BREAK FREE

FROM YOUR PROPRIETARY PBX

3CX
Innovating Communications

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Introduction, Licensing, Support

On this topic

What is 3CX Phone System for Windows?

3CX Phone System is a software based PBX for Windows that works with SIP standard based IP Phones, SIP Trunks and VoIP Gateways to provide a complete PBX solution – without the inflated cost and management headaches of an 'old style' PBX. The IP PBX supports all traditional PBX features but also includes many new mobility and productivity features. An IP PBX is also referred to as a VoIP Phone System or SIP Server.

Calls are sent as data packets over the computer data network instead of the traditional phone network. Phones share the network with computers so no separate phone wiring is required. With the use of a VoIP/PSTN gateway, you can connect existing phone lines to the IP PBX to make and receive phone calls via a regular PSTN line. You can also use a VoIP Provider, which removes the requirement for a gateway.

3CX Phone System interoperates with standard SIP softphones, IP phones or smartphones, and provides internal call switching, as well as inbound and outbound calling via the standard phone network or via a VoIP service.

How an IP Phone System Works

A VoIP Phone System generally consists of the IP PBX server, one or more SIP based phones and a VoIP/PSTN Gateway or a VoIP service provider. The IP PBX server is similar to a proxy server. SIP clients, being either softphones or hardware based phones, register with the IP PBX server. When they wish to make a call they ask the IP PBX to establish the connection. The IP PBX has a directory of all phones/users and their corresponding SIP address, and connects an internal call or routes an external call via either a VoIP/PSTN gateway or a VoIP service provider.
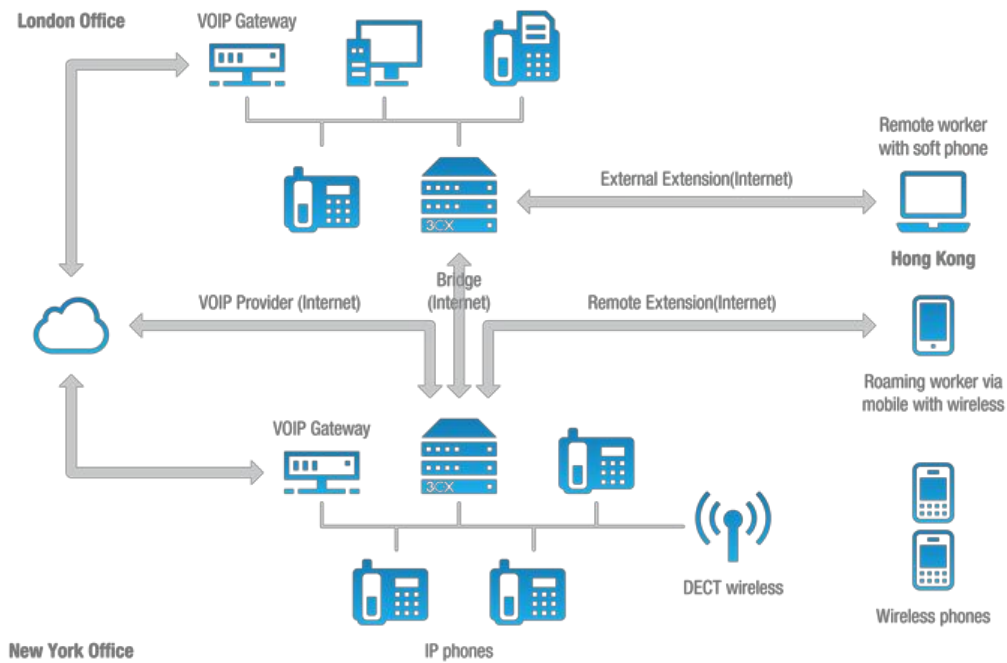
Figure - VoIP Phone System Overview

The image illustrates how an IP PBX integrates with the network and how it uses the PSTN and/or the Internet to connect calls.

SIP Phones

A VoIP phone system requires the use of SIP Phones. These phones are based on the Session Initiation Protocol (SIP), an industry standard to which all modern IP PBX systems adhere to. The SIP protocol defines how calls should be established and is specified in RFC 3261. SIP allows the possibility to mix and match IP PBX software, phones and gateways. This protects your investment in phone hardware. SIP phones are available in several versions/types:

Software (based) SIP Phones
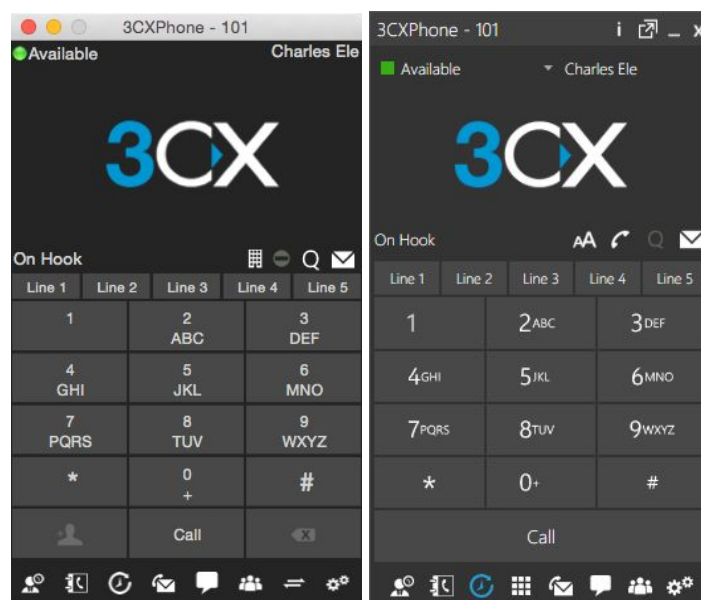
3CXPhone for Mac (left), 3CXPhone for Windows (right)

A software based SIP phone is a program which makes use of your computer's microphone and speakers, or an attached headset to allow you to make or receive calls. Examples of software SIP phones are 3CXPhone or X-Lite from Counterpath.

Hardware (based) SIP Phones

Hardware IP Phones: snom 760 left, Yealink T46G right

Hardware based SIP phones look and behave like normal phones. They are actually mini computers that connect directly to the computer network. They have an integrated mini hub, allowing them to share a network connection point with a computer, eliminating the need for an additional network point for the phone.

Smartphones (iOS and Android)

Using an iPhone or Android Smartphone with 3CX

iOS and Android devices can be used as clients for 3CX Phone System, using the freely available 3CXPhone for Android and 3CXPhone for iOS. Using 3CXPhone, your smartphone or tablet becomes a wireless desk phone in the office, and can be used to answer and receive company calls

while out of the office via WiFi, 3G or 4G(Providing your mobile service provider supports VoIP over 3G and/or 4G).

3CX Phone System Licensing

Licensing is based on the number of simultaneous calls that your company requires, including both external and internal calls. Each 3CX Phone System allows you to create an UNLIMITED number of extensions. To arrive at the correct number of simultaneous calls that you will need you must usually take the projected number of extensions and divide by two to four times depending on how much your organisation uses the phone.

3CX Phone System Editions

3CX Phone System is available in three different editions:

- Free Edition - All features but limited to two simultaneous calls
- Standard Edition – Includes all key features necessary.
- PRO Edition - Adds advanced call queueing, reporting, CRM integration and more.

Find out more about the differences between versions from our [Features Comparison Page](#).

Support

3CX Technical Support is available via our [Support Portal](#). Access is free for 3CX Partners. For end users, 3CX Support packages are available. Review our [Support Procedures and Pricing](#). We also have [Community Forums](#) from where you can obtain user to user support for our products.

Support Page / Configuration Guides / Knowledge Base

3CX maintains a knowledge base / help page. Be sure to follow the configuration guides for the make and model of your VoIP gateway, SIP phone or Firewall. The configuration guides can be found in the main [Support Page](#).

See Also

- 3CX Technical Support is available via our [Support Portal](#).
- Review our [Support Procedures and Pricing](#)
- See Our [Community Forums](#) and obtain user to user support for our products
- Find configuration guides in the main [Support Page](#).

Installing 3CX Phone System for Windows

On this topic

System Requirements

Supported Operating Systems

3CX Phone System v14 is supported on the following operating systems:

- Windows 7 Professional (x64)
- Windows 7 Ultimate (x64)
- Windows 7 Enterprise (x64)
- Windows 8 Pro (x64)
- Windows 8 Enterprise (x64)
- Windows 8.1 Pro (x64)
- Windows 8.1 Enterprise (x64)
- Windows 10 Pro
- Windows 10 Enterprise
- Windows 2008 R2 Foundation (x64 only)
- Windows 2008 R2 Standard (x64 only)
- Windows 2008 R2 Enterprise (x64 only)
- Windows 2008 R2 Datacenter (x64 only)
- Windows 2012 Foundation (max. 15 presence connections on IIS installations)
- Windows 2012 Essentials (Abyss Web Server only)
- Windows 2012 Standard
- Windows 2012 Datacenter
- Windows 2012 R2 Essentials (max. 25 presence connections on IIS installations)
- Windows 2012 R2 Standard

- Windows 2012 R2 Datacenter

Installations on Microsoft Windows Server Core versions are not supported. It should be noted that on client operating systems Windows 7 and 8 Abyss will be used as the web server, whereas on Windows Server, IIS will be used.

Supported Hardware and VM Platforms

3CX Phone System is extensively tested to be run as a VM which eliminates the cost of separate hardware and adds high availability solutions based on the hypervisor infrastructure. Supported hypervisor platforms are:

- VMware ESX 5.X and above.
- Microsoft HyperV 2008 R2 and above. See our Hyper-V Page for the specific settings for running 3CX Phone System.

Avoid using 3CX Phone System on converted VMs (P2V) because a converted virtual machine might have timing issues, which causes the guest operating system not to sync with the timer of the hypervisor.

System performance depends on five key factors:
- How many simultaneous calls will the system handle.
- How many people will simultaneously connect to the presence server.
- If call recording is used.
- If VoIP Providers are used.
- If call routing built is mainly around queues and IVRs.

Based on these factors the hardware can vary from Intel i3 CPUs with 4Gb of RAM up to a multi socket/core system. General guidelines can be found online in these articles:
- Recommended Hardware Specifications for 3CX Phone System
- Large Enterprise Deployments

Firewall & Network Considerations

3CX Phone System allows two network topology deployment options:

- No NAT - no NAT is performed from public to a private network. The Network card's IP address would be a public IP.
- Behind NAT - a firewall / router is between the internet and the PBX which performs network address translation.The Network card's IP address would be a private IP.

No NAT Firewall Configuration

In case of "**No NAT**", it is sufficient to use the built In "Windows Firewall" to secure the machine. You do not need to do anything as the 3CX Phone System installation will open all the required ports automatically.

NAT Mode Firewall Configuration

If 3CX Phone System is installed behind a NAT device, ports need to be forwarded. See the following guides detailing the requirements:

- The Firewall & Router Configuration Guide provides details on which ports to open.

- See also [Ports Used by 3CX Phone System](#) for the list of required ports that need to always be available (not used by any other service).

Other requirements
- Latest version of Firefox, Google Chrome or Internet Explorer.
- Microsoft .NET Framework version 4.5 or higher.
- You will need to have a good basic understanding of Windows Networking.
- A constant internet connection to erp.3cx.com on port 443.
- On demand connection to downloads.3cx.com/* on port 80 for 3CX Management Console downloads and additional information.

FQDN for the 3CX Phone System machine
An FQDN is required for the following reasons:
- Easy access to the 3CX Management Console.
- For easy management of IP phones and services in case of an IP change.
- To setup HTTPS for the console.
- To securely provision IP phones using HTTPS.

The FQDN must resolve on your LAN to the machine on which 3CX Phone System is installed, and from the internet it must resolve to your Public IP. You can choose to have a separate FQDN for internal and external connections or a single FQDN for both using Split DNS. Find more information on how to [Create FQDN using Split DNS](#).

