

MiVoice Border Gateway Remote Phone Configuration Guide

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RELEASE 10.0 SP1



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MiVoice Border Gateway
Remote IP Phone Configuration Guide

Release 10.0 SP1
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WELCOME

This Remote IP Phones Configuration Guide provides information about using your phone remotely with the Mitel® Border Gateway (MBG).

This guide covers the following topics:

- **Supporting Documentation:** how to access Mitel product and technical documentation
- **About Mitel Remote IP and SIP Phones:** basic information about Mitel remote IP Phone, including an overview of the remote IP Phone capabilities
- **Configuring Remote IP Phones:** procedures to configure your Mitel or non-Mitel IP or SIP phone to work remotely using MBG
- **Troubleshooting:** troubleshooting information for your remote Mitel IP Phone
- **Glossary:** definitions of terms and acronyms found in this guide.



WARNINGS

THE MIVOICE BORDER GATEWAY SOLUTION ALONE IS NOT SUITABLE FOR PROVIDING RELIABLE ACCESS TO CALL FOR EMERGENCY SERVICES (FOR EXAMPLE, 911, 999 OR 112). E911 SUPPORT FOR MIVOICE BORDER GATEWAY CAN BE PROVIDED VIA A LINE INTERFACE MODULE. FOR MORE INFORMATION, SEE THE MIVOICE BORDER GATEWAY INSTALLATION AND MAINTENANCE GUIDE AVAILABLE AT MITEL ONLINE.

THE SYSTEM ADMINISTRATOR SHOULD NOTE THAT DEVICES THAT ARE IN TELEWORKER MODE AND ARE CONNECTED OUTSIDE OF THE CORPORATE FIREWALL WILL NOT HAVE E911 CALLS BLOCKED. E911 CALLS PLACED FROM SUCH DEVICES MAY REPORT AN INCORRECT CESID, OR MAY BE OUTSIDE THE COVERAGE AREA OF THE PUBLIC SERVICE ACCESS POINT (PSAP).

E911 SERVICE IS NOT GUARANTEED TO TELEWORKERS. SINCE A TELEWORKER CAN BE GEOGRAPHICALLY LOCATED AWAY FROM THE MAIN OFFICE, IF THE TELEWORKER RELOCATES, THE SYSTEM ADMINISTRATOR MUST PERFORM A MANUAL DATABASE UPDATE TO REFLECT THE USER'S LOCATION. FOR THIS REASON, IT IS STRONGLY RECOMMENDED THAT YOU NOT PROVIDE E911 SERVICES TO A TELEWORKER PHONE.

For more information about support for Emergency Services, refer to the *Resiliency Guidelines* available at Mitel OnLine under MiVoice Business or 3300 ICP documentation. (See [Supporting Documentation](#) on page 3.)

SUPPORTING DOCUMENTATION

ACCESS PRODUCT AND TECHNICAL DOCUMENTATION

To access Product and Technical Documentation:

1. Log in to **Mitel OnLine**.
2. Point to **Support** in the Menu, to display a list of options.
3. Click **Product Documentation**.
 - To access IP Phone documentation, point to **End User Documents** in the Menu and click **PDF Guides and Online Help**.
 - To access MiVoice Border Gateway documentation, point to **Applications and Solutions** and **Mobility Solutions**. Click **MiVoice Border Gateway**.

ACCESS MITEL KNOWLEDGE BASE ARTICLES

To access Knowledge Base articles:

1. Log in to **Mitel OnLine**.
2. Point to **Support** in the Menu, to display a list of options.
3. Click **Knowledge Base**.
The Knowledge Base search engine opens.
4. From the **Product** list, select **MiVoice Border Gateway** (or Multi-protocol Border Gateway) and then click **Search**.

