss in voice communications.

Therefore, it is recommended that you select the shortest packet sending interval that network bandwidth can accommodate.

## **DTMF Detection**

A VoIP network does not guarantee accurate end-to-end transmission of DTMF signals because the DTMF signals are coded/decoded during VoIP communications, in the same way as voice signals. In addition, packets can get lost during transmission.

To compensate for this problem, it is possible to enable DTMF detection for the VoIP Gateway Card to carry out accurate end-to-end DTMF relay over the network. Upon detecting DTMF signals from the PBX, the card encodes the signals and then sends them to the destination, instead of as voice signals. Then at the destination, the card regenerates the DTMF signals from the received encoded signals, and then sends them to the PBX.

Note that when this feature is enabled, the sending of packets is delayed by approximately 30 ms. Therefore, it is recommended that you disable this feature unless DTMF detection is necessary.

## **FAX Signal Detection**

When sending fax signals using a CODEC other than G.711, the signals cannot be received accurately at the destination because they are coded/decoded over the VoIP network, in the same way as voice signals.

To compensate for this problem, it is possible to enable fax detection for the card. Upon detecting fax signals (CED tones) from the PBX, the card automatically switches the CODEC to G.711 to communicate with the card at the destination. With the G.711 CODEC, it is possible to assure error-free fax communications to a certain extent.

To further assure fax communications, it is strongly recommended that the communicating fax machines be equipped with the ECM (Error Correction Model) feature, an automatic error correction feature. When, for example, the receiving fax machine detects errors in transmission, it can have the sending fax machine resend the relevant data.

When using the fax detection feature, the communicating cards must share the same value (either "G.711Mu" or "G.711A") for the parameter Voice CODEC Priority (see "Voice CODEC Settings" in "2.2.2 H.323 Parameters").

#### <u>Notes</u>

To carry out fax communications between the KX-TDA0490 and KX-TDA3480/KX-TDA0484
 VoIP Gateway Cards, it is necessary to disable the "FAX High Reliable Method" for the KX-

TDA3480/KX-TDA0484 card. (For more information about this feature, refer to the KX-TDA3480/KX-TDA0484 Programming Guide.)

- Fax communications cannot take place between the KX-TDA0490 and KX-TDA0480 VoIP Gateway Cards.
- Fax communications in the Super G3 mode are not guaranteed.

# 2.2.4 VoIP Gateway/IP-PBX Interface Parameters

1. Click 1.4 VoIP Gateway/IP-PBX Interface Settings in the main menu.

P-GW16 Maintenance Utility - Microsoft Internet Explorer	
File Edit View Favorites Tools Help	
Address ahttp://192.168.1.200/ad_line.html	
OK ALL CLEAR MENU LOGOUT	
1. Programming 1.4 VoIP Gateway/IP-PBX Interface Settings	
1.4.1 Dialing Settings	
* First Digit Time (s) 5-30s	20
* Inter-Digit Time (s) 1-10s	5
* Digit End Code	# 🗸
1.4.2 Others	
Network CODEC of IP-PBX (of interest to engineers only)	🔘 G711 Mu-Law 💿 G711 A-Law
* indicates setting must be done in the STOP status, and is not follo	wed by a REBOOT.

2. Assign each parameter referring to the descriptions below.

At any time during the session, you can:

- Click ALL CLEAR to return all parameters to their previous values.
- Click **MENU** to return to the main menu (see "2.1 Main Menu for the Administrator").
- Click LOGOUT to log out from the IP-GW16 Maintenance Utility (see "2.5.2 Log Out").

## 3. Click OK.

You will see a confirmation screen.

## <u>Note</u>

If your entry contains an invalid value, you will be prompted to correct your input. Enter correct values for the parameters shown in red and try again.

**4.** Confirm your entry and click **OK**.

To return to the previous screen, click CANCEL.

# **Parameter Descriptions**

The parameters indicated with "\*" must be changed while the VoIP Gateway Card is in the "STOP" status (see "2.3.1 Status Control"). The changes do not have to be followed by a reboot to become effective.

# **Dialing Settings**

Parameter & Description	Default	Value Range
* First Digit Time (s) 5-30s	20	5 to 30
Specifies the length of time (in seconds) within which the first digit of a dial number must be dialled after seizing a VoIP gateway trunk.		
Generally, there is no need to change the default value.		
* Inter-Digit Time (s) 1-10s	5	1 to 10
Specifies the length of time (in seconds) within which subsequent digits of a dial number must be dialled.		
Generally, there is no need to change the default value.		

Parameter & Description	Default	Value Range
* Digit End Code	#	0 to 9, #, *
Specifies the delimiter code to be used to signal the end of a dial number.		
Generally, there is no need to change the default value.		

# Others

Parameter & Description	Default	Value Range
Network CODEC of IP-PBX	Not applicable	G.711 Mu-Law,
The value of this parameter is set automatically as appropriate to the setting of the PBX.		G.711 A-Law
There is no need to change the value.		

# 2.2.5 Hunt Pattern Parameters

1. Click 1.5 Hunt Pattern (for Incoming Calls) in the main menu.

IP-GW16 Maintenance Utility -	Microsoft Internet Explorer		
File Edit View Favorites Tools Help			
Address 🗃 http://192.168.1.200/ad_hunt_pattern.html			
1 Programming			
1.5 Hunt Pattern (for Incoming C	alls)		
151 Hunt Group			
Port1	Hunt group 1 🗙		
Port2	Hunt group 1		
Port3	Hunt group 1 🗸		
Port4	Hunt group 1 🗸		
* Port5	Hunt group 1 🗸		
Port6	Hunt group 1 🗸		
Port7	Hunt group 1 💌		
Port8	Hunt group 1 💌		
1500			
Hunt Pattern No. (1.16)			
Pagaina Leading Number			
Hunt Group (Drivetter)	1.00		
Hunt Group (Priority?)			
Hunt Group (Priority2)	- *		
* Hunt Group (Priority4)	- •		
Hunt Group (Priority5)	- •		
Hunt Group (Priority6)	- •		
Hunt Group (Priority7)	- 🗙		
Hunt Group (Priority8)	- ~		
* indicates setting must be done is	n the STOP status, and is not followed by a RI	BOOT.	
ENTRY			
Sort Option			
Hunt Pattern No.   Ascending Order			
SORT			
Hunt Pattern No.	Receive Leading Number	Hunt Group	DELETE

2. Assign each parameter referring to the descriptions below.

At any time during the session, you can:

- Click ALL CLEAR to return all parameters to their previous values.
- Click MENU to return to the main menu (see "2.1 Main Menu for the Administrator").
- Sort the hunt patterns in the table at the bottom of the screen:
  - a. Click the desired sort key and sort order from the Sort Option lists.
  - **b.** Click **SORT**.
- Delete the desired hunt pattern from the table at the bottom of the screen:
  - a. Select the appropriate check box for the hunt pattern you want to delete.
  - **b.** Click **DELETE**.
- Click LOGOUT to log out from the IP-GW16 Maintenance Utility (see "2.5.2 Log Out").

**3.** Click **ENTRY**.

A maximum of 16 hunt patterns can be created.

4. Click OK.

You will see a confirmation screen.

## <u>Note</u>

If your entry contains an invalid value, you will be prompted to correct your input. Enter correct values for the parameters shown in red and try again.