Preparing the Windows Host Machine for Installation
Tasks that **MUST** be completed before installing 3CX Phone System:
- Assign a static internal IP address to the host machine's network adapter.
- Install all available Windows updates & Service packs before installing 3CX Phone System. The reboot after installing Windows updates may reveal additional updates. Pay particular attention to install all updates for Microsoft .Net before running the 3CX Phone System installation.
- Antivirus Software should not scan the following directories to avoid complications and write access delays:
    - C:\Program Files\3CX PhoneSystem*
    - C:\ProgramData\3CX*

In case the 3CX Phone System host machine has multiple network adapters:
- Disable unused network interfaces / Wi-Fi adapters.
- One active network interface **MUST** have a default gateway configured. It is illegal and wrong to have multiple network interfaces all with default gateways configured.
- Prioritize the primary network interface (the one with the default gateway configured) to the first position from: **"Control Panel"** > "**Network and Internet**" > "**Network Connections**". Press the **Alt key** to reveal the File menu and click on "**Advanced" > "Advanced Settings".** The **"Adapter and Bindings"** tab **> "Connections"** section will show your interfaces. Ensure that the network card with the default gateway is at the top.
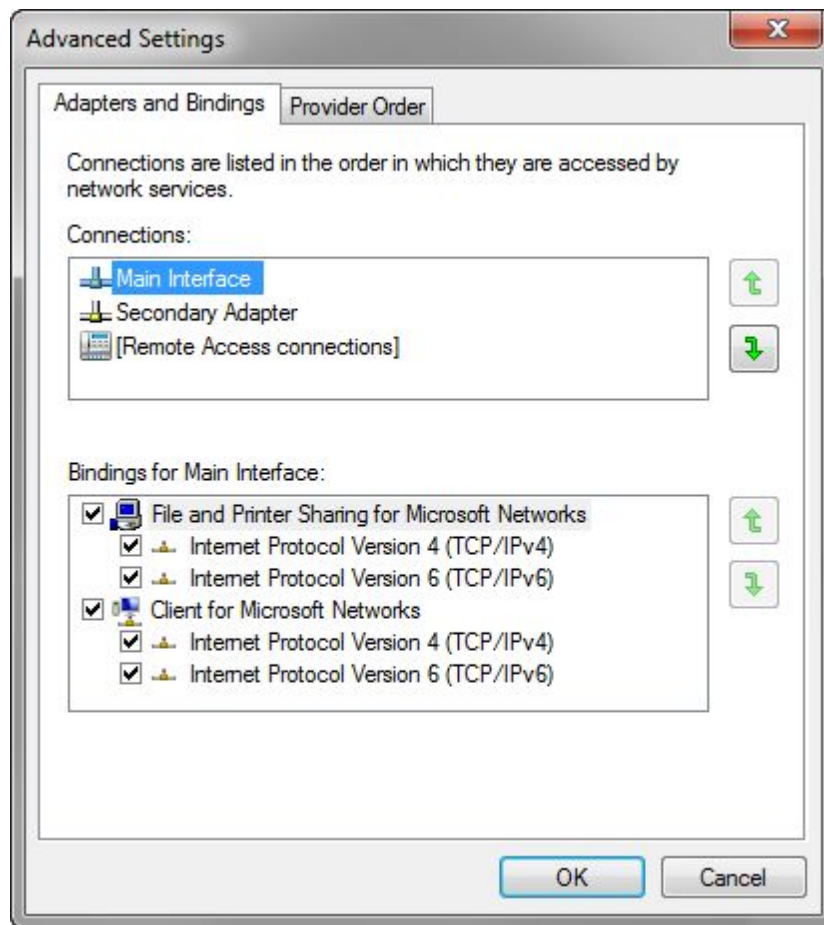
Additionally:
- Do not install VPN software on your 3CX Server
- Ensure that all power saving options for your System and Network adapters are disabled (Set the system to High Performance).
- Do not install TeamViewer VPN Option on the host machine.
- Disable Bluetooth adapters if it is a client PC.
- 3CX Phone System must not be installed on a host which is a DNS or DHCP server, has MS SharePoint or Exchange services installed.

Installing 3CX Phone System

1. Download the latest version of 3CX Phone System.
2. Double-click on the setup file. Read the system requirements. Click **"Next"**.
3. Read our configuration recommendations. Click **"Next"**.
4. You will be asked to review and accept the license agreement.
5. Select the installation folder path, 3CX Phone System will need a minimum of 10GB free hard disk space. You will need to reserve additional space to store voicemail files, recordings & voice prompts. Choose the location to install and then click **"Next"**.
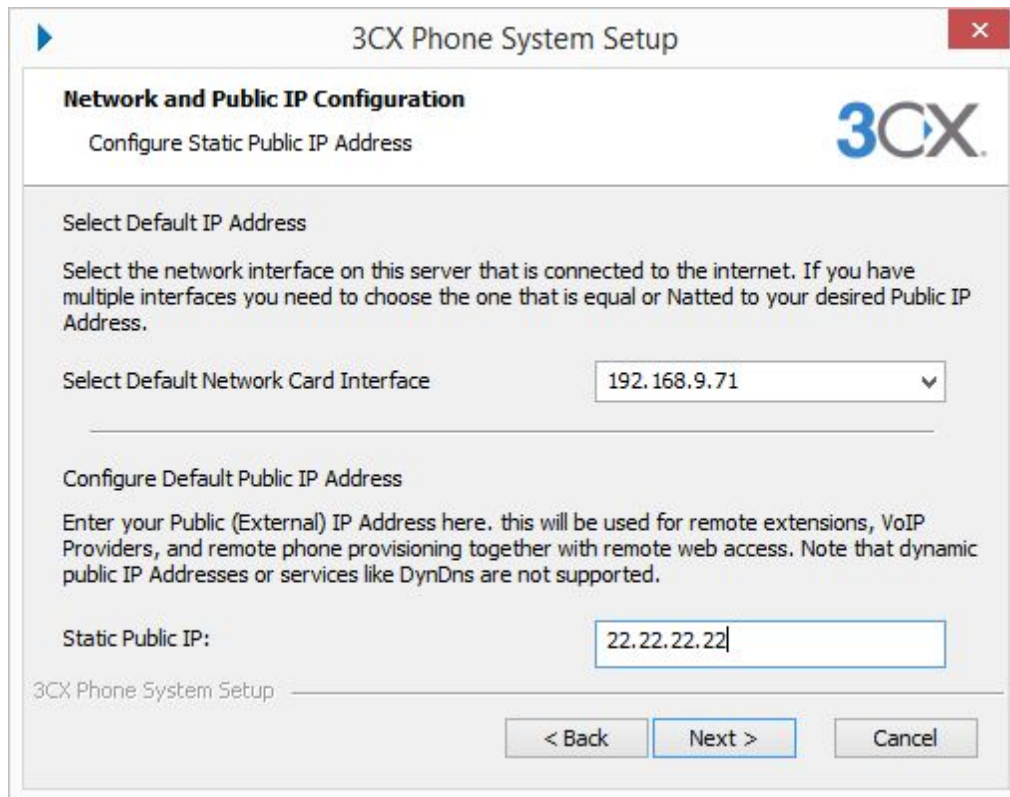
6. Select the Phone System Installation mode, select **Standard Installation** (Single Instance). Click **"Next"**.
   - For the Virtual PBX Installation (Multiple Instance) - See Installing 3CX Phone System as a Virtual PBX Server.

7. Select whether 3CX Phone System is about to be installed on a machine which is directly on

the internet (no NAT configured - where the result of "ipconfig" command will result a public ip) or whether the server is behind a NAT device (NAT configured - where the result of "ipconfig" command will result a local ip). Select the appropriate option and click **"Next"**.

8. You will now need to enter your Static Public IP Address, type it in and click **"Next".** Furthermore check that the installation has detected the correct default network card.
9. Enter your Server Administrator Email Address that will receive notifications. Click **"Next"**.

10. Specify the FQDN of the machine on which you will be installing 3CX Phone System:
    a. **Single FQDN**, for example: "pbx.interobit.com". The FQDN must resolve on your LAN to the machine on which 3CX Phone System is installed, and from the internet it must resolve to your Public IP. If the domain is not dedicated to the PBX and subdomains are used for other services, such as www.interobit.com, then you will need to use Split DNS on your router/DNS Server. Alternatively you can dedicate a cheap domain to your PBX. More information on how to Create FQDN using Split DNS.
    b. **External FQDN and Local FQDN,** for example pbx.interobit.com & pbx.interobit.local. If you do not want to dedicate a domain or use Split DNS, you can select to use a separate external /local FQDN. The external FQDN will be used for devices connecting from outside the LAN. Not recommended, because this complicates provisioning and slows connecting of the clients (as it can not rely on DNS but instead has to check both URLS). If you do not have the ability to create a local FQDN for the LAN , then you can enter the IP Address in the local FQDN field.
    c. **No FQDN** - If you do not want to connect to the PBX from outside the LAN, you can specify a local IP. IP phones or clients can not be used outside the LAN. Abyss must be used as the web server.
11. Fill in the details of your SMTP server that will be used to send out email notifications. Click **"Next"**.
12. Now specify the Management Console username and password. Make sure to use a strong password to prevent unauthorised access to your PBX. Usernames and passwords are both case sensitive. Click **"Next"**.
13. 3CX Phone System requires a web server, "Microsoft IIS" or a bundled web server "Abyss".
    ● If installing on a Server OS then IIS is the best solution.
    ● If you checked the option "I do not have an FQDN", Abyss will be automatically selected.
    ● Abyss will be automatically selected if 3CX is installed on a client desktop OS (Windows

7, 8, 8.1, 10).
- If ports 80 or 443 are already in use by another service on the same host, then you must select Abyss because you can configure different ports for HTTP and HTTPS. The IIS option in 3CX does not allow you to edit web ports and are hardcoded to 80 and 443.
14. If Abyss is selected, you will have the ability to change the http and https ports that the web server will listen on. Accept the defaults (http:5000, https:5001) or type in your own.

15. If you have an SSL Certificate for the FQDN or domain that you entered, select "Import an SSL Certificate". Otherwise you can choose the option to generate a self-signed certificate.

16. The above image shows the Import Trusted SSL Certificate. Here you should import a "pfx" file and enter the certificate password in the Password field. If in Step 15 you chose "I do not have an SSL Certificate - generate one for me", you will be asked for a company name and a certificate password so the certificate can be generated on the fly.
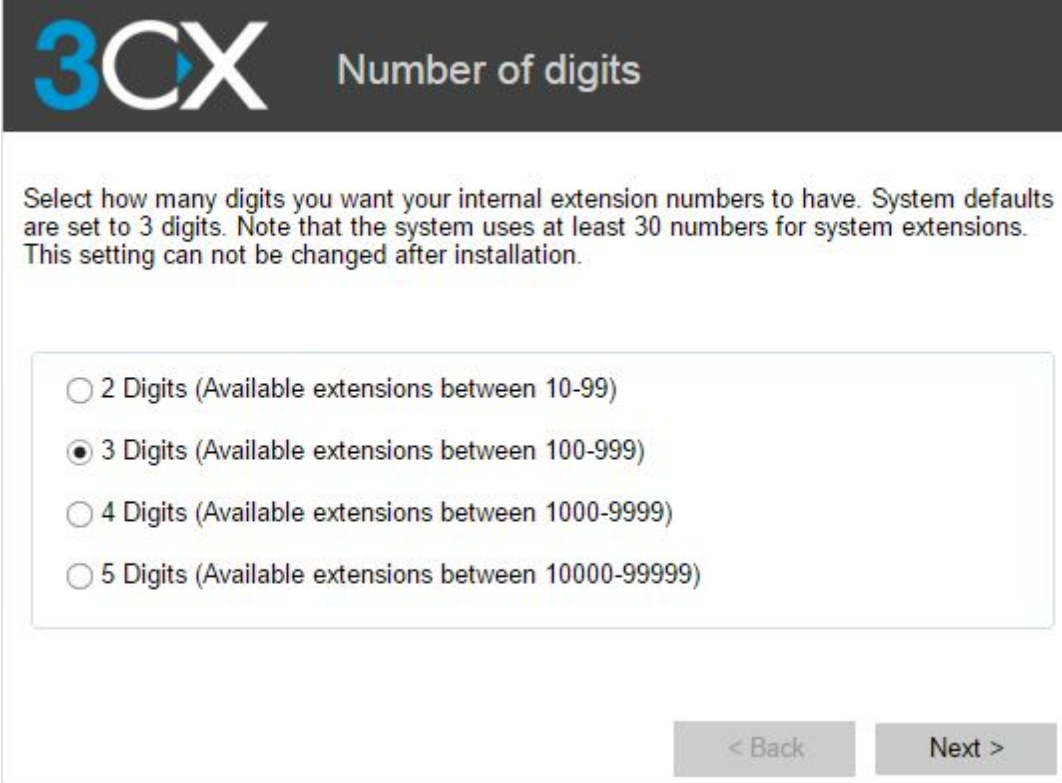

17. Click **"Install"** to start the installation of 3CX Phone System. Setup will now copy all files

and install the necessary Windows services.