REMOTE DEVICES

REMOTE DEVICES SUPPORTED WITH MIVOICE MX-ONE

The following devices can be configured for teleworking use with a MiVoice MX-ONE:

SUPPORTED DEVICES	NOTES
SIP Phones	
6863 SIP Phone	See note 3 a, below.
6865 SIP Phone	See note 3 a, below.
6867 SIP Phone	See note 3 a, below.
6869 SIP Phone	See note 3 a, below.
6730 SIP Phone	See note 3 a, below.
6731 SIP Phone	See note 3 a, below.
6735 SIP Phone	See note 3 a, below.
6737 SIP Phone	See note 3 a, below.
6739 SIP Phone	See note 3 a, below.
6753 SIP Phone	See note 3 a, below.
6755 SIP Phone	See note 3 a, below.
6757 SIP Phone	See note 3 a, below.
MiCollab Desktop Client	See note 3 b, below.
Other Notes	
<ol style="list-style-type: none">1. The list of supported devices is subject to change. Refer to the documentation that accompanies your controller to determine which SIP phones and peripheral devices you may implement.2. The system administrator is responsible to set up Mitel 6700- and 6800-series SIP phones using a configuration file. For instructions, see the <i>Mitel 6700 & 6800 SIP Terminals for MiVoice MX-ONE Installation Guide</i>.3. MBG can be configured to use specific SSL cipher suites to negotiate security settings and encrypt information for network connections. If the highest cipher suite, TLS 1.2+, is selected, then the following occurs:<ol style="list-style-type: none">a) Mitel 6700 and 6800-series SIP phones will no longer be able to connect.b) The SIP-based softphone included in the legacy MiCollab desktop client will fail to connect over TLS.	

REMOTE DEVICES SUPPORTED WITH MIVOICE OFFICE 250

The following devices can be configured for teleworking use with a MiVoice Office 250:

SUPPORTED DEVICES	NOTES
IP Phones	
MiVoice 5304 IP Phone	See note 4 a, below.
MiVoice 5312 IP Phone	See note 4 a, below.
MiVoice 5320 IP Phone	See note 4 b, below.
MiVoice 5320e IP Phone	See note 4 b, below.
MiVoice 5324 IP Phone	See note 4 a, below.
MiVoice 5330 IP Phone	See note 4 c, below.
MiVoice 5330e IP Phone	See note 4 b, below.
MiVoice 5340 IP Phone	See note 4 c, below.
MiVoice 5340e IP Phone	See note 4 b, below.
MiVoice 5360 IP Phone	See note 4 b, below.
Other Notes	
<ol style="list-style-type: none"> 1. Always use MBG to connect the remote SIP devices to a MiVoice Office 250. MBG is required because it supports RFC 5626 (Managing Client-Initiated Connections in the Session Initiation Protocol), enabling the remote devices to work correctly. The MiVoice Office 250 does not support RFC 5626. 2. The list of supported devices is subject to change. Refer to the documentation that accompanies your controller to determine which IP phones, SIP phones and peripheral devices you may implement. 3. On the MiVoice Office: <ol style="list-style-type: none"> a) Set the NAT Address Type for MiNet devices to Native (under System > Devices and Feature Codes > Trunks > <trunk number>). b) Select Yes for the Use Registered Username value of the SIP phone profile group (under System > Devices and Feature Codes > SIP Peers > SIP Phone Groups). 4. MBG can be configured to use specific SSL cipher suites to negotiate security settings and encrypt information for network connections. If the highest cipher suite, TLS 1.2+, is selected, the following will occur: <ol style="list-style-type: none"> a) 5304, 5312 and 5324 IP Phones default to using TCP/PSK ("pre-TLS") for their transport protocol. They can no longer use TCP/TLS. b) 5320, 5320e, 5330e, 5340e and 5360 IP Phones can continue to use TCP/TLS for their transport protocol provided that they have been upgraded to the latest firmware version (6.4.1.x). This firmware is provided with the MBG Release 9.2 software. c) 5330 and 5340 IP Phones default to using TCP/PSK ("pre-TLS") for their transport protocol. They can no longer use TCP/TLS and will provide only partial functionality (calls can be made but the phones will display "Application Loading" and the keys will fail to update). 	