5. Confirm your entry and click OK.

To return to the previous screen, click CANCEL.

# **Parameter Descriptions**

The parameters indicated with "\*" must be changed while the VoIP Gateway Card is in the "STOP" status (see "2.3.1 Status Control"). The changes do not have to be followed by a reboot to become effective.

# Hunt Group

Parameter & Description	Default	Value Range
* Port1–8	Hunt group 1	Hunt group 1 to 8
Assigns a hunt group to a VoIP gateway port.		
For details, refer to "Detailed Explanations".		

# **Hunt Pattern Entry**

The parameters below are used to create hunt patterns.

For details, refer to "Detailed Explanations".

F	Parameter & Description	Default	Value Range
*	Hunt Pattern No.	No default	1 to 16
	Specifies the number for the hunt pattern to be created.		
	When changing the current settings of an existing hunt pattern, first delete the hunt pattern and then re-create with new values.		
*	Receive Leading Number	No default	Max. 30 digits
	Specifies the leading digits in received numbers by which to determine the hunt group to direct incoming calls.		
	For example, to direct incoming calls with numbers starting with "9", specify the number "9" in this parameter. Likewise, to direct incoming calls with numbers starting with "1", specify the number "1".		
	However, if you want to direct incoming calls with numbers starting with "950" and "951" to separate hunt groups, it is necessary to make 2 hunt patterns with respective numbers, "950" and "951".		

#### 2.2 Programming

Parameter & Description	Default	Value Range
* Hunt Group (Priority1) Specifies the hunt group to which incoming calls are directed first.	1	1 to 8
* Hunt Group (Priority2)–(Priority8) Specifies the hunt group to which incoming calls are directed when the hunt group specified in the previous priority level is busy.	-	1 to 8, - (disable)

# **Detailed Explanations**

The card and the PBX are connected with 8 VoIP gateway ports, each of which has 2 communication channels, in much the same way as an ISDN BRI port.



Hunt pattern programming determines the VoIP gateway ports through which to route incoming calls, depending on the received numbers. The following examples provide 2 different methods of hunt pattern programming.

## Example 1

The following configuration is used to allocate 8 VoIP gateway ports (16 channels) to route incoming calls to both extension groups A and B.

When there are 16 incoming calls to extension group A in this configuration, no call can be routed to extension group B.

## Hunt Group

Port1	Hunt group 1
Port2	Hunt group 1
:	:
Port8	Hunt group 1

# Hunt Pattern Entry

Hunt Pattern No.	1
Receive Leading Number	9
Hunt Group (Priority1)	1
Hunt Group (Priority2)	-
:	:
Hunt Group (Priority8)	-



## PBX (PBX Code: 950)

## Example 2

The following configuration is used to divide 8 VoIP gateway ports (16 channels) into 2 groups of 4, and then allocate each group to individual extension groups. Specifically, with this configuration, calls to extension group A are routed through the first group of ports (consisting of ports 1 to 4). Likewise, calls to extension group B are routed through the second group of ports (consisting of ports 5 to 8).

When all 8 channels in the first group of ports are being used, this configuration rejects the 9th call to extension group A. However, the other 8 channels in the second group of ports remain available to route calls to extension group B.

#### **Hunt Group**

Port1	Hunt group 1
:	:
Port4	Hunt group 1
Port5	Hunt group 2
:	:
Port8	Hunt group 2

#### Hunt Pattern Entry—1

Hunt Pattern No.	1
Receive Leading Number	9501
Hunt Group (Priority1)	1
Hunt Group (Priority2)	-
:	:
Hunt Group (Priority8)	-

## Hunt Pattern Entry-2

Hunt Pattern No.	2
Receive Leading Number	9502
Hunt Group (Priority1)	2
Hunt Group (Priority2)	-
:	:
Hunt Group (Priority8)	-



It is possible to programme the PBX to allocate separate groups of VoIP gateway ports to individual extension groups A and B for making outgoing calls. With this programming, each extension group, A and B, can have a group of ports for its exclusive use.

For example:

- The VoIP gateway ports that extension group A uses to make outgoing calls: ports 1 to 4
- The VoIP gateway ports that extension group B uses to make outgoing calls: ports 5 to 8

### <u>Note</u>

The example above details the configuration to route incoming calls to 2 separate hunt groups, each of which is associated with an individual extension group. However, note that various other types of configurations are possible. For example, it is possible to route calls to 8 separate hunt groups, so that you can distribute the calls to 8 different extension groups.

# 2.2.6 Address Translation Table—GW Entry

1. Click 1.6 DN2IP (Dialed Number to IP Address Translation) in the main menu.

P-GW16 Maintenance Utility - Microsoft Internet Explorer	
File Edit View Favorites Tools Help	
Address 🕘 http://192.168.1.200/ad_phone_no_menu.html	
1. Programming 1.6 DN2IP (Dialed Number to IP Address Translation)	
1.6.1 GW Entry	
1.6.2 DN2IP Entry	
(Note) If the Gatekeeper is used, this DN2IP function dosen't work. Refer to 1.2.3 Gatekeeper Settings.	

#### 2. Click 1.6.1 GW Entry.

P-GW16 Maintenance Utility - Microsoft Internet Explorer					
File Edit View Favorites Tools Help					
Address 🛃 http://192.168.1.200/ad_regist	er_gw.html				
OK MENU PREVIOUS	OK MENU PREVIOUS LOGOUT				
1. Programming 1.6 DN2IP (Dialed Number to IP a	Address Translation)				
1.6.1 GW Entry					
GW No. (0-511)	0				
* Comment					
IP Address					
Group No.	0				
* indicates setting must be done in the STOP status, and is not followed by a REBOOT.					
Sort Option					
GW No. V Ascending Order V					
SORT					
GW No. C	omment	IP Address	Group No.	DELETE	

**3.** Assign each parameter referring to the descriptions below.

At any time during the session, you can:

- Click MENU to return to the main menu (see "2.1 Main Menu for the Administrator").
- Click **PREVIOUS** to return to the previous screen.
- Sort the gateway entries in the table at the bottom of the screen:
  - a. Click the desired sort key and sort order from the Sort Option lists.
  - b. Click SORT.
- Delete the desired gateway entry from the table at the bottom of the screen:
  - a. Select the appropriate check box for the gateway entry you want to delete.

## <u>Note</u>

If the gateway entry is registered to a DN2IP entry (see "2.2.7 Address Translation Table—DN2IP Entry"), no check box will be shown for the gateway entry.

- b. Click DELETE.
- Click LOGOUT to log out from the IP-GW16 Maintenance Utility (see "2.5.2 Log Out").
- 4. Click ENTRY.

A maximum of 512 gateway entries can be created.

5. Click OK.

You will see a confirmation screen.

#### <u>Note</u>

If your entry contains an invalid value, you will be prompted to correct your input. Enter correct values for the parameters shown in red and try again.

6. Confirm your entry and click OK.

To return to the previous screen, click CANCEL.

# **Parameter Descriptions**

The parameters indicated with "\*" must be changed while the VoIP Gateway Card is in the "STOP" status (see "2.3.1 Status Control"). The changes do not have to be followed by a reboot to become effective.

# **GW Entry**

The parameters below are used to create gateway entries for both local and remote cards on the network, as a preliminary step to programming the address translation table (DN2IP).

For a programming example, refer to "3.2.5 Programming the Address Translation Table" of the VoIP Gateway Card Getting Started.