Running the 3CX Phone System Configuration Wizard

The 3CX Phone System configuration wizard will walk you through a number of essential tasks that you need to do in order to get your system up and running.

1. After installation is complete, double click the 3CX Management Console icon from your desktop.
2. Enter the username and password that you specified during setup, select the language you would like to use and click the **"Login"** button. Note that the username and password are both case sensitive. The "**Configuration Wizard**" will be displayed which will walk you through the initial configuration step by step.

3. Choose the number of digits that extension numbers should have. This cannot be altered later. Click **"Next".**

Select Region and Time Zone

Specify the region where 3CX Phone System will be operating from

Select Country   United States (+1)

Time Zone Settings

Set the Time Zone   -8:00 United States - Pacific Time

< Back   Next >

4. Select your country and time zone settings and click **"Next"**.

Operator Extension

Select the Operator Extension which will be the default destination for inbound calls.

Extension Number: 100

First Name: OP

Last Name:

E-mail address: Operator@interorbit.com

Voice mail extension: 999

< Back   Next >

5. Configure the Operator Extension by entering first name, last name and email address. This is the default destination for inbound calls. Confirm that the VoiceMail Extension number is appropriate for your installation and click **"Next"**.

6. Specify the countries or regions to which calls can be made. Calls to countries which are not selected will be blocked. This feature reduces the risk of VoIP toll fraud. Select the countries you would like to allow and click **"Finish"**.

You have now completed the initial configuration of 3CX Phone System. You will be redirected to the quick 3CX Phone System Management Console. The Quick Start page will show you the next steps you will need to take.

Upgrading From a Previous Version of 3CX Phone System

If you are running an old version of 3CX Phone System (9, 10) you must upgrade to v11 SP 4a, and then to v12 SP 6.1 before following this upgrade procedure. If you are using 3CX Phone System v12 SP 6.1 or v12.5 you can go to v14 directly.

If upgrading from 12.5 ask your users to upgrade their 3CXPhone clients to the latest version to ensure in place updating to v14. See our guides with instructions for installing and upgrading 3CXPhone Clients for Windows, Android, iOS and Mac.

Step 1: Backup your configuration & Uninstall the old version
1. Make a backup of your current configuration using the 3CX Backup and restore tool.
2. Tick the options to include in your backup, then choose where to save your backup. **Warning:** Do not choose to store the backup inside any of the 3CX Phone System installation folders as these folders are removed during the uninstall process.
3. Uninstall the current version from the Windows Control Panel > Programs and Features.

Step 2: Install 3CX Phone System v14
1. Download 3CX Phone System Version 14
2. Proceed with the installation as documented above.
3. Complete the 3CX Configuration Wizard.

Step 3: Restore your configuration
1. Go to the 3CX Management Console

2. Go to the "Backup and Restore" node. In the "Backup Location" tab configure **"Select folder path"** to the folder where your backup is located and press "Save". Note: You should see the backup listed inside the Backup Repository section.
3. Click on the **"Restore"** tab, click the **"Restore Now"** button.
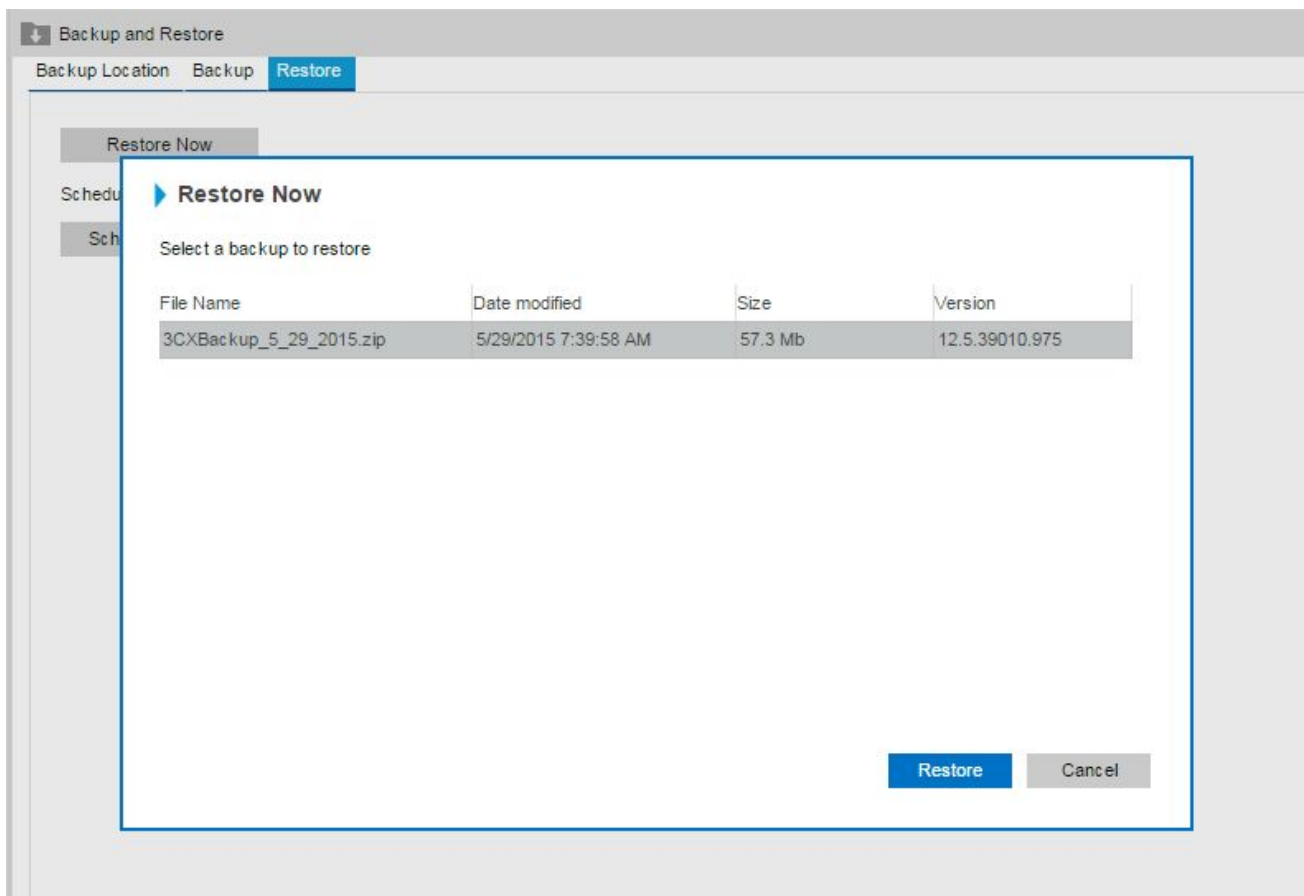
4. Select the backup you want to restore from the list and click the **"Restore"** button. A window will open warning you that all the services will be stopped during the restore process. Click **"Yes"** to restore.

5. The management console will log out and the restore process will start. When the restore is complete, an email will be sent to the Administrator email configured during the setup. Then you can log into the 3CX Management console.

Activating your License

Without a license, 3CX Phone System will work for up to 2 simultaneous calls. If you require more, then you will need to activate a license. There are two ways to access the activation page in order to activate a license, you can either click on the "**Activate License**" link in the Quick Start page or directly from the **"Settings" > "Activate License"** node, from within your 3CX Management Console.

Enter your License Key, Company, Contact Name, E-mail, Telephone, Country and the name of your Reseller (The company who you bought 3CX from) and click on **"Activate"** to activate your license.

- This information will be sent to our license key server to activate your license key.
- To be entitled to your first year of free upgrade insurance, your details must be correct. These details are reviewed by 3CX and if they are not correct the upgrade insurance will not be activated.

If you license your 3CX Phone System and then reinstall on a new machine, change hardware, or the local network topology changes (for example the local MAC address changes), you will need to re-activate your licenses.

Note: Packets between the 3CX Phone System server and erp.3cx.com should not be filtered or inspected. If you run DPI (Deep Packet Inspection), license key activations will be rejected.

System Prompts Language

3CX Phone System ships with a US English prompt set by default. Prompts are recorded voice files that are played by the system to callers and users of the system. For example, when a user picks up their voice mail, the system prompts will instruct the user what buttons to press in order to hear or delete voice messages. To change the system prompts to a different language:

1. Go to **"Updates" > "System prompt sets"** node, select the prompt set you wish to use and click on **"Download Selected"**. The prompt set will be downloaded to your machine.
   Note: Download only the prompt set that you need.

2. Go to **"Settings" > "System prompts" > "Manage Prompt sets"** at the top of the screen.
3. Select the prompt set that you have downloaded and click on **"Set As Current Prompt Set"**. The system will now use this new prompt set.

See Also

- See our guides with instructions for installing and upgrading 3CXPhone Clients for Windows, Android, iOS and Mac.
- Find instructions here on installing 3CX Phone System as a Virtual PBX Server.
- See the Hyper-V Page for the specific settings for running 3CX Phone System on Hyper V.
- Check Ports used by 3CX Phone System for the list of ports that must always be available.
- The Firewall & Router Configuration Guide provides details on which ports to open.
- Recommended Hardware Specifications for 3CX Phone System.
- See our guide on how to use the Backup & Restore feature within the 3CX Management Console.

Firewall & Router Configuration

On this topic

Introduction

If you plan to use remote extensions or a VoIP Provider, you will have to make changes to your firewall configuration. In order for 3CX Phone System to communicate successfully with VoIP providers and remote extensions, your firewall/router device must be correctly configured for SIP operation. You can learn more about [Routers, NAT, VoIP and Firewalls](#) in this article.

SIP ALG

To maximize your chances of success, make sure you choose a device that does not implement a SIP Helper or SIP ALG (Application Layer Gateway), or choose a device on which SIP ALG can be disabled. The following links are examples of how to switch off ALG on popular routers:

- [How to Disable SIP ALG on Fortinet / FortiGate](#)
- [How to Disable SIP ALG on Netgear Routers](#)
- [How to Disable SIP ALG on Thomson Routers](#)

Configuration for VoIP Provider or SIP Trunk

If you intend to use a VoIP Provider & the 3CX WebRTC Gateway you will need to open the following ports to allow 3CX Phone System to communicate with the VoIP Provider:

- Port 5060 (UDP) for SIP communications (send & receive) MUST BE STATICALLY MAPPED. [See sample firewall configuration](#).
- Port 5061 (TCP) for TLS communications – **If using secure SIP**.
- Port 9000-9500 (or higher) (UDP) (send & receive) for RTP communications, which contain the actual call. Each call requires 2 RTP ports, one to control the call and one for the call data. Therefore, you must open twice as many ports if you wish to support simultaneous calls via the VoIP Provider. For example, if you want to allow 4 people to make calls via the VoIP provider simultaneously, you must open port 9000 to 9007.