REMOTE DEVICES SUPPORTED WITH MIVOICE BUSINESS

The following devices can be configured for teleworking use with a MiVoice Business (3300 ICP):

SUPPORTED DEVICES	NOTES
IP Phones	
MiVoice 5020 IP Phone	See note 4 a, below.
MiVoice 5212 IP Phone	See note 4 a, below.
MiVoice 5215 IP Phone	See note 4 a, below.
MiVoice 5220 IP Phone	See note 4 a, below.
MiVoice 5224 IP Phone	See note 4 a, below.
MiVoice 5235 IP Phone	The 5235 IP Phone is not supported in a clustered environment. See note 4 c, below.
MiVoice 5304 IP Phone	Teleworker Mode programming is ONLY supported on 5304 IP Phones with firmware 2.1.1.2 or later. See note 4 a, below.
MiVoice 5312 IP Phone	See note 4 a, below.
MiVoice 5320 IP Phone	See note 4 b, below.
MiVoice 5320e IP Phone	See note 4 b, below.
MiVoice 5324 IP Phone	See note 4 a, below.
MiVoice 5330 IP Phone	See note 4 c, below.
MiVoice 5330e IP Phone	See note 4 c, below.
MiVoice 5340 IP Phone	See note 4 c, below.
MiVoice 5340e IP Phone	See note 4 b, below.
MiVoice 5360 IP Phone	See note 4 b, below.
MiVoice 5560 IPT	See note 4 c, below.
Mitel Navigator	See note 4 a, below
MiCollab Client Softphone for MiVoice Business only	See note 4 d, below.
Contact Center Softphone	If the highest cipher suite - TLS 1.2+ - is in use, some functionality may be lost.
MiVoice DECT (Global) with MiVoice Business feature interworking over SIP:	See note 4 e, below.

<ul style="list-style-type: none"> - 5603 wireless handset - 5604 wireless handset - 5607 wireless handset - 5610 wireless handset 	
MiVoice DECT (EMEA)	See note 4 e, below.
MiVoice 5540 IP Console	See note 4 b, below.
MiVoice 5550 IP Console	<p>The MiVoice 5550 IP Console can be deployed in either a clustered or non-clustered environment. However, in a clustered environment, it can be connected to only one MBG and it does support resiliency or load balancing. This means that if the MBG goes out of service, so too will the MiVoice 5550 IP Console.</p> <p>See note 4 f, below.</p>
MiVoice Business Console	<p>The MiVoice Business Console can be deployed in either a clustered or non-clustered environment. As of release 7.2, the MiVoice Business Console handles MBG node failures and load balancing in a clustered environment.</p> <p>See note 4 f, below.</p>
MiVoice 6920 IP Phone	See note 4(g), and note 5, below.
MiVoice 6930 IP Phone	See note 4(g), and note 5, below.
MiVoice 6940 IP Phone	See note 4(g), and note 5, below.
SIP Phones	
<p>Please refer to Mitel Knowledge Base article # 08-5159-00014</p> <p><i>SIP CoE SIP Interop Reference</i> for SIP phone support on the 3300 ICP.</p>	<p>You can also search the Knowledge Base for articles about using your SIP phone with the 3300 ICP.</p> <p>Product = "3300 ICP"</p> <p>Key word = <your phone name></p>
MiCollab Desktop Client	See note 4 h, below.
Peripheral Devices	
5305 IP Office Conference Unit	
5310 IP Boardroom Conference Unit	
Mitel S720 BT Speakerphone	Supported with Mitel 6930 and 6940 IP Phones.
Line Interface Module	
Cordless Module and Accessories	
Programmable Key Modules	