## Note

If you are using a gatekeeper, create the gateway entry only for the local card.

Parameter & Description	Default	Value Range
* GW No.	0	0 to 511
Specifies the number for the gateway entry to be created. When changing the current settings of an existing gateway entry, first delete the gateway entry and then re-create with		
new values.		
* Comment	No default	Max. 16 characters
Specifies the comment for the gateway entry.		
* IP Address Specifies the IP address of the card.	No default	<ul> <li>The following addresses are invalid:</li> <li>Class D addresses</li> <li>Class E addresses</li> <li>Loopback addresses</li> </ul>

### 2.2 Programming

Parameter & Description	Default	Value Range
<ul> <li>* Group No.</li> <li>Specifies the number of the gateway group to which the gateway entry belongs.</li> <li>Grouping is useful when there is more than one card installed in a PBX, because it allows you to use the automatic route redirection feature. For details, refer to "Detailed Explanations" in the next section, "2.2.7 Address Translation Table—DN2IP Entry".</li> </ul>	0	0 (belong to no group), 1 to 256

# 2.2.7 Address Translation Table—DN2IP Entry

1. Click 1.6 DN2IP (Dialed Number to IP Address Translation) in the main menu.

IP-GW16 Maintenance Utility - Microsoft Internet Explorer				
File Edit View Favorites Tools Help				
Address 🕘 http://192.168.1.200/ad_phone_no_menu.html				
1. Programming 1.6 DN2IP (Dialed Number to IP Address Translation)				
1.6.1 GW Entry				
1.6.2 DN2IP Entry				
(Note) If the Gatekeeper is used, this DN2IP function dosen't work. Refer to 1.2.3 Gatekeeper Settings.				

2. Click 1.6.2 DN2IP Entry.

IP-GW16 Maintenance Utility - Mic	rosoft Internet Explorer					(	_ @
File Edit View Favorites Tools Help	0						
Address 🚳 http://192.168.1.200/ad_register	_phoneno.html					🖌 🔁 Go	Link
OK MENU PREVIOUS	LOGOUT						
1. Programming 1.6 DN2IP (Dialed Number to IP A	ddress Translation)						
1.6.2 DN2IP Entry							
Leading Number							
* Remaining Number of Digits	0						
GW No/Group No. Selection	💿 GW 🔘 Group						
GW No/Group No.	0						
* indicates setting must be done in th	e STOP status, and is not fo	llowed by a REBOOT.					
Sort Option							
DN2IP Table No. 🖌 As	cending Order 🛛 👻						
SORT							
DN2IP Table No. Leading	Number Remaini	ng Number of Digits	Group No.	GW No.	Comment	DELE	TE

3. Assign each parameter referring to the descriptions below.

At any time during the session, you can:

- Click MENU to return to the main menu (see "2.1 Main Menu for the Administrator").
- Click **PREVIOUS** to return to the previous screen.
- Sort the DN2IP entries in the table at the bottom of the screen:
  - a. Click the desired sort key and sort order from the Sort Option lists.
  - b. Click SORT.
- Delete the desired DN2IP entry from the table at the bottom of the screen:
  - a. Select the appropriate check box for the DN2IP entry you want to delete.
  - **b.** Click **DELETE**.
- Click LOGOUT to log out from the IP-GW16 Maintenance Utility (see "2.5.2 Log Out").
- 4. Click ENTRY.

A maximum of 512 DN2IP entries can be created.

5. Click OK.

You will see a confirmation screen.

#### <u>Note</u>

If your entry contains an invalid value, you will be prompted to correct your input. Enter correct values for the parameters shown in red and try again.

6. Confirm your entry and click OK.

To return to the previous screen, click CANCEL.

# **Parameter Descriptions**

The parameters indicated with "\*" must be changed while the VoIP Gateway Card is in the "STOP" status (see "2.3.1 Status Control"). The changes do not have to be followed by a reboot to become effective.

#### **DN2IP Entry**

The parameters below are used to create DN2IP entries based on the gateway entries created previously (see "2.2.6 Address Translation Table—GW Entry"). The DN2IP entries associate dialled numbers and IP address of the destination; therefore, a caller can reach the destination by dialling the number without knowing the destination IP address.

For a programming example, refer to "3.2.5 Programming the Address Translation Table" of the VoIP Gateway Card Getting Started.

#### <u>Note</u>

If you are using a gatekeeper, create the DN2IP entries only for the local card. In this case, you can create up to 4 DN2IP entries per card.

Note that if you are not using a gatekeeper, there is no maximum number of DN2IP entries.

Parameter & Description	Default	Value Range
* Leading Number	No default	Max. 30 digits
Specifies the leading digits in dialled numbers by which to associate calls with the appropriate destination.		
For example, to associate calls with dialled numbers "950- xxxx" and "951-xxxx" with separate destinations, it is necessary to make 2 DN2IP entries with respective numbers, "950" and "951".		
* Remaining Number of Digits	0	0 to 29
Specifies the number of digits to be dialled following the leading number to access the destination.		
For example, if the dialled numbers are either "950-xxxx" or "951-xxxx" and the numbers "950" and "951" are specified for the parameter <b>Leading Number</b> respectively, specify the number "4" in this parameter.		
* GW No/Group No. Selection	GW	GW,
Specifies the type of destination when making calls: a gateway or a gateway group.		Group
Parameter & Description	Default	Value Range
---	--------------	---------------------
* <b>GW No/Group No.</b>	GW No: 0,	GW No: 0 to 511,
Specifies the number of the destination gateway or gateway group.	Group No.: 1	Group No.: 1 to 256

## **Detailed Explanations**

### **Automatic Route Redirection**

When more than one card is installed in a PBX, you can assign them to a single gateway group. Grouping allows you to logically combine the channels of multiple cards in a PBX (there are 16 channels per card). This aids the effective use of channels in a PBX.

The following diagram and tables provide an example of this configuration.

### **Example of Configuration**

In the diagram below, there are 2 cards (cards B and C) installed in PBX 2.



### **Example of Gateway Entry Programming**

Through gateway entry programming, cards B and C are grouped into a single gateway group.

Parameter	Card A	Card B	Card C
GW No	0	1	2
Comment	IP-GW Card A	IP-GW Card B	IP-GW Card C
IP Address	192.168.1.1	192.168.1.2	192.168.1.3
Group No.	0	1	1

### Example of DN2IP Entry Programming

When DN2IP entries are programmed as in the table below, calls through card A arrive at gateway group 1, which includes cards B and C.

Parameter	To Card A	To Gateway Group 1 (Cards B and C)
Leading Number	951	952

#### 2.2 Programming

Parameter	To Card A	To Gateway Group 1 (Cards B and C)
Remaining Number of Digits	3	4
GW No/Group No. Selection	GW	Group
GW No/Group No.	0	1

The automatic route redirection feature activates in this configuration. If a call is made through card A to gateway group 1 when all 16 channels of card B are busy, card A automatically redirects the call to card C.

This is possible because by grouping, PBX 1 sees PBX 2 as having a combined set of 32 channels, not 2 separate sets of 16 channels.

#### <u>Note</u>

The automatic route redirection feature cannot be used in a network where a gatekeeper is used. For details about gatekeeper settings, refer to "Gatekeeper Settings" in "2.2.2 H.323 Parameters".