Configuring ports to allow PUSH messages to smartphones

PUSH messages are sent by 3CX Phone System to Extensions using smartphones in order to wake

up the devices to take calls or messages. This greatly enhances the usability of the smartphone clients but requires configuration of the firewall to allow outbound PUSH messages.

Apple Push

To allow APNs traffic to get past your firewall and send push notifications to iOS devices, you'll need to open these ports:

TCP port 2195 Outbound
TCP port 2196 Outbound
TCP port 5223 Outbound
TCP Port 443 (used as a fallback on Wi-Fi only when devices cannot communicate via port 5223)

Note: The APNs servers use load balancing. This means that devices will not always connect to the same public IP address for notifications. The entire 17.0.0.0/8 address block is assigned to Apple, so it's best to allow this range in your firewall settings. More information here https://support.apple.com/en-ap/HT203609

Google Push

To allow GCM traffic to get past your firewall and send push notifications to Android devices you'll need to open these ports:

TCP port 5228 Outbound to android.apis.google.com
TCP port 5229 Outbound to android.apis.google.com
TCP port 5230 Outbound to android.apis.google.com
TCP Port 443 Outbound rule to android.googleapis.com and www.google.com
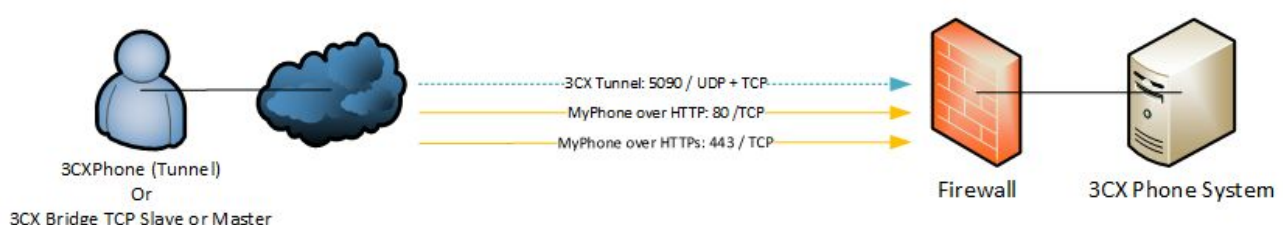
Configuration for Remote Extensions

For remote extensions, you have the choice of using 3CX SBC (Tunnel) or using Direct SIP. The 3CX SBC service will bundle all VoIP traffic over a single port and vastly simplify firewall configuration and improve reliability. 3CXPhone for Android, iOS, Windows and Mac have the inbuilt tunnel, whilst using the 3CX SBC service on a remote network you can also connect IP phones via the tunnel. More information on SBC can be found in the next chapter.

Remote Extensions via 3CX Tunnel

To connect remote extensions via the 3CX Tunnel, you must open the following ports:

- Port 5090 (UDP and TCP).
- Port 80 HTTP / 443 HTTPS for 3CXPhone Presence and Phone Provisioning.

Note: HTTP and HTTPS ports can be configured during installation. If you have chosen to use custom ports other than 80/443 make sure to forward those.

3CX Tunnel: 5090 / UDP + TCP
MyPhone over HTTP: 80 /TCP
MyPhone over HTTPs: 443 / TCP

3CXPhone (Tunnel)
Or
3CX Bridge TCP Slave or Master

Firewall   3CX Phone System

Remote Extensions via direct SIP

If you wish to connect remote extensions via direct SIP, you must open the following ports:

- Port 5060.
- Port 5061 if using secure SIP.
- Port 9000-9255 for RTP.
- Port 80 HTTP / 443 HTTPS for 3CXPhone Presence and HTTP provisioning. Note: HTTP and HTTPS ports can be configured during installation. If you have chosen to use ports other than 80/443 make sure to forward those.
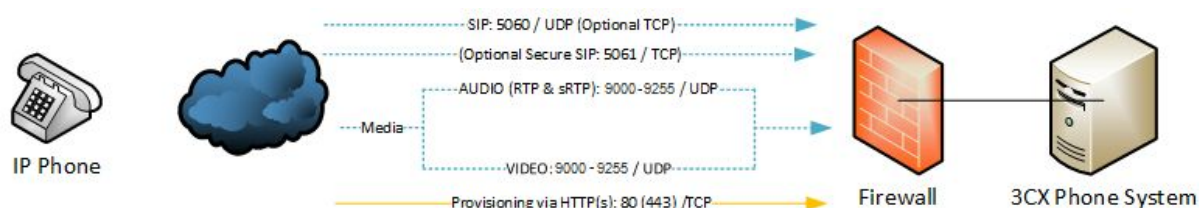
Configure WebRTC Ports

To be able to configure WebRTC call links, you need to make sure that you have a Public IP Address and configure your FQDN correctly during the setup of your 3CX Phone System. 3CX WebRTC gateway requires ports 9256-9499 UDP to be opened on your firewall/router and forwarded to your PBX.

You can open and forward all the ports required by the media server, in one go, by opening the range: UDP 9000-9499.

Note that the above port ranges are the default ports in 3CX Phone System. You can adjust these ports from the **3CX Management Console,** in the **"Settings" > "Network"** node. From here, you can configure the ports to be used for internal calls, and the ports to be used for external calls being made via a VoIP Provider or calls to and from a remote extension.

Firewall checker

After configuring your firewall, run the 3CX firewall checker to ensure that configuration is correct.

See Also

Example configurations for popular firewalls:
- Configuring a Sonicwall Firewall for 3CX Phone System
- Configuring a Draytek 2820 Router for 3CX with QoS configuration
- Configuring a Zyxel P-662H-D1 Router with 3CX Phone System
- Configuring AVM FritzBox as a Firewall with 3CX Phone System
- Configuring a CISCO router to allow connection to a VOIP provider

Configuring the Clients – 3CXPhone

On this topic

Introduction

3CXPhone is a softphone & client that allows users to easily manage their extension with a few mouse clicks – rather than via a cryptic and limited hardware phone interface. 3CXPhone can work alongside an existing supported IP phone or you can use the inbuilt softphone. 3CXPhone is available for multiple platforms including Windows, Android, iOS and Mac.

3CXPhone provides the following functions:

- **Call Pop-up** – Upon receiving a call, 3CXPhone will allow you to reject the call, transfer the call to another person or to voice mail - with a single mouse click or by using drag and drop.
- **Easy Call Transfer / Park** – Transfer or park a call with a mouse click or via drag and drop, no need to learn dial codes or call transfer procedures on a phone.
- **Presence** – View statuses of other extensions and avoid unnecessary calls.
- **Click to Call** – Colleagues, numbers in web pages or contacts in CRM software.
- **Hot key Dialling** – Place/control calls using configurable keyboard shortcuts.
- **Queue Monitoring** – View the status of queues that you are a member of or a manager.
- **Call Monitoring** - See callers waiting in queue and be able to pick up a call.
- **Text Chat** – Message other users one to one or create multi user chat.
- **Record Calls** – You can record a call by clicking the record button.
- **Phonebook** – 3CXPhone provides easy access to the company and personal phonebooks.

Softphone or CTI Mode

3CXPhone can run in two different modes:

- **Softphone Mode (All platforms)** – Allows you to make and receive calls on your computer or mobile device without using a deskphone. It uses a built in SIP engine to place the calls and uses the device's microphone and speakers. In softphone mode 3CXPhone can handle up to 5 simultaneous calls and supports blind and attended transfer.
- **CTI Mode (3CXPhone for Windows only)** – Allows you to control your hardware IP phone from your Windows desktop with a few mouse clicks. When in CTI Mode 3CXPhone can handle one simultaneous call and supports blind and attended transfer. In this mode, HTTP

commands are sent directly to the IP phone that is registered to the extension to control the functionality of the phone. When in CTI mode you will see the number you are attempting to dial on the IP phone's display and hear the standard ringback tones.

Note:
- To use CTI Mode, you should make sure that in your **"Extensions"** node **"Extension settings" > "Forwarding rules" > "Available"** tab, the option **"I want to be able to accept more than one call at the same time"** is not enabled.
- CTI Mode can only be used on the local LAN where 3CX is installed.
- The option to ring My Mobile is also not applicable when using CTI Mode.

If your IP phone does not support CTI, then the CTI Mode will use the so called "MakeCall" functionality. The most noticeable difference between CTI and "MakeCall" mode is shown when starting a call from call history entries. When you start a call using "MakeCall" the desktop IP phone will be called from 3CX Phone System and on the phone's display you will see "MakeCall". After you pick up the handset the call will be placed on hold and a call to the destination is made from 3CX Phone System. Once the receiving end answers the call, music on hold will stop and the call will connect to the callee.

Supported Client Operating Systems & Info

Microsoft Windows

3CXPhone for Windows is tested and supported on the following Windows versions:

- Windows 7
- Windows 8
- Windows 8.1
- Windows 10

Additional information:
- Microsoft .Net 4.0 or 4.5.
- More information about the [Windows Client Installation.](#)
- Once installed and provisioned, 3CXPhone gets updated automatically with the service packs of 3CX Phone System.
- The user manual can be found [here](#).
- You can deploy the 3CXPhone MSI file via active directory. You must also deploy the "Microsoft Visual C++ 2010 x86" msi package on x86 and x64 clients.

iOS

3CXPhone for iOS is optimized for iPhone 6.
- iOS 8
- iPhone 4S, iPhone 5, iPhone 5s, iPhone 6
- iPod touch (3rd generation), iPod touch (4th generation), iPod touch (5th generation).
- iPad & iPad Mini all models.

Additional information:
- The 3CXPhone App requires read only access to the local device (phone) to compose a unified address book of all contacts. For allowing access to contacts, go to **"Settings" > "Privacy" > "Contacts" > 3CXPhone 14** and set to on .
- In order to receive Push messages it must also be allowed to send "Notifications" to the

device. For notifications, go to **"Settings" > "Notifications" > "3CXPhone 14"** and enable **"Allow Notifications"**.

- More information can be found here about the iOS Client Installation.
- The user manual can be found here.

Android
- Android 4.X and higher
- Important: The Google Push service must be configured PRIOR to sending out the configuration emails. For more information see "Configure Push / Google Push" below.
- More information about the Android Client Installation.
- The user manual can be found here.

MAC OS X
- Mac OS 10.10 and higher.

Additional Info:
- The app itself is signed with an Apple developer account and does not require modification of the security level setting for installing an untrusted application. However the installation needs to be done by an administrative user.
- Once installed and provisioned, 3CXPhone gets updated automatically with the service packs of 3CX Phone System.
- More information about the Mac Client Installation.
- The user manual can be found here.

Please see the Support Page for a list of Supported Handsets and Devices.

Deploying 3CXPhone

Step 1: Configure PUSH

3CXPhone uses PUSH technology to wake up the smartphone when a call is received. This does not require the user to keep the phone active and the 3CXPhone client turned on to be able to receive calls – the phone can go to sleep to save battery life. PUSH is also required for reliable operation of the smartphone clients. When extensions are created they are enabled for push notifications by default. You will just need to configure Google Push Servers and open the appropriate ports on your firewall for Google Push and Apple Push to function correctly.

Note: Be sure to configure Google Push before sending out the welcome emails for Android users!

Google Push

To configure Push Servers for your Android devices, from the 3CX Management Console, select **"Settings" > "PUSH"**, follow these instructions to configure your Google Push servers.

Apple Push

Apple Push is automatically enabled. The PBX server needs to be able to communicate with Apple APN's on certain ports. To send and receive push notifications you will need to open the ports described in the Apple push section of the Firewall Configuration guide.

