

Subject Media Relay Gateway IP Cell Station(IPCS) Setup

Bulletin Type ☐ Product ☐ Marketing ☒ Service

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Product Unified Communications



The KX-NS1000 and KX-NS700/G systems have a built-in Media Relay Gateway feature providing a simple and easy remote connection for extensions without a Virtual Private Network (VPN) or Session Border Controller (SBC).

Setup Requirements

Please ensure the PBX and IP Proprietary extensions are running the latest firmware. The latest firmware can be obtained through the dealer support portal.

Firmware	
System	Minimum
KX-NS1000	V4.2xxx ▲
KX-NS700	
KX-NS700G	

Firmware	
Model	Minimum
KX-NS0154	1.028 ▲

You will need to ensure there are enough licenses to register all of the phones on the PBX system you are installing. The KX-NS700G will allow a maximum of 4 IP Proprietary telephones to be registered.

Setup Limitations

The following restrictions apply when setting up the MRG and IPCS for remote extensions:

- Security Gateway function is not supported.
- KX-NS700G requires expansion license to utilize IP-CS feature.
- KX-NCP0158 is not compatible with this feature.
- No encryption for signaling (PTAP, MGCP) and voice/media (RTP).
- Number of HTTPS sessions is up to 20 for each unit.
- Peer-to-peer function does not work with this setup.²
- Built-in router (WAN) function should be disabled.³

² DSP resource will be used.

³ KX-NS1000 System



Port Forwarding

The near-end NAT router will need to be configured to allow IP packets to be received from the remote IP Cell Station.

KX-NS1000

Protocol	Range of Ports	Destination (DSP)	Description
RTP	16000–16511 (UDP)	192.168.0. 102	Send RTP to DSP#1-1
	16512–17023 (UDP)	192.168.0. 103	Send RTP to DSP#1-2
	17024–17535 (UDP)	192.168.0. 104	Send RTP to DSP#2-1
	17536–18047 (UDP)	192.168.0. 105	Send RTP to DSP#2-2

KX-NS1000 will have 4 DSP-IP Addresses when (2) DSP-L cards are installed.

KX-NS700/G

Protocol	Range of Ports	Destination (DSP)	Description
RTP	16000–16511 (UDP)	192.168.0. 102	Send RTP to DSP#1-1
	16512–17023 (UDP)	192.168.0. 103	Send RTP to DSP#1-2

KX-NS700/G will have 2 DSP-IP Addresses when a DSP-L cards are installed.

KX-NS Data Ports

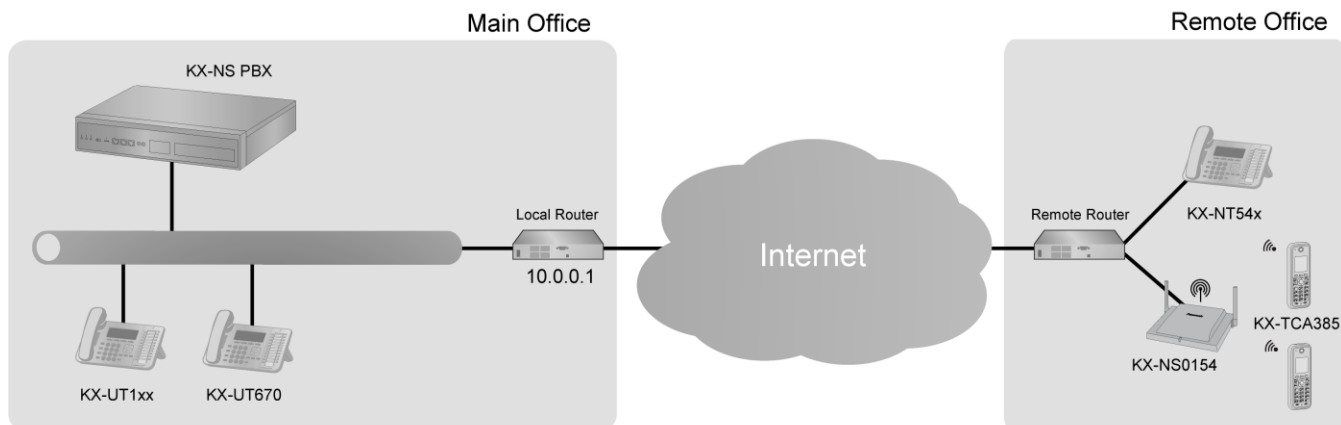
Protocol	Range of Ports	Destination (PBX IP Address)	Description
MGCP	32727 (UDP)	192.168.0. 101	Send MGCP to PBX IP
PTAP	39300 (UDP)	192.168.0. 101	Send PTAP to PBX IP

NS Upgrade Push over MRG

Protocol	Range of Ports	Destination (PBX IP Address)	Description
FTP	31021 (TCP)	192.168.0. 101	Send NAT FTP to PBX IP
	40000–40095 (TCP)	192.168.0. 101	Send FTP/FTPS-Data to PBX IP



Network Diagram Example



Disclaimer

The PBX needs to be behind a firewall and assigned a private IP address. Use of a public IP address using MRG is at the sole responsibility of the installing dealer. Panasonic is not liable for any security breaches if a public IP address is used. There for Panasonic strongly recommends a private static IP behind a firewall is used.