# 2.2.8 Initialisation

1. Click 1.7 Initialization in the main menu.



2. Click OK to initialise all parameters to the default values.

To abort initialisation, click **CANCEL**. You will be taken back to the main menu (see "2.1 Main Menu for the Administrator").

🕘 IP	-GW1	6 Mair	itenance l	Jtilit <mark>y</mark> -	Micros	oft Internet	Explorer	
File	Edit	View	Favorites	Tools	Help			
Addre	ss 🙆	http://:	192.168.1.20	)0/ad_se	t_default	_complete.html		
All	setting	gs have	e been initi	alized				
M	IENU	]						

Initialisation has to be followed by a reboot to make the default values effective for the parameters indicated with "#" (e.g., IP address of the VoIP Gateway Card). If not followed by a reboot, the current setting values will remain effective instead.

- 3. Click MENU to return to the main menu (see "2.1 Main Menu for the Administrator").
- 4. Refer to "2.5.1 Reboot" and finish the reboot.

#### <u>Note</u>

If you have forgotten the IP address or log-in password of the VoIP Gateway Card, follow the procedure detailed in "C1 Initialising the VoIP Gateway Card" of the VoIP Gateway Card Getting Started to return all settings to the factory default.

# 2.3 Maintenance

# 2.3.1 Status Control

1. Click 2.1 Change RUN/STOP status in the main menu.

🕘 IP-G	N16 Mai	ntenance l	Jtility ·	Microsoft	Interne	t Explorer
File E	lit View	Favorites	Tools	Help		
Address	🕘 http://	(192.168.1.20	)0/state	_chg.html		
2. Ma 2.1 C	ntenance nange RU	e JN/STOP	status			
Curre	nt RUN/	STOP Stat	tus			RUN
Statu	after ch	anging				○ RUN ⊙ STOP
Force	d Discor	nnect when	execu	ting STOP		🗌 Yes
ОК			OUT	]		

Current RUN/STOP Status shows the current status of the VoIP Gateway Card.

2. Click RUN or STOP for Status after changing.

If you want to forcibly change the status from "RUN" to "STOP" while there are ongoing calls, click the **Yes** check box for **Forced Disconnect when executing STOP**. This will allow you to place the card in the "STOP" status even when there are ongoing calls.

At any time during the session, you can:

- Click MENU to return to the main menu (see "2.1 Main Menu for the Administrator").
- Click LOGOUT to log out from the IP-GW16 Maintenance Utility (see "2.5.2 Log Out").
- 3. Click OK.

You will see a confirmation screen.

4. Click OK.

You will see a result screen.

#### <u>Note</u>

If the operation is not successful, you will see an error screen. Click **OK** to return to the previous screen, and then try again.

5. Click OK.

You will be taken back to the Change RUN/STOP status screen.

# 2.3.2 Maintenance Settings

1. Click 2.2 Maintenance Settings in the main menu.

IP-GW16 Maintenance Utility - Microsoft Internet Explorer	
File Edit View Favorites Tools Help	
Address 🗃 http://192.168.1.200/ad_maintenance.html	
2. Maintenance 2.2 Maintenance Settings	
2.2.1 Username/Password Settings	
Username for Administrator	Administrator
Password	
Password (Confirmation)	
2.2.2 Programming Auto Disconnect Time Settings	
Programming Auto Disconnect Time (min) 1-30min	10
2.2.3 Periodic Diagnosis Time Interval Settings	
* Periodic Diagnosis Time Interval (min) 0-1440min	60
2.2.4 Version	
IP-GW16 Program Version	Page-0: 1.004
DSP Program Version	Page-0:
DSP Device Version	

\* indicates setting must be done in the STOP status, and is not followed by a REBOOT.

2. Assign each parameter referring to the descriptions below.

At any time during the session, you can:

- Click ALL CLEAR to return all parameters to their previous values.
- Click MENU to return to the main menu (see "2.1 Main Menu for the Administrator").
- Click LOGOUT to log out from the IP-GW16 Maintenance Utility (see "2.5.2 Log Out").
- 3. Click OK.

You will see a confirmation screen.

### <u>Note</u>

If your entry contains an invalid value, you will be prompted to correct your input. Enter correct values for the parameters shown in red and try again.

4. Confirm your entry and click **OK**.

To return to the previous screen, click CANCEL.

### **Parameter Descriptions**

The parameters indicated with "\*" must be changed while the VoIP Gateway Card is in the "STOP" status (see "2.3.1 Status Control"). The changes do not have to be followed by a reboot to become effective.

#### **Username/Password Settings**

Parameter & Description	Default	Value Range
Username for Administrator	Administrator	Max. 16 characters
Administrator-level log-in user name.		

### 2.3 Maintenance

Parameter & Description	Default	Value Range
Password Administrator-level log-in password	Administrator	Max. 16 characters
Password (Confirmation)	No default	Max. 16 characters
Confirmation of the administrator-level log-in password.		

### **Programming Auto Disconnect Time Settings**

Parameter & Description	Default	Value Range
Programming Auto Disconnect Time (min) 1-30min	10	1 to 30
Specifies the time (in minutes) until programming is automatically terminated.		
If the specified period of time passes with no programming input, programming will automatically be terminated. This prevents problems caused by continuation of log-in status in cases such as being unable to log out due to the sudden failure of a PC.		

### Periodic Diagnosis Time Interval Settings

Parameter & Description	Default	Value Range
<ul> <li>* Periodic Diagnosis Time Interval (min) 0-1440min</li> <li>Specifies the time (in minutes) between periodic self- diagnoses to test operation as described in "2.3.3 Diagnosis".</li> <li>If failures are detected during the self-diagnosis, the card will alert the PBX.</li> </ul>	60	0 (no periodic diagnosis), 1 to 1440

### Version

Parameter & Description	Default	Value Range
IP-GW16 Program Version	Display only	
Indicates the version of the VoIP Gateway Card's main programme.		
The main programme controls the VoIP protocol.		
DSP Program Version		
Indicates the version of the VoIP Gateway Card's DSP programme.		
The DSP programme controls a DSP device, which controls speech and audio processing.		
DSP Device Version		
Indicates the version of the VoIP Gateway Card's DSP device.		
The DSP device is a processor that controls speech and audio processing.		

# 2.3.3 Diagnosis

This function is used to carry out the self-diagnostic programme manually. If failures are detected, there is a potential for trouble with the operation of the VoIP Gateway Card.

1. Click 2.3 Diagnosis in the main menu.



2. Click **DIAGNOSIS** to carry out the self-diagnostic programme.

P-GW16 Maintenance Utility - Microsoft Internet Explorer								
File Edit View Favorites Tools H	łelp							
Address 🕘 http://192.168.1.200/ad_diagr	nose.html							
2. Maintenance 2.3 Diagnosis								
DSP Diagnosis	OK							
H.323 Dummy Call Test OK								

- **3.** Do one of the following:
  - Click **DIAGNOSIS** to carry out the self-diagnostic programme again.
  - Click **MENU** to return to the main menu (see "2.1 Main Menu for the Administrator").
  - Click LOGOUT to log out from the IP-GW16 Maintenance Utility (see "2.5.2 Log Out").

# 2.3.4 Log Information

The function to collect log information is provided for engineer use only. However, in the case that a need should arise, this section provides the procedure for collecting the log information.