Step 2: Install 3CXPhone

3CXPhone is installed via the Apple App Store for iOS devices, Google Play for Android devices, as a DMG file for Mac OS or an MSI file for Windows. The installation links are sent in the user's

welcome email together with the configuration file as an attachment. For easy reference:

- **Windows:** Download 3CXPhone for Windows as an MSI file.
- **Android:** Download the Android Client from the Google Play Store.
- **iOS:** Download the iOS Client from the Apple App store.
- **MAC:** Download 3CXPhone for Mac as a DMG file.

Step 3: Configure Using the Email Attachment

After the user has installed the corresponding 3CXPhone version, it must be provisioned with the user's extension settings. To do this, ask the user to:

1. Ensure the app or application has been installed.
2. Open up the welcome email.
3. Double-click or tap on the attachment. If you are asked what application can open this attachment select 3CXPhone 14. The 3CXPhone client will then automatically configure itself and connect to 3CX Phone System.

The welcome email is sent automatically when the extension is created. To resend it:
1. Log in to the 3CX Management Console and go to the **"Extensions"** node.
2. Select the extension and click the "**Send Welcome Email**" button at the top toolbar.
3. An email will be sent to the extension's configured email address along with an attachment for auto-provisioning.

Managing 3CXPhone

3CXPhone Settings

The administrator can control what configuration options are available in 3CXPhone per extension from **"Extensions"** node **> "Edit Extension" > "3CXPhone"** tab.

From here you can configure:
- **Disallow use of 3CXPhone**- Removes the user's ability to use 3CXPhone.
- **Hide the Forwarding Rules** - Removes the user's ability to configure his/her forwarding rules from within the 3CXPhone client. These options will only be available from within the 3CX Management Console.

- **Show Call Recordings / Allow Deletion of Recordings** - Adds the management of call recordings, allowing the user to manage their call recordings.
- **Configure default phone mode to use in the 3CXPhone for Windows** - Configure which phone mode (Softphone or CTI) must be used by default.
- **Default Startup Screen** - Sets the default appearance of the phone to the dial pad or the presence screen.
- **Use 3CX Tunnel for remote connections** - Configures 3CXPhone to use the 3CX Tunnel for the "**Out of Office**" connection to 3CX Phone System rather than connecting directly via STUN/SIP port of the pbx. It is advised to turn this option **ON** to avoid intermittent connection problems (absence of audio) from remote locations to the phone system.

3CXPhone for Windows, Mac, iOS and Android have the ability to reprovision automatically. By default, Windows, Mac and Android clients will retrieve their configuration file every time they are started. This means that any setting you make in the management console will be applied at the next startup of the client.

Phones node

The administrator can review all connected users that are using 3CXPhone from the 3CX Management Consoles' **"Phones"** node. This shows all the users who are currently logged in and using 3CXPhone, including their IP and the client version/type they use. If the extension is not listed in the 3CXPhone Clients tab, the client is not currently connected.

Updating 3CXPhone for Windows and Mac

Updates to 3CXPhone for Windows and Mac are deployed automatically via the 3CX Phone System Server. When a new update is available on the 3CX Website, the 3CX Phone System Server downloads the update for 3CXPhone then notifies the users. If a user has an out-dated 3CXPhone, upon starting it they will be shown a message informing them that a new version is available:
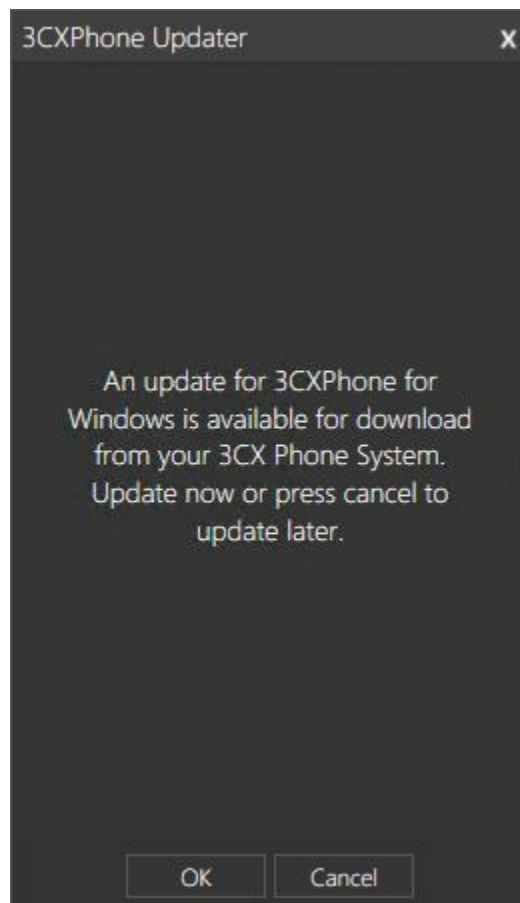
Once the user accepts the update, the downloader will start and download the new installation of 3CXPhone. After the file has finished downloading, the new client will be installed automatically and 3CXPhone will restart on its own to complete

Updating 3CXPhone for iOS and Android

The Android and iOS clients update automatically through the Google Play store and the Apple App Store (depending on whether automatic update is activated) when they detect a newer version of the client online.

See Also

- Find out what IP phone CTI mode is.
- Learn how to configure Google Push here.
- Learn how to configure Apple Push here.
- See instruction on installing 3CX Phone for Windows, Android, iOS, Mac

Configuring & Managing IP Phones

On this topic

Introduction

Once 3CX Phone System is installed, you can configure your IP phones and assign an extension to each phone. In order to do this, you must provision the IP phones. Although phones can be configured one by one manually using their web interface, this is impractical as it leads to many errors and deployment time is increased drastically. Furthermore, ongoing management of the IP phones is almost impossible. Supported IP phones can be provisioned automatically, providing ease of deployment AND ongoing management.

Phone Provisioning

What is Phone Provisioning?

Phone provisioning is the process of automatically configuring the IP phone for use with an IP PBX. Once you provision a phone, the phone will automatically configure itself correctly and you will be able to manage the phones centrally and remotely and without having to login to the phones' web interface one by one. Phone provisioning greatly eases day to day management of IP phones. It makes it easy to change extension passwords, BLF lights and so on because you can do it centrally for all phones from the 3CX Management Console and then push the changes to the phone.

How does Phone Provisioning work?

The process of provisioning a phone with 3CX Phone System is easy:

1. To provision a phone, you will need to ensure it can retrieve its configuration from 3CX Phone System using the Provisioning URL. The provisioning URL is a resolvable FQDN with a customized parameter at the end, unique to your 3CX Phone System installation for security purposes.
2. The provisioning URL can be entered into the phone in any of the following 3 ways:
   - Automatically using Plug n Play,
   - OR Using DHCP option 66,
   - OR by entering it in the phones web interface.
3. After you do this, the phone will automatically restart.
4. The phone will retrieve the configuration settings and will be completely manageable from within the 3CX Management Console.

Spend the extra half an hour to provision the phones and save countless hours going forward!

Provisioning using Plug and Play
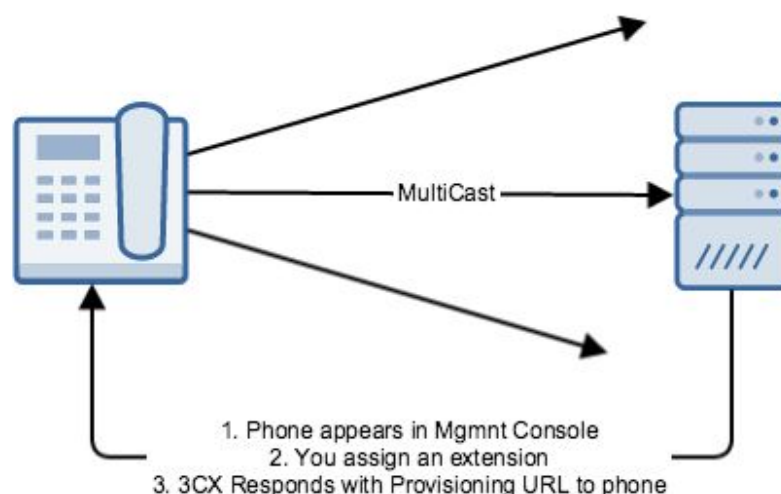
In this method:
1. Plug the phone into the network.
2. The phone will send a multicast message across the LAN.
3. This will be picked up by 3CX Phone System **providing it is on the same LAN.**
4. The phone will appear in the **"Phones"** page. Now you can assign an existing extension to the phone or create a new extension.
5. The phone will be sent a provisioning URL.
6. The IP phone will restart and be manageable from within the 3CX Management Console.

Requirements: For this method the requirements are that the IP phone must be a preferred phone, as the IP phone vendor must have implemented the Plug and Play functionality. For a list of preferred phones refer to our Supported Phones page. Also, the IP phone must be located on the same LAN as a multicast message will not traverse firewalls.

Provisioning the URL via Option DHCP 66
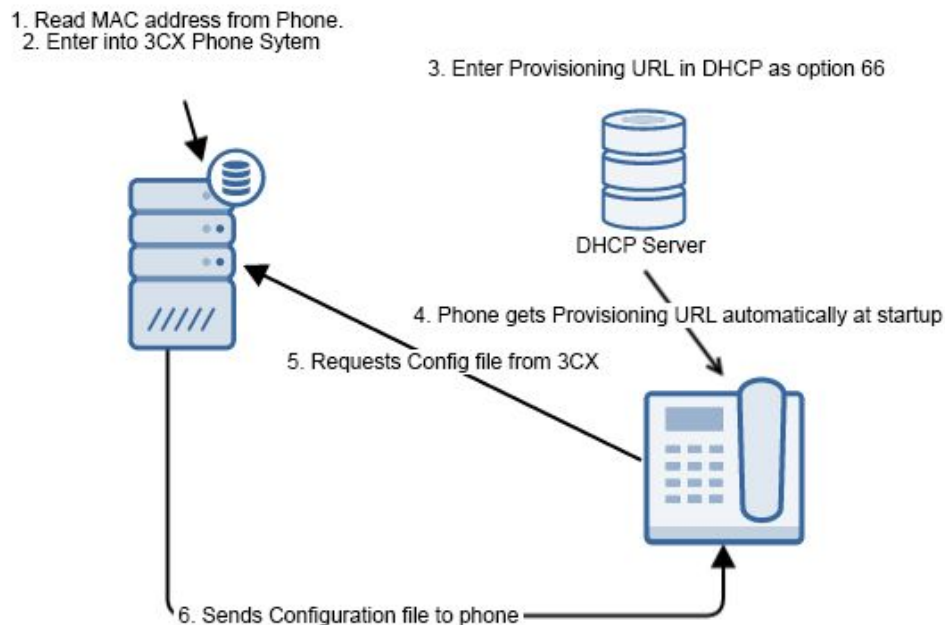
1. Read MAC address from Phone.
2. Enter into 3CX Phone Sytem

3. Enter Provisioning URL in DHCP as option 66

DHCP Server

4. Phone gets Provisioning URL automatically at startup

5. Requests Config file from 3CX

6. Sends Configuration file to phone

In this method:
1. Note down the MAC address of the phone. This is usually written on the back of the phone. You can also use a bar code scanner to read it from the label.
2. Create or edit an extension and enter this MAC address into the **"Extensions" > "Phone Provisioning"** tab.
3. Obtain the provisioning URL for 3CX Phone System. It is displayed in the Quick Start page, and in the **"Settings" > "Phone Provisioning"** page. It consists of the FQDN of your 3CX Phone System machine and an additional string for security purposes. Click on the link to make sure it resolves!
4. Now configure the provisioning URL in your DHCP server using option 66. See an example how to do this for the Microsoft Windows DHCP Server
5. The phone will now retrieve the URL from the DHCP server at startup.

For larger numbers of phones this is the recommended method as changes to FQDN or webserver ports can be done at DHCP level and all phones can take the new configuration after reboot.