Other Notes
<ol style="list-style-type: none"> 1. The list of supported devices is subject to change. Refer to the documentation that accompanies your controller to determine which IP phones, SIP phones and peripheral devices you may implement. 2. After Release 7.0 of the MiVoice Border Gateway, the SX-200 is no longer supported. 3. To enhance quality of service (QoS) and facilitate traffic management, MBG can be programmed to insert Differentiated Services Code Points (DSCPs) in the IP headers of voice and signaling packets. See the "Configuration Settings" topic in the MBG online help for more information. 4. MBG can be configured to use specific SSL cipher suites to negotiate security settings and encrypt information for network connections. If the highest cipher suite, TLS 1.2+, is selected, the following will occur: <ol style="list-style-type: none"> a) 5020, 5212, 5215, 5220, 5224, 5304, 5312 and 5324 IP Phones, MiCollab Desktop Client and Mitel Navigator default to using TCP/PSK ("pre-TLS") for their transport protocol. They can no longer use TCP/TLS. (Note that 5020, 5215 and 5220 IP Phones do not support TCP/TLS under <u>any</u> circumstance.) b) 5320, 5320e, 5330e, 5340e and 5360 IP Phones and the 5540 IP Console can continue to use TCP/TLS for their transport protocol provided that they have been upgraded to the latest firmware version (6.4.1.x). This firmware is provided with the MBG Release 9.2 software. c) 5235, 5330 and 5340 IP Phones and 5560 IPT default to using TCP/PSK ("pre-TLS") for their transport protocol. They can no longer use TCP/TLS and will provide only partial functionality (calls can be made but the phones will display "Application Loading" and the keys will fail to update). d) MiCollab Client MiNET Softphones default to using TCP/PSK ("pre-TLS"). e) DECT phones will no longer be able to connect. f) 5550 IP Consoles and MiVoice Business Consoles default to using TCP/PSK ("pre-TLS") for their transport protocol. They can no longer use TCP/TLS and will provide only partial functionality (calls can be made but the Phonebook will be inaccessible). g) 6920, 6930, and 6940 IP Phones will be fully functional once upgraded to the firmware included in MiVoice Border Gateway. h) The SIP-based softphone included in the legacy MiCollab desktop client will fail to connect over TLS. 5. In the first release of the 6920, 6930, 6940 IP Phones, an external LDAP server will not be supported. Branding, screen saver and enhanced application files for the 6920, 6930, 6930 IP Phones must be hosted on MiVoice Business or on an external server directly accessible by remote phones.

For more information about Mitel MiNet/SIP Phones, refer to the appropriate User Guide available at Mitel OnLine (see Supporting Documentation on page 3).

REMOTE MITEL IP PHONE CAPABILITIES

Combined with the MBG Solution, your Mitel IP Phone will provide you with a single-phone solution for both office and remote telephony requirements.

When configured for teleworking use, the remote Mitel IP Phone has the following capabilities:

- Encryption to provide a secure voice path between the phone and system across the Internet.

- Adaptive jitter buffering and other software enhancements to improve voice quality over the Internet.
- G.729 compression to reduce bandwidth requirements.
- Same operation as any other phone connected to the network.
- Operation over any broadband LAN connection that provides connectivity back to the corporate office where the MBG server is visible from the Internet.
- Direct access to the corporate office phone system (for example, voice mail and conferencing).
- Support for Cordless Module and Accessories (on Mitel IP phones that support this feature).

CONFIGURING REMOTE PHONES

CONFIGURING MITEL IP PHONES

After your IP Phone is installed, you can configure it to work remotely, accessing the features of your office voice network using the teleworker service of the MiVoice Border Gateway. For installation information, refer to the Installation Guide packaged with your IP Phone.

Getting Started

Before configuring your IP Phone to work remotely, you must complete the following steps:

- Install and configure the required MBG Solution software and hardware at your corporate site.
- Enter MAC addresses of your remote devices (IP Phones) in the MBG server following the configuration instructions supplied with MBG.
- Enter extension numbers of your remote devices (IP Phones) in the ICP. For more information about programming the ICP, please refer to the *MiVoice Business System Administration Tool Help*.

While configuring your Mitel IP phone, some keys offer specific functionality:

- To **delete an entry**, press the Superkey or the key you have programmed as Superkey.
- To **backspace** in an entry, press *
- To **enter a decimal**, press #. **Note:** If you have entered three digits in the current field, the cursor will automatically create a decimal and move forward.

Mitel IP Phone Configuration

For all MiNet IP Phones in the 5xxx series:

- a) Verify that the IP phone's extension number is assigned to an ICP and that the IP phone's MAC address is registered with the MBG server as instructed in the *Getting Started* section.



Note: For the MiVoice 5560 IPT, perform the following steps on the Left (Master) side.

Press and hold the **7** key, and plug the powered network cable (or DC adapter cord) into the power input. Hold the **7** key until the CONFIGURE TELEWORKER prompt appears on the phone's display screen (this takes approximately 4 seconds).