1. Click 2.4 Log Information in the main menu.

IP-GW16 Maintenance Utility - Microsoft Intern	et Explorer
File Edit View Favorites Tools Help	
Address 🙆 http://192.168.1.200/ad_log_option.html	💌 🔁 G
2. Maintenance 2.4 Log Information (of interest to engineers only)	
Sort by Time/Date	○ Ascending Order ⊙ Descending Order
Log Target	🗹 Error Log 🗹 Call Log 🔲 Protocol Log
Error Log Filter	🗹 Information 🔽 Minor Error 🔽 Major Error
Protocol Log Filter	H.225.0 H.245 RAS DPRAM LAPD QSIG Others
Number of Log items	100 🗸
Date Format	⊙ MM-DD-YYYY ○ DD-MM-YYYY

### 2. Click OK.

Log information is displayed.

🕘 (P-	GW1	6 Main	tenance U	ltility -	Microsoft	nternet Explorer		
File	Edit	View	Favorites	Tools	Help			
Addres	s 🙋	http://1	92.168.1.20	i0/ad_log	_info.html	💽 🔁 GC		
2. M	2. Maintenance							
2.4 I	Log L	nforma	ation (of in	terest t	o engineers	only)		
	Date		Tin	ne	Туре	Explanation		
<u>Dow</u>	Date         Time         Type         Explanation           Download (All)         Download (Displayed portion only)         UPDATE         LOG SETTING         CLEAR         MENU         LOGOUT							

3. Click Download (All) to download the log information.

# 2.4 Data Management

It is strongly recommended that you download the configuration data and the address translation table (DN2IP) data from the VoIP Gateway Card for backup and archive purposes. The following sections provide the procedures for downloading and uploading.

# 2.4.1 Upload of Configuration Data

Before uploading the data, place the card in the "STOP" status (see "2.3.1 Status Control").

1. Click 3.1 Upload of Configuration data (PC  $\rightarrow$  VoIP Gateway) in the main menu.

P-GW16 Maintenance Utility - Microsoft Internet Explorer						
File Edit View Favorites Tools Help						
Address 🗃 http://192.168.1.200/ad_data_upload.html						
3. Data Management 3.1 Upload of Configuration data (PC -> VoIP Gateway)						
Browse						
If you are sure, click UPLOAD.						
UPLOAD (PC->VoIP Gateway)						

2. Click Browse and choose a file to upload.

At any time during the session, you can:

- Click MENU to return to the main menu (see "2.1 Main Menu for the Administrator").
- Click LOGOUT to log out from the IP-GW16 Maintenance Utility (see "2.5.2 Log Out").

#### 3. Click UPLOAD (PC→VoIP Gateway).

The upload operation starts.

#### <u>Notes</u>

- If the upload operation is executed while the card is in the "RUN" status, you will see an error screen. Click Change RUN/STOP status Screen and place the card in the "STOP" status (see "2.3.1 Status Control"), and then upload the data again.
- If the operation is not successful for other reasons, you will see another error screen. Click **OK** to return to the previous screen, and then upload the data again.



- 4. Do one of the following:
  - Click **REBOOT** to make the changes effective now.
     You will see a confirmation screen. Refer to "2.5.1 Reboot" and finish the reboot.
  - Click OK to return to the previous screen without rebooting.
     However, remember to reboot the card at the end of the programming session to make changes effective.

# 2.4.2 Download of Configuration Data

1. Click 3.2 Download of Configuration data (VoIP Gateway  $\rightarrow$  PC) in the main menu.



### 2. Click DOWNLOAD.

At any time during the session, you can:

- Click **MENU** to return to the main menu (see "2.1 Main Menu for the Administrator").
- Click LOGOUT to log out from the IP-GW16 Maintenance Utility (see "2.5.2 Log Out").
- 3. Specify the file name and the folder in which to save the file.

# 2.4.3 Upload of Address Translation Table

Before uploading the data, place the card in the "STOP" status (see "2.3.1 Status Control").

1. Click 3.3 Upload of DN2IP data (PC  $\rightarrow$  VoIP Gateway) in the main menu.

P-GW16 Maintenance Utility - Microsoft Internet Explorer						
File Edit View Favorites Tools Help						
Address 🕘 http://192.168.1.200/ad_routing_data_upload.html						
3. Data Management 3.3 Upload of DN2IP data (PC -> VoIP Gateway) Enter upload file name						
Browse						
If you are sure, click UPLOAD.						

2. Click **Browse** and choose a file to upload.

At any time during the session, you can:

- Click MENU to return to the main menu (see "2.1 Main Menu for the Administrator").
- Click LOGOUT to log out from the IP-GW16 Maintenance Utility (see "2.5.2 Log Out").
- 3. Click UPLOAD (PC→VoIP Gateway).

The upload operation starts.

#### <u>Notes</u>

- If the upload operation is executed while the card is in the "RUN" status, you will see an error screen. Click Change RUN/STOP status Screen and place the card in the "STOP" status (see "2.3.1 Status Control"), and then upload the data again.
- If the operation is not successful for other reasons, you will see another error screen. Click **OK** to return to the previous screen, and then upload the data again.

P-GW16 Maintenance Utility - Microsoft Internet Explorer							
File Edit View Favorites Tools Help							
Address 🕘 http://192.168.1.200/ad_routing_data_upload_ok.html							
3. Data Management 3.3 Upload of DN2IP data (PC -> VoIP Gateway)							
Upload of DN2IP data has finished OK.							
Reboot this device. When rebooting, click REBOOT button. When not rebooting, click OK button.							
OK REBOOT							

- 4. Do one of the following:
  - Click **REBOOT** to make the changes effective now.
     You will see a confirmation screen. Refer to "2.5.1 Reboot" and finish the reboot.
  - Click **OK** to return to the previous screen without rebooting.

However, remember to reboot the card at the end of the programming session to make changes effective.

# 2.4.4 Download of Address Translation Table

1. Click 3.4 Download of DN2IP data (VoIP Gateway  $\rightarrow$  PC) in the main menu.



### 2. Click DOWNLOAD.

At any time during the session, you can:

- Click MENU to return to the main menu (see "2.1 Main Menu for the Administrator").
- Click LOGOUT to log out from the IP-GW16 Maintenance Utility (see "2.5.2 Log Out").
- 3. Specify the file name and the folder in which to save the file.

# 2.5 Others

# 2.5.1 Reboot

1. Click **REBOOT** in the main menu.



### 2. Click REBOOT.

To return to the main menu, click CANCEL (see "2.1 Main Menu for the Administrator").

🕘 IP	-GW1	6 Mair	ntenance l	Jtilit <b>y</b>	Micro	osoft l	ntern	iet Ex	plore	r		
File	Edit	View	Favorites	Tools	Help							
Addre	ss 🙆	http://	192.168.1.20	)0/state	.html							
Reb	Rebooted successfully.											
RU	N/SI	'OP S	tatus :	RU	ЛN							
To program again, login again.												
LO	LOGIN Screen											

### <u>Note</u>

If the reboot operation is not successful, you will see an error page.

**3.** To continue programming, click **LOGIN Screen** and log in again.

You will see the log-in screen (see "1.1 Starting the IP-GW16 Maintenance Utility").

# 2.5.2 Log Out

1. Click LOGOUT in the main menu.



2. Click OK to log out.

2.5 Others

# Section 3

# **Installer Functions**

This section provides operating instructions for the IP-GW16 Maintenance Utility when logged in as the Installer.