Provisioning the Phone by Entering the URL in the Web Interface
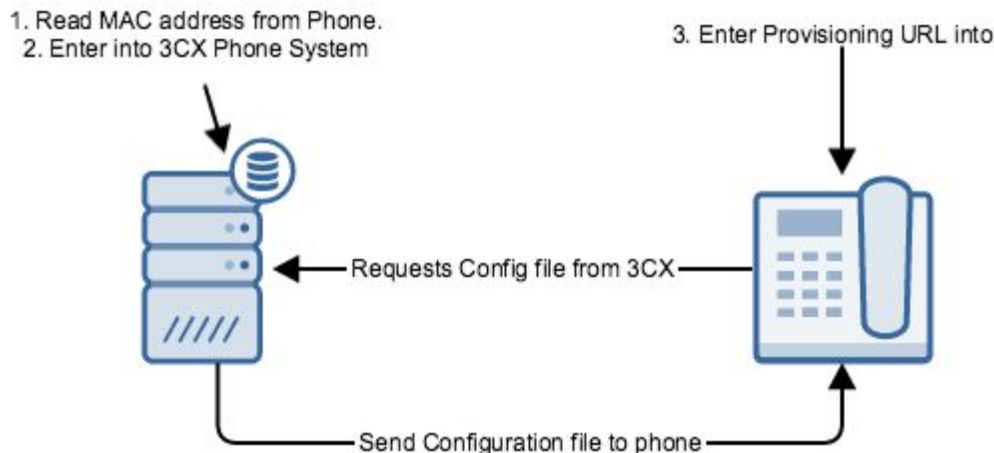
In this method:

1. Note down the MAC address of the phone. This is usually written on the back of the phone. You can also use a bar code scanner to read it from the label.
2. Create or edit an extension and enter this MAC address into the Phone Provisioning tab.
3. Obtain the provisioning URL for your 3CX Phone System. It is displayed in the Quick start page, and in the **"Extension" > "Phone Provisioning"** page. It consists of the FQDN of your 3CX Phone System machine and an additional string for security purposes. Click on the link to make sure it resolves.
4. Now login to the phone's Web Interface and enter the provisioning URL. This is a one-time operation provided your FQDN or HTTPS port does not change.

This method is recommended for a smaller number of phones, for remote networks, and if your DHCP server does not support option 66.

Provisioning Parameters

Before provisioning IP phones, confirm that the default parameters are correct.

Provisioning URL

Make sure that the provisioning URL resolves to the 3CX Phone System machine. To provision remote extensions, an FQDN that resolves externally AND internally should be specified. To do this go to **"Settings" > "Network" > "FQDN"** tab. For more information how to create an FQDN, read this article: Creating FQDN with split DNS.

Time Zone

3CX will automatically provision the timezone to the phones. Each phone can be configured to a different time zone from the "**Extension"** node **>** "**Edit Extensions" > "Phone Provisioning" > "Time Zone"** drop-down menu. The Time Zone in the Extension tab will take precedence over the Global Time Settings in the **"Settings" > "Phone Provisioning"** section.

Daylight Saving Time

Fanvil, Htek, snom and Yealink phones will apply the DST changes based on the time zone / country selected. For Cisco and Polycom IP phones the DST date and the offset needs to be configured manually depending on the country. This configuration needs to be reviewed each year so that any changes can be kept up to date.

Company Phonebook

Your company phonebook can be sorted alphabetically by last name or first name. It is pushed to the IP phones when a phone starts up. Some phones may require a reboot to reload the phonebook again.

Individual Settings

Beside the global provisioning settings, the phone will also retrieve individual configuration information such as:

- Extension Number, Name and Password.
- BLF Keys (Busy Lamp Field) used to display the call state of another extension.
- IP phone Web-Interface password.
- Language Display.
- Codecs Preference Order.

Provisioning Fanvil, Htek, snom and Yealink IP Phones using Plug and Play

To auto provision phones using Plug and Play:

1. Connect the IP phone to the LAN. Ensure that the phone is on the same LAN (Multicast Domain) as 3CX Phone System.
2. The phone will show up in the "**Phones"** node in the 3CX Management Console as a new phone.
3. Right-click on the phone's entry and assign it to an existing extension or create a new one.

4. You will then be taken to the extension's provisioning tab where you can specify other configuration settings on the phone.
5. The phone will be sent a link to the configuration file with the settings you specified. The phone will then restart, apply the settings and connect to 3CX Phone System. Some phones will ask for confirmation before restarting.

Provisioning Cisco, Polycom & Remote Phones (DHCP & Manual)

Cisco and Polycom phones do not support plug and play and must be provisioned as described below. Remote phones can not be configured via Plug and Play as they will not receive the multicast message. In this case you must also use the method below.

Step 1 – Enter the IP Phone MAC Address

1. From the "**Extensions**" node in the 3CX Management Console, select the extension you want to provision, click "**Edit Extension" >** then switch to the **"Phone Provisioning"** tab.
2. Enter the MAC address of the phone (which can be found at the bottom of the phone) in the MAC address field.
3. Select the appropriate phone model from the drop down menu of the **Model** list.
4. Phone Web Page Password – This is auto generated by 3CX Phone System and is applied to your phone upon provisioning. If you want to log into your IP phone's Web Interface then use the value in the **"Password field"** on the Web Interface login screen (Username is not

changed in the Phone's Web Interface, it remains as its default value -admin- even after provisioning). You may leave the Web Page Password as is or specify your own.

5. Confirm the IP address which the phone should connect to (in case your phone system server has multiple network interfaces).
6. In the **"Select Provisioning Method"** drop-down menu, select the appropriate provisioning method for the location of the phones. For phones located on the LAN, select **"Local Lan (In the Office)"**. If this is a remote phone, select either **"Remote Extension (STUN)" or 3CX Session Border Controller** depending on whether you are using the 3CX SBC or not. Learn more here.
7. The codecs and codec priority will be automatically configured depending on the phone model selected.
8. If your phone has BLF lights, you can automatically configure what information the BLF lights should display. Match a BLF button with an extension, so that this button will show the status of that extension. The number of available BLF buttons varies per phone.
9. You can also link a shared parking place to a BLF button. This allows users to easily park or unpark calls by pressing the assigned BLF button. Speed dials and custom speed dials are also supported.
10. Click **"OK"** to save. The provisioning files will now be created in the provisioning directory. Each time you make a change to the extension, these files will be re-created.

Step 2 – Configure the Phone to Retrieve the Configuration File

Now you need to instruct the phone to download its configuration from the provisioning directory on the 3CX Phone System server:

1. Determine how to enter the Phone Provisioning URL in your phone. In some cases the URL must be modified somewhat. Follow the IP phone configuration guides in the Supported IP Phones page**.**
2. Decide whether you will use option 66 and DHCP or whether you will configure the URL manually via the phones web interface.
3. If using Option 66 in your DHCP Server, configure your DHCP server to provide the provisioning URL at startup. More information follow our guide on How to Auto-Provision IP Phones with the DHCP "Option 66"
4. If via the Phone's Web Interface, follow the steps in the configuration guide for your phone.

Managing Your IP Phones

3CX Phone System provides an easy way to monitor and manage your phones throughout your network. The **"Phones"** node in the 3CX Management Console allows you to:

● View all phones in the network.
● Quickly view the IP and Mac address of each phone.
● Check the firmware version that the phone is running.
● Remotely reboot one or all of the phones.
● Re-provision the phones (after you have made a change you can reboot the phones as changes take effect immediately).
● Launch the admin interface of the phone.
● **Monitor security of extension password and PIN.** Weak extension passwords and PINs are the most common cause of security breaches.

Changing Settings and Re-Provisioning the Phones

Changes made to the phone configuration from the "**General**" tab of the **"Extensions"** node or within the "**Phone Provisioning**" section of the **"Settings"** node, will take effect within 24 hours. You can re-provision the phones to force them to pick up the new configuration immediately.

If you need to re-provision the phones, for example after you have made configuration changes:
1. Select the **"Phones"** node in the 3CX Management Console.
2. Select the phones that you wish to re-provision.
3. Click **"Reprovision phones"**.
4. Select the phones again and select **"Reboot"** to restart the phones and activate the new provisioning information.

Updating the Firmware on Your Phones

It is possible to update the firmware of your Cisco, Fanvil, Htek, snom, and Yealink IP phones throughout your network from the 3CX Management Console. Each of the firmwares has been interop tested by 3CX. It is recommended that you upgrade firmware using this method and not by downloading the firmware directly from the vendor's websites. To upgrade your IP phones to the latest 3CX tested firmware:
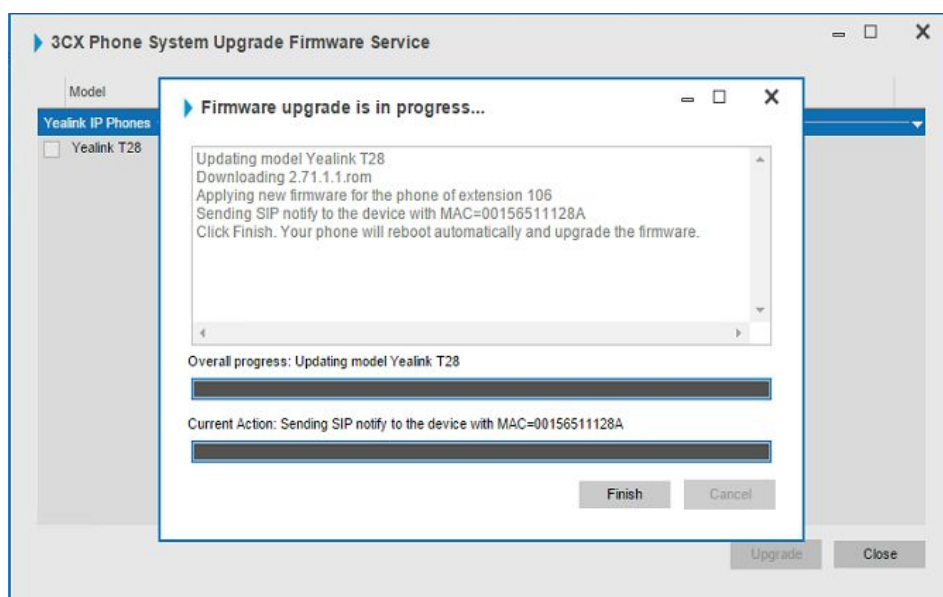
1. From the "**Phones**" node, select the IP phones which you wish to upgrade the firmware on and click the **"Upgrade Firmware"** button.
2. Select the model and firmware of the phone from the upgrade list and click **"Upgrade"**. The firmware will be uploaded and the phone rebooted. Note this feature requires a valid maintenance agreement.

Remote Extensions

A powerful benefit of 3CX Phone System is its ability to support remote extensions, i.e. employees using their extension from home or on the go. This gives tremendous flexibility to employees and delivers true mobility, because employees working from home or away can still be seamlessly integrated with the head office phone system. They can be members of call queues and use 3CXPhone to see the presence of other users. There are two ways to configure a remote extension:

- Directly using standard UDP. Requires correct [Firewall & Router Configuration](#) and might be problematic with some low end firewalls.
- Using the 3CX Tunnel protocol. Requires deployment of the 3CX SBC (Session Border Controller). Read our guide about the [3CX Tunnel / 3CX Session Border Controller](#)

Deploying the 3CX SBC is preferable. See our guide on [Provisioning a Remote Extension](#) for a more detailed explanation of the subject.

See Also
- Have more than one phone? No problem see [Configuring Multiple IP Phones for a Single Extension](#).
- In addition to IP phones, 3CX supports various for endpoints See [Supported IP Phones Page](#) for the full range.
- Remote phones? Read our guide on [Provisioning a Remote Extension](#)
- For Information on Port forwarding see our guide for your [Firewall & Router Configuration](#).
- How to configure [Yealink Hot Desking with 3CX Phone System](#) and use the same IP phone for multiple users.
- How to configure [snom Hot Desking with 3CX Phone System](#).