Media Relay Configuration

Configure IP port number setting for Remote MGCP & SIP Extensions

[Site Property] → [Main] → [Media relay] → Edit the Common and IP Extension parameters →

Site Property - Main	
<div> « Main VoIP-DSP Options VoIP-DSP Options 2 Port Number LAN Status Media Relay SIP Extension » </div>	
Common	
NAT - External IP Address	Enter WAN IP Address of Router No. 1 → : 10.0.0.1
IP Extension	
NAT - MGCP Server Port No.	Default Values : 2727
Keep Alive Packet Type	: Blank UDP
Keep Alive Packet Sending Interval Time (s)	: 20

Enter the WAN IP Address of Router No. 1 [See Network Diagram Example]

[Apply] → [OK]



Virtual Card Configuration

[PBX Configuration] → [1.Configuration] → [1.Slot] → IP Port Number settings

[Virtual] → [V-IPCS4] → [Card Property] → [Common setting]

Cell Station Registration

All IP-CS units must complete their registration to the system before they can be set to remote.

Model	Virtual Card	License Type	Licenses Number	Registration Type
KX-NS0154 ¹	IP-CS4	None ²	None	Automatic/Manual

¹ Updates are available while remote for the IP-CS unit.

² Licenses are not required to add an IPCS. A License is available to expand the KX-NS0154 function to 8-channels.

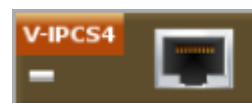
1. Install the appropriate **virtual extension card** based on the phone type.

IP-CS Registration Mode

☐ Manual ☒ Full Automatic

2. IP-CS units will automatically register to their card when they are in a factory default state and they are on the same network.

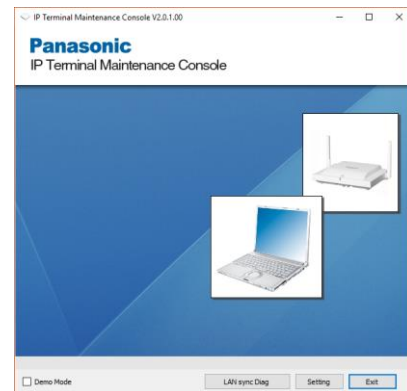
The installation manual covers defaulting the unit.



- The IP-CS can be manually registered.
The IP Terminal Maintenance Console v2.0.1.xx is only available with the NS Unified Web Maintenance Console.

Complete instructions for this IP Cell Station setup is available in the KX-NS0154 Quick Installation Guide downloadable from the portal website.

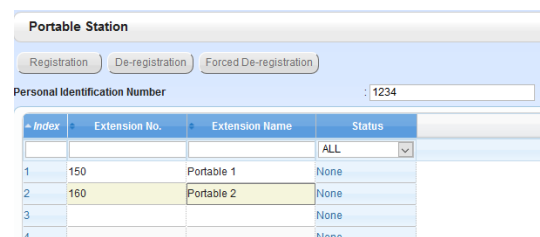
IP-CS Registration will not be covered here.



- Create portable stations in system programming.
Register Portable Stations.

Complete instructions for Portable Station setup is available in the KX-NS PC Programming Manual downloadable from the portal website.

PS Registration will not be covered here.



Once the phone is registered to the system, you can move forward with setting remote options on card.

Remote Status Settings

[PBX Configuration] → [1.Configuration] → [1.Slot] →

[Virtual] → [VIPCS] → [Port Property] → [Remote Place] → Phone Location

Port Property - Virtual IPCS

Registration De-registration Forced De-registration

Main Option **Remote Place**

No.	Shelf	Slot	Port	CS Name (20 characters)	Connection	Phone Location
	ALL				ALL	ALL
1	Virtual	9	1	KX-NS0154 Remote	OUS	Remote(MRG)
2	Virtual	9	2		OUS	Local
3	Virtual	9	3		OUS	Local
4	Virtual	9	4		OUS	Local

Change the remote setting for the IP Cell Station to Remote (MRG).
Relocate the IP Cell Station and registered Portable Stations to the remote site.



Relocate Unit

Move your IP Cell Station to the remote network. You will need to change the IP Address to that of the WAN IP set in the **Media Relay Configuration** section.

5. Connect IP Terminal using DHCP IP Address.



6. Configure PBX IP Address Primary.

This should be the IP address you set in the Media Relay Configuration section.

Write data to the device.

A screenshot of a web-based configuration interface. The top navigation bar includes tabs for "Network Settings", "Port Settings", "Quality of Service", "LAN Sync diagnosis", "Site survey", and "Version". The "Network Settings" tab is selected. Below the navigation bar, the "Network Settings" section is displayed. It contains several configuration items: "DHCP Client" (set to "Enable"), "IP address" (192.168.0.105), "Subnet Mask" (255.255.255.0), "Default Gateway" (192.168.0.1), "PBX IP Address (Primary)" (10.0.0.1), "PBX IP Address (Secondary)" (0.0.0.0), "PBX Change Time" (60), and "Speed/Duplex" (set to "Auto"). A red arrow points to the "PBX IP Address (Primary)" field.