# 3.1 Main Menu for the Installer

The IP-GW16 Maintenance Utility provides the following menu to a user logged in as the Installer.

P-GW16 Maintenance Utility - Microsoft Internet Explorer
File Edit View Favorites Tools Help
Address 🕘 http://192.168.1.200/in_menu.html
MENU
1. Maintenance
1.1 Change RUN/STOP status
<u>1.2 Maintenance Settings</u>
2. Data Management
2.1 Upload of Firmware data (PC -> VoIP Gateway)
2.2 Handling of Firmware Page
REBOOT
LOGOUT

## Maintenance

Mer	IU	Section Reference			
1.1	Change RUN/STOP status	3.2.1 Status Control			
1.2	Maintenance Settings	3.2.2 Maintenance Settings			

## **Data Management**

Mer	IU	Section Reference				
2.1	Upload of Firmware data (PC $\rightarrow$ VoIP Gateway)	3.3.1 Upload of Firmware Data				
2.2	Handling of Firmware Page	3.3.2 Handling of Firmware Page				

## **Others**

Menu	Section Reference			
REBOOT	3.4.1 Reboot			
LOGOUT	3.4.2 Log Out			

# 3.2 Maintenance

# 3.2.1 Status Control

1. Click 1.1 Change RUN/STOP status in the main menu.

🕘 IP	-GW1	6 Main	itenance l	Jtilit <b>y</b>	- Microsoft	Interne	t Explorer		
File	Edit	View	Favorites	Tools	Help				
Addre	ss 🙆	http://1	192.168.1.2	00/state	_chg.html				
1. ľ 1.1	1. Maintenance 1.1 Change RUN/STOP status								
Cu	rrent I	RUN/S	STOP Sta	tus			RUN		
Sta	itus aft	er cha	nging				O RUN	STOP	,
For	rced I	Discon	nect when	execu	ting STOP		🗌 Yes		
	ок (	MEN		GOUT	]				

Current RUN/STOP Status shows the current status of the VoIP Gateway Card.

2. Click RUN or STOP for Status after changing.

If you want to forcibly change the status from "RUN" to "STOP" while there are ongoing calls, click the **Yes** check box for **Forced Disconnect when executing STOP**. This will allow you to place the card in the "STOP" status even when there are ongoing calls.

At any time during the session, you can:

- Click MENU to return to the main menu (see "3.1 Main Menu for the Installer").
- Click LOGOUT to log out from the IP-GW16 Maintenance Utility (see "3.4.2 Log Out").
- 3. Click OK.

You will see a confirmation screen.

4. Click OK.

You will see a result screen.

#### <u>Note</u>

If the operation is not successful, you will see an error screen. Click **OK** to return to the previous screen, and then try again.

5. Click OK.

You will be taken back to the Change RUN/STOP status screen.

# 3.2.2 Maintenance Settings

1. Click 1.2 Maintenance Settings in the main menu.

P-GW16 Maintenance Utility - Microsoft Interne	t Explorer
File Edit View Favorites Tools Help	
Address 🚳 http://192.168.1.200/in_maintenance.html	
OK ALL CLEAR MENU LOGOUT	
1. Maintenance	
1.2 Mantenance Settings	
1.2.1 Username/Password Settings	
Username for Installer	Installer
Password	
Password (Confirmation)	
1.2.2 Version	
IP-GW16 Program Version	Page-0: 2.000
DSP Program Version	Page-0: 3.000.0
DSP Device Version	0000

2. Assign each parameter referring to the descriptions below.

At any time during the session, you can:

- Click ALL CLEAR to return all parameters to their previous values.
- Click MENU to return to the main menu (see "3.1 Main Menu for the Installer").
- Click LOGOUT to log out from the IP-GW16 Maintenance Utility (see "3.4.2 Log Out").
- 3. Click OK.

You will see a confirmation screen.

### <u>Note</u>

If your entry contains an invalid value, you will be prompted to correct your input. Enter correct values for the parameters shown in red and try again.

4. Confirm your entry and click OK.

To return to the previous screen, click CANCEL.

## **Parameter Descriptions**

### **Username/Password Settings**

Parameter & Description	Default	Value Range
Username for Installer Installer-level log-in user name.	Installer	Max. 16 characters
Password Installer-level log-in password.	Installer	Max. 16 characters
Password (Confirmation) Confirmation of the installer-level log-in password.	No default	Max. 16 characters

### Version

Parameter & Description	Default	Value Range
IP-GW16 Program Version	Display only	
Indicates the version of the VoIP Gateway Card's main programme.		
The main programme controls the VoIP protocol.		
<b>DSP Program Version</b> Indicates the version of the VoIP Gateway Card's DSP programme. The DSP programme controls a DSP device, which controls speech and audio processing.		
DSP Device Version		
Indicates the version of the VoIP Gateway Card's DSP device.		
The DSP device is a processor that controls speech and audio processing.		

# 3.3 Data Management

The upload and update operations of the firmware data are closely related. First follow the procedure as described in "3.3.1 Upload of Firmware Data" to upload new firmware data to the VoIP Gateway Card, and then go on to "3.3.2 Handling of Firmware Page" to update the card with the newly uploaded firmware data.

# 3.3.1 Upload of Firmware Data

Before uploading the data, place the card in the "STOP" status (see "3.2.1 Status Control").

1. Click 2.1 Upload of Firmware data (PC  $\rightarrow$  VoIP Gateway) in the main menu.

P-GW16 Maintenance Utility - Microsoft Internet Explorer	
<u>File Edit Vi</u> ew F <u>a</u> vorites <u>T</u> ools <u>H</u> elp	
Address 🔄 http://192.168.1.200/firm_down.html	
2. Data Management 2.1 Upload of Firmware data (PC -> VoIP Gateway)	
Upload Operation (Make sure to complete Step 4.)	
Step 1: Upload the firmware data to the temporary buffer.	
Step 2: Copy the uploaded firmware data to Page-0 or Page-1.	
Step 3: Start up with the uploaded firmware (REBOOT).	
Step 4: After the reboot, change the firmware status of the updated page from "NEW" to "Main Operation Mode"	
For details, refer to "Programming Guide - Data Management".	
(Step-1) Upload to the temporary buffer.	
Enter upload file name.	
Browse	
If you are sure, click UPLOAD.	
UPLOAD (PC->VoIP Gateway)	
MENU LOGOUT	

2. Do the following to upload the firmware data to the temporary buffer in the VoIP Gateway Card:

**a.** Click **Browse** and choose a file to upload. At any time during the session, you can:

- Click MENU to return to the main menu (see "3.1 Main Menu for the Installer").
- Click LOGOUT to log out from the IP-GW16 Maintenance Utility (see "3.4.2 Log Out").
- **b.** Click UPLOAD (PC $\rightarrow$ VoIP Gateway).

#### <u>Note</u>

If the upload operation is executed while the card is in the "RUN" status, you will see an error screen. Click **Change RUN/STOP status Screen** and place the card in the "STOP" status (see "3.2.1 Status Control"), and then upload the data again.