Extension Management

On this topic

Introduction

This chapter explains how to create and configure extensions in 3CX Phone System. There are multiple ways to create an extension:

- When provisioning a new phone, you can choose to create a new extension.
- Extensions can be manually created from the "**Extensions"** node.
- Extensions can be imported from Active Directory (or any other LDAP server).
- Extensions can be imported from a .csv file including parameters such as DID.

Importing Extensions from Active Directory

You can import extensions directly from Active Directory or another LDAP server. The added benefit to this method is that every time a change is made to the user configuration in Active Directory, users can be re-synchronised, in which case only the updates will be imported. The step by step guide on how to Import Extensions via 3CX Active Directory explains the process in detail.

Importing Extensions from a .csv File

Create a spreadsheet with columns for each field that you wish to import and save as a .csv file. The document How to Manage Extensions in Bulk using a .csv file has a detailed explanation on how to achieve this. Then:

1. Log in to the 3CX Management Console and click on the **"Extensions"** node.
2. Click on the **"Import extension"** button.
3. Select your .csv file and click **"Open"** to import your extensions.

Extension Configuration

To configure an extension, click on the **"Extensions"** node in the 3CX Management Console. Click on **"Add Extension"** to create a new one or select an existing extension and click **"Edit Extension"**.

General

In the User Information section you can enter the first name, last name and the email address of the user. A welcome email with information on the extension created, as well as voicemail and missed call notifications (configurable), will be sent to the specified email address. In the Authentication section, the authentication ID and password are auto generated, however they can be altered as needed. If the phone is provisioned, the authentication details will be sent to the phone automatically.

Voice Mail

The **"Voice Mail"** tab allows you to configure the extension's voice mail preferences including the voicemail PIN number for authentication, enable/disable PIN Authentication, play Caller ID, and if you want 3CX Phone System to read out the Caller ID and the Date / Time of when the message was received. You can also choose to send an email notification, when voicemail is received. This can be configured to contain the voicemail message, and also delete the message from the server freeing up space.

The **"Manage greetings"** section allows you to configure your voicemail greetings. The following options are available:
- **Add new** – Allows you to add a new greeting from a pre-recorded .wav file.
- **Record from phone** – Lets you record a new greeting file from your phone and add it to the greetings list on the left.
- **Delete** – Deletes the selected greeting file from the greeting list on the left.
- **Refresh WAV files** – Refreshes the list of greeting files in the user's folder.
- **Play on phone** – Allows playback of the selected greeting file on a configured IP phone.
- **Play -** Allows you to download the selected greeting file to your computer and listen to it.
- You can also choose whether to play the same greeting file for all your statuses or configure different greeting messages for each status.

Forwarding Rules

Each extension can have a set of call forwarding rules that define what 3CX Phone System should do when the extension user is unable to take an incoming call. This can be configured based on:

- The user's status.
- The time.
- The caller ID.
- Whether the call is an internal or external call.

Each status requires a call forwarding rule. For example, if the user is unable to take a call whilst their status is **"Available"**, you can forward the call to voicemail, whilst if the status is set to **"Out of Office"** you could forward it to their mobile.

Call forwarding can be configured by the administrator using the 3CX Management Console or by the user from the 3CXPhone client. Instructions on how to configure call forwarding for an extension can be found on the [Configuring Forwarding Rules](#) user manual page.

Other
User Information
The user information section allows you to set status, log in and out of queues, turn DND on or off, configure the caller ID for the extension and the SIP ID.

Extension Capabilities

The extension capabilities section allows you to set advanced options for a particular IP phone registered to this extension. These options are best left as default.

Options
The options tab allows you to configure options, restrictions and access for the extension.

- **Record all calls** – Records all calls for this extension.
- **Call screening on** – Use ONLY for the Rebound feature. Will prompt the user for a name and play the name to the called party so that the person may decide to take the call or not.
- **Send email notification for missed calls** – Triggers an email for each missed call.
- **Do not show extension in 3CX company phonebook** – Removes extension from the phonebook.

Restrictions

- **Disable Extension** – Disables extension.
- **Disable External Calls** – Disallows any external calls from the extension.
- **Pin Protect** - You can configure an extension to allow outbound calls only after they enter a PIN. To unlock the extension, the user dials 777 followed by the PIN and a #. The PBX will inform the user that access has been granted. The user can then proceed to dial the desired external number.
- **Disallow use of extension outside the LAN** – Blocks any registrations from outside of the network. This setting applies to IP phones.
- **Block remote tunnel connections** – Blocks the extension from being registered outside of the network, even if it uses the tunnel feature (which is seen as a local registration).

Access

This section allows you to control access to the 3CX Management Console, 3CX Web Reports and 3CX Hotel Module to an extension.

Office Hours Scheduling

The Office Hours Scheduling feature allows a user's status to be changed based on global office hours or specific office hours.

Configure Hours

Select if the extension will follow the PBX's Global Office Hours, or use its own Specific Office Hours. To specify Specific Office Hours, enable the option and click **"Configure"**. You can also configure Break Times by clicking **"Configure"** next to the option. These options can be used in conjunction with the options available below to automatically change the status of the extension.

Automatic Extension Scheduling

When you have Configured Office hours and Break times, you can enable the following options to control automatic status changes and extension functionality based on the time of day:

- **Automatically change extension profile based on time of day** – Outside of Office hours, the user's status will automatically be switched to **"Out Of Office"**. The user's status can also be changed to **"Away"** on configured break times.
- **Log out from queues when not available (Away / Out of Office)** – This option will automatically log the user out from queues when he switches to **"Out of Office"** or **"Away"** status.
- **Block Outbound calls outside of Office Hours** – Blocks any outbound calls from this extension outside of office hours.

Extension Rights

The **"Rights"** tab allows you to quickly check an extension's Group membership rights for this extension and configure them according to your preferences. All the available groups appear on the **"Group Membership"** list on your left.

Any group that the extension already belongs to, is checked, and the role of the current extension in the group appears in the Role column. The user's rights for the selected group are displayed on the right side of the tab.

You can modify the extension's rights for that group by ticking off the options in the **"Rights currently assigned"** section of the tab or even change the extension's role by clicking on the **"User Rights"** and selecting **"User"** or **"Manager"** from the drop down menu.

To add an extension to a group simply tick the checkbox next to the group name that you want the extension to be a part of and select the user rights on the **"User Rights"** section of the tab. Click **"OK"** to apply your changes.

Extension Groups

Extension groups are used to determine what information is shown to whom. In addition, they help group the extension for both users and administrators. Note that an extension has to be part of at least one group.

Users can be assigned rights to see details of other members in their group, managers can be assigned elevated rights over users in their group. Rights are assigned based on Group membership. That means that a manager will be able to see call details of any member of their group, independent of the call destination or origin.

Default Group

The Default group contains all extensions, whereby users of the group have no rights, but managers of this group can see information about all the extensions. Any extension you create will automatically be assigned to this group initially (until you remove it or assign it to another group).

Note: The V11 management group has now been rendered obsolete and is replaced by the **'Default'** group. "**Management Group rights**" is now **"Default Group Rights"** in the **Default Group**. If you are restoring a backup from V11 then all the users will be added as users to the **Default group** and any managers in the **management group** will be added as **managers** in the **Default group.**

The Default Group is a group that is always present in 3CX Phone System. Managers assigned to this group can:
- See the call details of ALL extensions and queues (since all extensions are part of the default group unless you remove them from the group)
- Perform operations on ANY call in the system (Pickup, Transfer, Divert, Reject, Barge-in, and Park).

To add an extension to the Default group:
1. Click on the **"Default"** sub-node under the **"Extensions"** node.
2. Select an extension on the left and click **"Add"**. Click "**OK**" to save changes.
3. Now logout and login with this extension's 3CXPhone to see the additional information.

Group Membership

To create an extension group:

1. In the 3CX Management Console, click on the "**Extensions**" node and click on the **"Add Extension Group"** tab, from the top menu.

2. Now proceed to add extensions by selecting extensions from the left list and clicking on the **"Add"** button. Note that Extensions can now be part of multiple groups. **Publish Group information to all company users:** This option publishes your Group presence to all the 3CX Phone System Users (all the extensions can see your group presence and calls).

You can select which user will be the Manager of the group by:

1. Clicking on the **"Member Rights"** tab, then clicking on the user's name in the **"Extensions in this Group"** list.

2. You may then select the **"Role of user in this group"** where you may select **"Manager"** or **"User"** and accordingly the user will be granted the rights of a manager or a user. You can configure one or more **"Managers"** for any group. Typically this would be a department supervisor. Group Managers will be able to see the call details of everyone within that group.

Group Default Rights

The **"Default Group Rights"** tab specifies the default rights that are assigned to each user role. The default **"Manager"** and **"User"** rights apply to the current extension group. You can configure these rights separately for each extension group.

To configure the default group rights:

1. Click on the **"Default Group Rights"** tab. These settings pertain to what group members and users within this group can see and do in 3CXPhone.

2. Optionally you can enable the Manager's extension to perform operations on calls of the group members. Check the option **"Perform operations on calls to users of this group"** to enable this.

3. Similarly, you can also configure what rights User group members have.

4. Click "OK" to save the group and rights information. Users will need to logout and login to 3CXPhone to see their new rights reflected.

Customizing Rights for Individual Users

If you want a particular user or manager to have more (or fewer) rights than the defaults specified in the **"Default Group Rights"** tab, you may specify these rights by:

1. Clicking on the member's name in the **"Extensions in this Group"** list in the **"Members Rights"** tab.
2. Ticking off the checkboxes with the rights that you want the member to have in the **"Rights currently assigned"** part of the tab.
3. The options available for the users are:
   - Can see group members – Allows the user to see all group members presence.
   - Can see group calls – Allows the user to see calls made by group members.
   - Show presence to group members – Shows the user's presence to group members.
   - Show calls to group members – Shows user's calls to group members.
   - Perform operations (divert, transfer, take) on any active call to group members.
   - Can Barge in – Can barge in to calls made by group members.
   - Can Intercom – Allows the user to intercom other extensions.
   - Allow parking – Allows the user to park calls so that other users can pick them up.
   - Allow IVR control – Allows user to control the IVR.
   - Allows to manage Company Phonebook – Allows the user to add / edit / Delete contacts from the Company Phonebook via the 3CXPhone for Windows Client.
4. Select the options that suit your needs accordingly and then click **"Apply"** to apply the chosen rights. A restart of the configured extensions 3CXPhone client is needed for the changes to take effect.

Regenerate Provisioning Files

When you make a change, for example, to ports or the FQDN then the provisioning URLs will change. In this case you will need to reprovision your phones so they obtain the new URL. This can be done directly from the 3CX Management Console.

To regenerate provisioning files:
1. From the **"Extensions"** node in the 3CX Management Console select the extensions which you would like to regenerate the provisioning file for, select a single extension or hold down the "CTRL" key on your keyboard to choose more than one extension.
2. From the top menu click **"Regenerate provisioning files"**. The provisioning files will then be re-generated for the extensions chosen. You can then re-provision the phones to pick up their re-generated provisioning files as described in the Changing Settings and Re-Provisioning the Phones section in the previous chapter.

Recordings Management

Conversation recordings and voicemail messages can grow quite large and take up a lot of space. You can manage these recordings by setting Auto Clearing Options to limit them. You can also download and delete recorded conversations directly from the **"Recordings Management"** node under **"Settings"** in the 3CX Management Console.

To set up the number of days to keep recordings:
1. Expand the **"Settings"** node > select **"General"** then switch to the **"Quota"** tab.
2. Tick the checkbox for the type of recordings to clear, then select the number of days that they will be kept before they're deleted and click **"Save"**.

See Also

- Information on delegating 3CX Management Console access, along with use case examples read our Delegating 3CX Management Console Access chapter.
- See the user manuall about Recording a conversation or conference call.
- See our Checking and Managing your Voicemail guide to learn how to do this from your 3CXPhone.
- Find information on Customizing Email Templates.
- Read more about Recording Management.