Find the Group to which your phone belongs:

GROUP 1	GROUP 2	
5020	5212	5320e
5215	5215 Dual Mode	5330
5220	5220 Dual Mode	5330e
	5224	5340
	5235	5340e

	5304	5360
	5312	Navigator
	5324	5540 IP Console
	5320	5560 IPT

For GROUP 1 sets:

- a) Press # for Yes. USE PRESENT SETTINGS? appears on the display screen.

Press # for Enter. TELEWORKER GATEWAY appears on the display screen.

Enter the MBG IP Address using the # key to insert decimals if required, and then press the down arrow key (▼). STORE IN NVRAM appears on the display screen.

Press # to save. The "SAVING TO NVRAM, DO NOT REMOVE POWER" message displays. The phone reboots and the time and date display.

- If ENTER TW INSTALL PW displays, enter your Installer Password (provided by your System Administrator).
- If the IP phone has not been previously registered on an ICP, the system displays USE SUPERKEY TO SEND PIN. Enter your PIN number and press the Superkey.

For GROUP 2 sets:

- a) Press * for Yes. DELETE/NEW SETTINGS appears on the display screen.

Press # for New.

- On 53xx series sets, IP ADDRESS TYPE appears on the display screen. Press * for IPV4 or # for IPV6. TELEWORKER GATEWAY appears on the display screen.
- On all other Group 2 sets, TELEWORKER GATEWAY appears on the display screen.

Enter the MBG IP Address using the # key to insert decimals if required, and then press the down arrow key (▼) (the **Vol-** key on the 5560 IPT). STORE CHANGES? appears on the display screen.

Press * for Yes.

- If ENTER TW INSTALL PW displays, enter your Installer Password (provided by your System Administrator).
- If the IP Phone has not been previously registered on an ICP, the system prompts you to send a PIN number by pressing either the Superkey or the Hold key, depending on phone model, as shown:

PHONE MODEL	SYSTEM PROMPT
5212, Dual Mode 5215, Dual Mode 5220, 5224, 5312, 5324	Use Superkey to SEND PIN
5235, 5304, 5320, 5320e, 5330, 5330e, 5340, 5340e, 5360, Navigator, 5540 IP Console, 5560 IPT	Use Hold Key to SEND PIN

- Enter your PIN number and press the appropriate key (Superkey or Hold)

Your IP Phone is now ready to be used remotely.

For information about setting up the Navigator Task Bar application, see the *Navigator User Guide* available at Mitel OnLine.

For all MiNet IP Phones in the 69xx series:

- a) Verify that the IP phone's extension number is assigned to an ICP and that the IP phone's MAC address is registered with the MBG server as instructed in the *Getting Started* section. Following are the 69xx series phones:

69XX SERIES IP PHONES
6920
6930
6940

- b) Press **Settings**. A list of Menu options appear. The default is **Status**.
- c) Select **Config Teleworker**, the **Teleworker Settings** screen is displayed.
- d) Enter the **IP Address** and press **Save**.
- e) Press **Close** in the **Static Settings** screen.

CONFIGURING GENERIC SIP PHONES

Check your SIP device User Guide for instructions about configuring the SIP Registrar and/or SIP Proxy information for your SIP phone.

Generic SIP Phone Configuration

Enter the following information to enable remote operation:

- **User Name:** Enter your user name value provided by the MBG administrator
- **Password:** Enter your password provided by the MBG administrator
- **SIP Registrar** (or "Domain"): Enter the IP address of the MBG server
- **SIP Proxy** (if applicable): Enter the IP address of the MBG server



Note: The MiVoice 5360 IP phone does not support SIP.

Some SIP clients, such as iOS or Android devices running Mitel UC Advanced Mobile, support multiple accounts. This enables you to configure one account for use on the internal network and another for use on the Internet.

CONFIGURING 6700 AND 6800 SIP PHONES

Mitel 6700 and 6800 Series SIP Phones can be used as teleworker devices on a standalone MBG in conjunction with a MiVoice MX-ONE.

For configuration instructions, refer to the *Mitel 6700 & 6800 SIP Terminals for MiVoice MX-ONE Installation Guide*. Among other things, this guide provides instructions on how to update a configuration file, and load it onto the devices, and how to implement TLS security for set-side communication.