🕘 II	P-GW1	6 Mai	ntenance	Utility	- Microsoft	t Internet Explorer	
File	Edit	View	Favorites	; Tools	: Help		
Addr	ess 🙋	http://	192.168.1	200/firm	_update.html		
2.1 2.1	Data l Uplo	vlanag ad of l	ement Firmware	e data (	PC -> VoI	P Gateway)	
υp	load c	or Firm	iware dai	a nas i	misnea OK.		
(St	ep-2)	Сору	the uploa	aded F	irmware dat	ta in temporary buffer to Page-0 or Page-1	
Se	lect Pa	ige-0	or Page-	1.			
	Firmw	are St	atus			Page-0: Main Operation Mode Page-1: OLD	
	Startu	p Page	•			Page-0	
	Select	Page				○ Page-0 ⊙ Page-1	
lf y T∘	7ou are cance	e sure, I the c	click OF opy, clici	K. k BAC	K button of	n your browser.	

**Firmware Status** shows the current firmware status of page 0 and page 1, and **Startup Page** shows the current active page on startup. For details about these parameters, refer to "3.3.2 Handling of Firmware Page".

- **3.** Do the following to update the desired page with the uploaded firmware data:
  - a. In Select Page, click the page whose current firmware status is not "Main Operation Mode".
  - b. Click OK.

You will see a confirmation screen.

c. Click OK.

🚰 IP-GW16 Maintenance Utility - Microsoft Internet Explorer
<u>File Edit Vi</u> ew F <u>a</u> vorites <u>T</u> ools <u>H</u> elp
Address 🕖 http://192.168.1.200/firm_update_complete.html
2. Data Management 2.1 Upload of Firmware data (PC -> VoIP Gateway)
Copy of Firmware data has finished OK.
(Step-3) Startup with the uploaded Firmware data for confirmation.
Before you click REBOOT, please read the following instruction. After the reboot, make sure to change the firmware status from "NEW" to "Main Operation Mode" in "2.2 Handling of Firmware Page". NOTE: If you do not change the firmware status, the old firmware will be used automatically after the next reboot. For details, refer to "Programming Guide - Data Management".
REBOOT CANCEL

- **4.** Click **REBOOT** to start up the card with the updated page. You will see a reboot confirmation screen.
- 5. Click **REBOOT** again.

#### Notice

Please note that rebooting the card does not finish the upload operation. The startup page will be updated only temporarily for confirmation purposes.

6. Click Login Screen to continue the upload operation.

The card has rebooted with the new firmware data temporarily so that you can confirm the result of the upload operation.

At this point, the firmware status of the updated page is "NEW". To complete the upload operation, you must proceed to the next step and change the status to "Main Operation Mode". (If you do not, the card will start up with the old firmware data after the next reboot.)

7. Switch the firmware status of the updated page from "NEW" to "Main Operation Mode", referring to "3.3.2 Handling of Firmware Page".

The following is an example of the screen where the updated page has been set to "Main Operation Mode". To set the updated page as the active page on startup, you must apply this setting.

<b>@)</b>	P-GW1	6 Main	itenance l	Utility	Micros	oft Internet E	xplorer	,	
File	Edit	View	Favorites	Tools	Help				
Addr	ess 🙆	http://1	192.168.1.2	00/firm_s	state_chg.	html			
2. 2.2 Ple	Data M Hand	vlanage lling of perate 1	ement Firmware	e Page ted fim	rtions				
II	ase or	/crate j	page-reia		540115.				
			IP-G Versi	W16 F ion	rogram)	DSP Progran Version	n	Firmware Status	Startup Page
	Page-(	0	2.00	)0		3.000.0		OLD	
	Page-	1	2.00	)1		3.000.1		Main Operation Mode	x
	Opera	tion						🔘 Empty 💿 Main Ope	ration Mode
	Select	Page						○ Page-0 ⊙ Page-1	
	ОК	MENU	) LOC	GOUT					

# 3.3.2 Handling of Firmware Page

1. Click 2.2 Handling of Firmware Page in the main menu.

P-GW16 Maintenance Utility - Microsoft Internet Explorer         File Edit View Favorites Tools Help         Address Address Http://192.168.1.200/firm_state_chg.html         2. Data Management         2.2 Handling of Firmware Page         Please operate page-related functions.         IP-GW16 Program Version Version         Page-0       2.000         Address Address         Page-1       2.001         Operation       Empty  Main Operation Mode select Page										
File       Edit       View Favorites Tools Help         Address       Image: Tools 1.200/firm_state_chg.html         2. Data Management       2.2 Handling of Firmware Page         Please operate page-related functions.         Please operate page-related functions.         Page-0       2.000         Page-1       2.001         Operation       Startup         Page-1       2.001         Select Page       Page-1	🗐 IP	P-GW1	6 Main	tenance l	Utility -	Microsoft	Internet Ex	cplore	i de la companya de l	
Address http://192.168.1.200/firm_state_chg.html  2. Data Management 2.2 Handling of Firmware Page  Please operate page-related functions.	File	Edit	View	Favorites	Tools	Help				
2. Data Management 2.2 Handling of Firmware Page Please operate page-related functions. Page-0 2.000 3.000.0 Main Operation Mode x Page-1 2.001 3.000.1 NEW 1 Operation Select Page 0 Page-0 0 Page-1	Addre	ess 🙆	http://1	92.168.1.2	00/firm_s	tate_chg.htr	nl			
2. Data Management         2.2 Handling of Firmware Page         Please operate page-related functions.         IP-GW16 Program Version       Firmware Status         Page-0       2.000         Page-1       2.001         Operation       Empty ● Main Operation Mode         Select Page       ● Page-0	~ 1	D-4- 3	<u> </u>							
Please operate page-related functions.         IP-GW16 Program Version       Firmware Status       Startup Page         Page-0       2.000       3.000.0       Main Operation Mode       x         Page-1       2.001       3.000.1       NEW       Image: New Yearstool         Operation       ● Empty ● Main Operation Mode       Select Page       ● Page-0       ● Page-0	2.1	Uata IV Hand	/lanage lling of	ment Eirmuuare	Dage					
Please operate page-related functions.         IP-GW16 Program Version       DSP Program Version       Firmware Status       Startup Page         Page-0       2.000       3.000.0       Main Operation Mode       x         Page-1       2.001       3.000.1       NEW       Image: Colored status         Operation       © Empty © Main Operation Mode       Select Page       © Page-0 © Page-1	6.6	, manu	ung or	1. II III wai c	rage					
IP-GW16 Program Version       DSP Program Version       Firmware Status       Startup Page         Page-0       2.000       3.000.0       Main Operation Mode       x         Page-1       2.001       3.000.1       NEW       Image: Comparison Mode       x         Operation       © Empty © Main Operation Mode       Select Page       © Page-0 © Page-1       Image: Comparison Mode	Ple	ase op	erate p	age-relat	ted fund	tions.				
IP-GW16 Program Version       DSP Program Version       Firmware Status       Startup Page         Page-0       2.000       3.000.0       Main Operation Mode       x         Page-1       2.001       3.000.1       NEW          Operation       © Empty © Main Operation Mode       Mode         Select Page       © Page-0 © Page-1		-	-	_						
Version     Version     Page       Page-0     2.000     3.000.0     Main Operation Mode     x       Page-1     2.001     3.000.1     NEW     Image: Constraint of the state of the				₽-G	W16 P	rogram D	SP Program	1	Firmware Status	Startup
Page-0     2.000     3.000.0_     Main Operation Mode     x       Page-1     2.001     3.000.1     NEW     Image: Constraint of the second seco				Versi	ion	V	ersion		I IIIIWale otatas	Page
Page-1     2.001     3.000.1     NEW       Operation     Operation Mode       Select Page     Operation Page-1		Page-(	0	2.00	)0	3	_0.000.0		Main Operation Mode	x
Operation       Operation Mode         Select Page       Operation Mode         Operation Page-0 Operation Mode       Operation Mode		Page-1	1	2.00	)1	3	.000.1		NEW	
Operation       ○ Empty ⊙ Main Operation Mode         Select Page       ○ Page-0 ⊙ Page-1										
Select Page O Page-0 O Page-1		Opera	tion						🔘 Empty 💿 Main Op	eration Mode
		Select	Page						○ Page-0 ⊙ Page-1	
OK   MENU   LOGOUT		ок	MENU		GOUT	ו				

For details about the parameters on this screen, refer to the descriptions below.

