



IP Office - Job Aid

Small Community Networking

Summary

This document is a brief guide to enabling Small Community Networking between IP Office systems linked by an existing data link.

Small Community Networking

Overview

This document is intended as a brief guide to using VoIP VPN lines to link extension dialing between IP Office systems.

With Small Community Networking enabled, the separate IP Office systems 'learn' each others extension numbers. This allow extension calls between systems and support for a range of internal call features.

In IP Office Software Level 1.3, Small Community Networking supports a maximum of 500 extensions across 16 IP Office systems.

Scenario

In this document we shall outline linking two IP Offices; System A and System B. The routing of data traffic between the two has already be checked and tested. The two systems are configured as follows:

	System A	System B
IP Address:	192.168.42.1	192.168.43.1
Extensions and hunt groups numbered from:	2000	3000

Requirements

- The documents assumes that you already have a working LAN or WAN link between the IP Office systems and that the link has been tested for correct data traffic routing.
- VCM modules are required in the remote and central systems.
- The extension and group numbering on both systems must be unique.
- The extension and group names on both systems must be unique.
 - We also recommend that all names and numbers (groups, line, services, etc) on the separate IP Office systems are kept unique. This will reduce potential maintenance confusion.
- All systems should use the same set of Telephony timeouts, especially the Default Allocated Answer Interval (System | Telephony).

Related Job Aids

- **VCM & Data Channels**
Outline the role of the VCM module in handling VoIP calls.
- **Centralised Voicemail Pro**
Details using a single Voicemail Pro server to provide voicemail services in an IP Office Small Community Network.

Enabling Small Community Networking

Setup the VoIP Line from System A to System B

1. On System A, receive the system configuration.
2. Click on the **Line** icon to display a list of existing lines.
3. Right-click on the displayed list and select **New**.
4. In the **Line** tab for the VPN line set the following:
 - Set a unique **Line Number**. Anything over 30 is recommended to avoid clashing with an physical lines that may be added to the system. In this example we will use **3000**.
 - In the **Telephone Number** field enter a description of the link, eg. "**System B**".
 - Set the **Outgoing Group ID** to a unique value; ie. one not already used for lines connecting elsewhere. For this example we will use **3000** again.

Field	Value
Line Number	3000
Telephone Number	System B
Number Of Channels	20
Outgoing Channels	20
Data Channels	20
Voice Channels	20
TEI	0
Incoming Group ID	0
International Prefix	00
Outgoing Group ID	3000
National Prefix	0
Prefix	

5. In the **VoIP** tab for the VPN line set the following:
 - Ensure that **Voice Networking** is ticked. This enables the exchange of directory and user information between the IP Office systems and is the key enabler of Small Community Networking.
 - For the **Gateway IP Address** enter the IP address of System B.
 - Select the preferred **Compression Mode**. The same mode must be used by all VoIP lines and extensions within the network.
 - Check that the **H450 Support** option is set to **H450**. This enable various Supplementary Signaling Services across the VoIP connection. QSIG can be used if H450 is not supported across the VoIP connection. However QSIG support fewer supplementary signaling features.

The screenshot shows the 'VPN Line 3000' configuration window with the 'VoIP' tab selected. The 'H450 Support' dropdown menu is highlighted with a red box and set to 'H450'. The 'Voice Networking' checkbox is also checked and highlighted with a red box. Other visible settings include: Gateway IP Address (192.168.43.1), Voice Pkt. Size (80), Compression Mode (Automatic Selection), Gatekeeper Primary IP Address (empty), Gatekeeper Secondary IP Address (empty), and several other options like Silence Suppression, Enable Faststart, Fax Transport Support, Local Hold Music, Local Tones, Enable RSVP, Out Of Band DTMF, and Allow Direct Media Path.

6. Load the configuration and reboot System A. Note: Configuration changes and additions to VPN line settings cannot be merged.

Setup the VoIP Line from System B to System A



7. On the remote system, repeat the previous steps to create a VoIP VPN link to System A.
 - Ensure that the **Compression Mode** selected in the **VoIP** tab of the VPN line is the same at both the central and remote system.
 - Load the configuration and reboot the remote IP Office.

Test Small Community Networking

8. Test by making calls between extensions on the different systems.

SCN Programming Tip

The previous section looked at programming an SCN connection between two IP Offices, the simplest example of SCN. In a larger network the number of VPN trunk connections on each system may be much larger.

1. In Manager, open the configuration file from one of the systems.
2. Click on  **Line** to display the existing lines.
3. Delete the physical lines by right-clicking on each and selecting Delete.
4. Add the VoIP VPN line entries, adding one for each IP Office that will be in the Small Community Network.
 - Remember to enable Voice Networking and H450 on each entry.
5. Select **File | Import/Export | Export Configuration Entities**.
6. In the range of entries tick **Line** and then click on **OK**.
7. All the VPN line entries for the Small Community Network will have now been exported to a separate file (by default a file called **config.exp** in the Manager program folder).
8. Close the configuration without saving it (**File | Close**).
9. Load the configuration one of the IP Office systems in the Small Community Network and use **File | Import/Export | Import Configuration Entities** to load the VoIP VPN line settings.
10. Click on  **Line** to display the lines.
11. Delete the entry for the line to the site.
12. Save the new configuration back to the IP Office and reboot.

This technique can also be adapted to ensure consistent account codes, firewall profiles, etc on systems in the same network. A common directory can also be shared between systems using **File | Import/Export | Export Directory** and **Import Directory**.

Short Code Programming for Small Community Networks

With Small Community Networking enabled, the IP Offices 'learn' each others extension numbers and route extension calls appropriately.

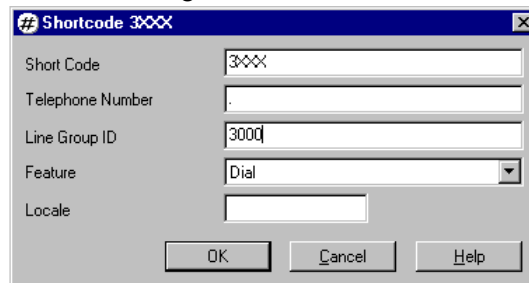
However the same does not apply to dialing group and other numbers meant for the remote IP Office. To allow these to be routed correctly across the VoIP VPN links, short codes can be used.

- **Scenario**

We want a short code on System A which will correctly route any 3000 range number to System B. This will allow System B group numbers to be dialed from System A.

To achieve the above scenario we will add a new system short code*. By using a system short code it becomes available to all users.

1. Receive the configuration from System A.
2. Click on the Shortcode icon to display a list of existing system short codes.
3. Right-click on the displayed list and select New.
4. Enter the short code settings as follows:



- **Short Code: 3XXX**
This will match any four-digit number beginning with 3.
 - **Telephone Number: .**
The . indicates that the short code should output the digits as dialed.
 - **Line Group ID: 3000**
This should match the **Outgoing Group ID** given to the VoIP VPN line connected to System B.
 - **Feature: Dial**
5. Click on **OK**.
 6. If the only changes made to the configuration was this short code you can load the new configuration using merge, otherwise load the configuration and reboot.
 7. A similar system short code can be added to System B's configuration to route 2XXX dialing to System A.

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Avaya
Sterling Court
15 - 21 Mundells
Welwyn Garden City
Hertfordshire
AL7 1LZ
England

Tel: +44 (0) 1707 392200

Fax: +44 (0) 1707 376933

Email: contact@avaya.com

Web: <http://www.avaya.com>