CONFIGURING THE MIVOICE 5550 IP CONSOLE FOR REMOTE

OPERATION

For configuration instructions for the MiVoice Business Console, please refer to the “Teleworker Configuration” topic in the *MiVoice 5550 IP Console Online Help*.

CONFIGURING THE MIVOICE BUSINESS CONSOLE FOR REMOTE OPERATION

For configuration instructions for the MiVoice Business Console, please refer to the “Teleworker Configuration” topic in the *MiVoice Business Console Online Help*.

CONFIGURING MITEL SOFTPHONES FOR REMOTE OPERATION

For configuration instructions for MiCollab Client softphones, please refer to the *MiCollab Client* documentation for Release 3.1 or later.

For configuration instructions for Contact Center 5.3 softphones, please refer to the Contact Center documentation available at the prairieFyre web site at <http://www.prairiefyre.com/>.

CONFIGURING IP DECT AND SPECTRALINK PHONES FOR REMOTE OPERATION

Base station programming directs wireless phones to use the MBG server as their ICP. For base station programming instructions, refer to the documentation provided with your IP DECT or SpectraLink phone.

To enable MBG support for these phones, refer to the online help topic *Configure IP-DECT and SpectraLink Phone Support* in the MBG interface.

TROUBLESHOOTING

This section contains troubleshooting information about IP phone error messages, connectivity, and voice quality.

MINET IP PHONE ERROR MESSAGES

The following error messages are specific to MBG. Messages are displayed on the IP phone for 20 seconds, and then the connection between the MBG server and the phone terminates (LOST LINK TO SERVER...DISCONNECTING appears on the phone's display screen). When the problem is solved, the screen briefly displays WAITING FOR LINK, and then the connection to the MBG server is re-established.

ERROR MESSAGE	PROBLEM	SOLUTION
TW LICENSE REQUIRED CONTACT TW ADMIN	There are not enough licenses to support your remote IP phone	Your Administrator must contact your Mitel Solution Provider to obtain additional MBG licenses
CONNECTION REFUSED CONTACT TW ADMIN	Your IP phone is not included in the list of phones permitted to use the MBG	Your Administrator must enable your IP phone. See "Configuring Remote IP Phone Properties" in the MBG Installation and Maintenance Guide.
CONNECTION PENDING PLEASE STAND BY	MBG cannot communicate with the ICP.	Your IP phone will connect to the supporting ICP as soon as the ICP becomes available
PASSWORD REJECTED	The Installer Password entered is incorrect	After a six-second delay, your IP phone will reset and display the Installer Password prompt again. Contact your System Administrator for a valid password.
TFTP ERROR 4 or L2 & BOOT Download Error	The teleworker set is pointing to an IP address other than that of the MBG.	Ensure that you enter the proper MBG IP address while configuring the set for teleworker operation.
	TFTP server in MBG has been disabled via the user interface.	Enable the TFTP server in MBG from the user interface.

GLOSSARY

TERM	DEFINITION
Blade	A software application running on the MSL operating system.
Firewall	Hardware or software, installed in a networked environment to prevent communication that is not authorized by the network policy. It prevents intrusion from a connected network device into other networked devices.
ICP	IP Communications Platform. The controller hardware used in a Mitel phone system, including the 3300 ICP.
LAN	Local Area Network.
Local Streaming	Capability of MBG sets to stream the voice path directly from one MBG set directly to another MBG set when both sets are located behind the same NAT device.
MAC Address	Media Access Control (address of remote device)
MiVoice Business	Brand name of the Mitel call-processing software that runs on hardware platforms such as the 3300 ICP.
Mitel Standard Linux	Operating system for MBG.
NAT	Network Address Translation. A technique for translating a set of private IP addresses to a public set of IP addresses.
NVRAM	Non-volatile Random Access Memory.
PPPoA	Point-to-Point Protocol over Asynchronous Transfer Mode (ATM).
PPPoE	Point-to-Point Protocol over Ethernet.
Router	Hardware that interfaces between two networks.
VLAN	Virtual LAN.