2. In Operation, click Main Operation Mode to set the desired page as the active page on startup.

#### <u>Note</u>

Do not click Empty, as it is an option provided for engineer use only.

At any time during the session, you can:

- Click **MENU** to return to the main menu (see "3.1 Main Menu for the Installer").
- Click LOGOUT to log out from the IP-GW16 Maintenance Utility (see "3.4.2 Log Out").
- **3.** In **Select Page**, click the page whose current firmware status is <u>not</u> "Main Operation Mode" to specify it as the target page of the operation.
- 4. Click OK.

You will see a confirmation screen.

5. Click OK.

You will see a result screen.

6. Click OK.

You will be taken back to the Handling of Firmware Page screen.

## **Parameter Descriptions**

Parameter & Description	Default	Value Range
IP-GW16 Program Version	Display only	
Indicates the version of the VoIP Gateway Card's main programme in the firmware data of the corresponding page.		
DSP Program Version	Display only	
Indicates the version of the VoIP Gateway Card's DSP programme in the firmware data of the corresponding page.		

Parameter & Description	Default	Value Range
Firmware Status	Display only	
Indicates the current firmware status of the corresponding page. There are 3 kinds of status indications:		
<ul> <li>Main Operation Mode: Active firmware data on startup under normal operation.</li> </ul>		
• OLD: Firmware data uploaded to the card before the firmware data in the "Main Operation Mode" status was uploaded.		
<ul> <li>NEW: Firmware data uploaded to the card after the firmware data in the "Main Operation Mode" status was uploaded.</li> </ul>		
Note		
The status indications "OLD" and "NEW" are irrelevant to the version of the firmware data.		
Startup Page	Display only	
Indicates (with an "x" sign) the active page on startup. Generally, the startup page is the firmware data whose status is "Main Operation Mode".		
The exception is when the card undergoes a reboot after a firmware data upload operation; in this case, the card starts up with the page in the "NEW" status. This is for the purposes of confirming the result of the upload operation. If you reboot again, the card starts up with the page in the "Main Operation Mode" status.		
To set the updated page as the active page on startup, you must change its firmware status to "Main Operation Mode".		
Operation	Not applicable	Empty,
Specifies whether to set the page (selected with the parameter <b>Select Page</b> ) as the active page on startup (" <b>Main Operation Mode</b> "), or delete the page (" <b>Empty</b> ").		Main Operation Mode
"Empty" is an option provided for engineer use only.		
Select Page	Not applicable	Page-0,
Specifies the target page of the operation selected with the parameter <b>Operation</b> .		Page-1

# 3.4 Others

# 3.4.1 Reboot

1. Click **REBOOT** in the main menu.



### 2. Click REBOOT.

To return to the main menu, click CANCEL (see "3.1 Main Menu for the Installer").

P-GW16 Maintenance Utility - Microsoft Internet Explorer
File Edit View Favorites Tools Help
Address 🕘 http://192.168.1.200/state.html
Rebooted successfully.
RUN/STOP Status : RUN
To program again, login again.
LOGIN Screen

### <u>Note</u>

If the reboot operation is not successful, you will see an error page.

**3.** To continue programming, click **LOGIN Screen** and log in again.

You will see the log-in screen (see "1.1 Starting the IP-GW16 Maintenance Utility").

# 3.4.2 Log Out

1. Click LOGOUT in the main menu.



2. Click OK to log out.

# Index

### Α

Automatic Route Redirection 39

### В

Bandwidth 23

### С

Call Signaling Model 17 Change RUN/STOP status 42, 59 CODEC Frame Settings 20, 23

### D

Default Gateway 11 **DHCP** Settings 11 Diagnosis 46 **Dialing Settings** 26 DiffServ 19 Digit End Code 27 DN2IP (Dialed Number to IP Address Translation) 34, 37 DN2IP Entry 37, 38 Download of Address Translation Table 53 Download of Configuration Data 50 DSCP 19, 23 DSP Program Version 65 DTMF Detection 21, 24 DTMF Detection Level 22 DTMF Relay 21, 24

## Ε

Echo Canceller 20 ECM (Error Correction Model) 24 Empty 66

## F

Fast Connect17FAX Signal Detection22, 24Firmware Status66First Digit Time26

## G

G.168 20 G.711A 16 G.711Mu 16 G.723.1 16 G.723.1 Rate 21 G.723.1/G.729A/G.711 VAD 21 G.729A 16 Gatekeeper Settings 16 GW Entry 34, 35

### Η

H.225 Port No.15H.245 Port No.15H.32314H.323 Detailed Settings14Handling of Firmware Page65HTTP Settings12

Hunt Pattern (for Incoming Calls) 28

### I

Initialisation 41 Inter-Digit Time 26 IP Address 11 IP Address Settings 11 IP Header 19, 22 IP-GW16 Program Version 65

### J

Jitter Buffer Settings19Jitter buffer Settings (G.711 for Fax)20Jitter buffer Settings (G.711/G.729A/G.723.1 for Voice)19

### L

LAN 23 LAN Disconnect Threshold Time 12 Log Information 47 Log Out 55, 68

### Μ

Main Menu for the Administrator8Main Menu for the Installer58Main Operation Mode66Maintenance Settings43, 60

### Ν

Network CODEC of IP-PBX 27 Network Settings, General 10

## Ρ

Packet Sending Interval20, 23, 24Periodic Diagnosis Time Interval Settings44Port No. Settings15PPP (Point-to-Point Protocol)24Programming Auto Disconnect Time Settings44

# Q

QoS Field Settings19, 22QSIG Connectionless Tunneling Settings12

## R

RAS Port No. 15 Reboot 54, 67 RTP/RTCP Port No. 15

## S

Startup Page66Subnet Mask11Super G3 Mode25

### Т

ToS 19, 22

# U

Upload of Address Translation Table51Upload of Configuration Data48Upload of Firmware Data62Username/Password Settings43, 60

## V

VAD (Voice Activity Detection) 21 Version 45, 61 Voice CODEC Settings 16 Voice Communication Detailed Settings 18 VoIP Gateway/IP-PBX Interface Settings 26

### Panasonic Communications Co., Ltd.

1-62, 4-chome, Minoshima, Hakata-ku, Fukuoka 812-8531, Japan

#### Copyright:

This material is copyrighted by Panasonic Communications Co., Ltd., and may be reproduced for internal use only. All other reproduction, in whole or in part, is prohibited without the written consent of Panasonic Communications Co., Ltd.

© 2005 Panasonic Communications Co., Ltd. All Rights Reserved.