Configuring a VoIP Provider / SIP Trunk

On this topic

Introduction

VoIP providers "host" phone lines and replace the traditional telco lines. VoIP providers can assign local numbers in one or more cities or countries and route these to your phone system. In most cases they also support number porting.

VoIP providers are often able to offer better call rates because they may have an international network or have negotiated better rates. Therefore, using VoIP providers can reduce call costs. However, be aware that each VoIP call requires bandwidth. VoIP is real time, so it does place a demand on your Internet connection. As a rule of thumb, each call will consume approximately 30-120 kb per second, depending on which codec you use. The document, Bandwidth Overhead over DSL connections, includes detailed information about bandwidth consumption, including particular codecs bandwidth usage.

3CX recommends using supported VoIP providers. All supported VoIP providers have been tested for interoperability with 3CX Phone System, and are re-tested with each new build. Their configuration templates are also included with 3CX Phone System to allow you to quickly and easily add them. See the list of 3CX Supported SIP Trunk Providers

3CX Phone System supports two types of VoIP providers:
- **Registration Based** – These VoIP providers require the PBX to register with the provider using an authentication ID and password. Most of the VoIP providers pre-defined in 3CX Phone System are registration based.
- **IP Based / SIP Trunk** – IP Based VoIP Providers (also known as SIP Trunks) do not generally require the PBX to register with the provider. The IP address of the PBX needs to be configured with the provider, so that it knows where calls to your number should be routed.

Requirements for using a VoIP Provider / SIP Trunk

If you plan to use a VoIP provider, you need to have a firewall/router/NAT device that supports STATIC PORT MAPPINGS. Often routers will perform port address translation, which will cause problems such as one way audio, failing inbound calls and so on. It is also highly recommended that you have an FQDN that resolves to a static external IP. If your external IP changes intermittently, inbound calls will fail. See the Firewall & Router Configuration for details to configure your firewall/router/NAT device.

Configuring a VoIP Provider / SIP Trunk

Step 1: Create an Account with a VoIP Provider

First, you need to have an account with a VoIP service provider. 3CX Phone System supports most popular SIP based VoIP service providers and we recommend using one that has been tested by 3CX as 3CX includes pre-configured templates for these VoIP providers. Go to http://www.3cx.com/partners/voip-providers/ to see a list of supported providers.

Step 2: Add the VoIP Provider Account in 3CX Phone System

After you have created the VoIP provider account, you will need to configure the account in 3CX Phone System. To do this:

1. In the 3CX Phone Management Console menu, select "**SIP Trunks" > "Add Provider"**
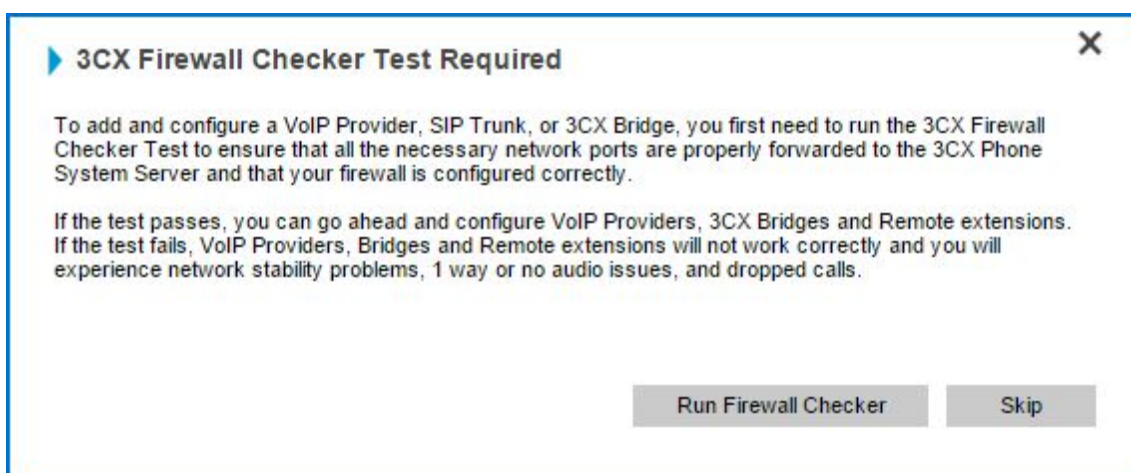
2. 3CX Phone System will prompt you to conduct a Firewall Test. Frequently, the internet facing firewall sitting between 3CX Phone System and the VoIP provider is not correctly configured or is not able to correctly route VoIP traffic. To check the firewall configuration, it is important to perform a firewall check using the inbuilt firewall checker.

   - Click **"Run Firewall Checker"**.
   - Ensure that the tests for the SIP Port (default port 5060), and the Audio Port range (default ports 9000-9255) all pass with success. If the firewall check fails, you must go to your firewall and troubleshoot why the test failed.
   - After successfully completing the test, return to the VoIP Provider Wizard.

   Note: 3CX does not provide specific firewall configuration support.
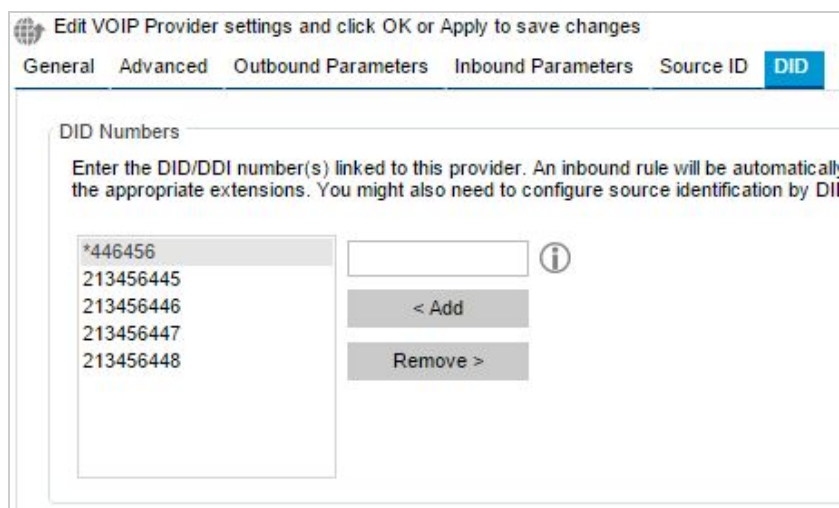
3. Enter a friendly name for this VoIP provider account.
4. Select the Country that the VoIP provider operates in.
5. Select your VoIP provider from the Provider drop down list. If the provider is not listed, select "Generic VoIP Provider", or "Generic SIP Trunk", (If using a generic provider we will not be able to guarantee that 3CX will work with this VoIP provider), Click **"Next"**.
6. The SIP server hostname or IP may be pre-filled. Compare these with the details that you have received from your VoIP provider and check that these are indeed correct. Depending on the VoIP provider that you are using, some fields will be disabled. This means you do not need to change them. Click **"Next"** to continue.
7. Now enter the VoIP provider account details. In the External number field, enter the VoIP line number that has been assigned to you. Then enter the Authentication ID/username and password of your VoIP provider account. Specify the number of simultaneous calls your provider allows. Click **"Next"** to continue. If you are using a SIP trunk, the password will be greyed out, since authentication is done via IP.
8. Specify how calls from this VoIP provider should be routed. You can specify a different route outside office hours. The routing configured here will take effect when no inbound routing rules are matched.
9. On the next page, you can optionally configure an outbound call rule, which will be used to route outbound calls through the new provider. This is normally done by routing calls starting with a specific prefix. Enter the dialling prefix in the **"Calls to numbers starting with (prefix)"** text box. To make calls via this provider, precede the number to be dialled with this prefix.

More about Outbound and Inbound Rules can be found in the Trunk Management Section.

DID's and Inbound Call Identification

If your VoIP provider has provided you with DID numbers, you will need to specify these in the DID tab. To do this:

1. In the 3CX Management Console, select **"SIP Trunks"** click on the VoIP provider you want to configure.
2. Click on the **"DID"** tab.
3. Add the DID numbers associated with your account. An Inbound Rule, which can be configured at a later stage, will be created for each number specified in this list.

You can also see the list of inbound rules by expanding the **"Inbound Rules"** node.
More about Inbound Rules can be found in Chapter 8.

See Also

- See the Firewall & Router Configuration to configure your firewall/router/NAT device.
- Find more about Outbound and Inbound Rules in the Trunk Management Section.
- Add How much dedicated bandwidth do I need for VoIP? See the Bandwidth Overhead over DSL connections guide to find out.
- See the list of 3CX Supported SIP Trunk Providers.

Configuring VoIP Gateways

On this topic

Introduction

External calls can be made on PSTN/phone lines or via VoIP providers. A traditional PBX requires you to connect the PSTN lines to the PBX hardware box; however in the case of 3CX Phone System you have more options:

- Connect PSTN lines (physical phone lines) to a VoIP Gateway situated on your internal network.
- Connect PSTN lines to a VoIP add-in card, installed in the machine that 3CX Phone System is running on or on another machine.
- Use a "hosted" phone line from a VoIP Service Provider. In this case the VoIP service provider gives you the ability to make calls via your internet connection. This is explained in the next chapter.

To make and receive external phone calls via your regular phone lines, you will have to buy and configure a VoIP gateway. This chapter explains what they are and how to configure them.

What is a VoIP Gateway?

A VoIP gateway is a device which converts telephony traffic into data, so that it can be transmitted over a computer network. In this manner PSTN/telephone lines are "converted" to SIP extensions, allowing you to receive and place calls via the regular telephony network. VoIP Gateways exist for analog lines as well as BRI, PRI/E1 lines and T1 lines. VoIP cards do the same thing, but are add-in cards that are installed into a computer.

What is a Port?

A port is a physical line outlet on a gateway or VoIP card. In the case of an analog line, one port is used for each voice channel. In the case of BRI ISDN, one port allows for two voice channels, and in the case of E1 or T1 ports, each port represents 30 and 23 channels respectively. Just as it is necessary to configure a phone to register with the phone system, it is also necessary to configure the VoIP gateway or card to register its ports with 3CX Phone System. Some devices build a hunt group for all available ports and present them as on single virtual extension inside 3CX Phone

System (Beronet & Patton devices) and others represent each port individually (Welltech)

Supported VoIP Gateways

It is important to use a VoIP gateway supported by 3CX. Supported gateways have been tested by 3CX and are automatically configured with their correct settings. If using the default configuration, 3CX will also provide first line support of their use with 3CX Phone System. A list of the latest supported gateway hardware, can be found on the [Supported VoIP Gateways & ATA's](#) page.

In order to configure a VoIP Gateway with 3CX follow the steps outlined below.

Step 1: Discover and Update the VoIP Gateway

The first step is to connect the gateway, assign a static IP and update the firmware on the VoIP Gateway.

BeroNet Gateways

If you have a BeroNet gateway, you will need to:

1. Use the "bfdetect" tool to find the gateway on the network.
2. Configure the Gateway in 3CX as described in the previous step.
3. Click on the "**Configure BeroNet Card**" button at the bottom of the summary page
4. Login with admin/admin and follow the screen instructions to complete the setup.

More information is about [Configuring Beronet BeroFIX](#).

Patton SmartNode Gateways

If you are using a Patton SmartNode gateway, you will need to:

1. Use the Patton SmartNode Discovery Tool to find the gateway on the network.
2. Configure the Gateway in 3CX as described in the next step.

More information about [Connecting A SmartNode to the Network](#).

Welltech WellGate Gateways

If you want to use a Welltech gateway, you will need to:

1. Plug an analog phone into the device and dial #126# on FXS devices
2. Prepare the Welltech Gateway by updating the required firmware provided by 3CX.
3. Update 3CX Phone System to download the latest template updates for your Wellgate.
4. Configure the Gateway in 3CX as described in the next step.

Step 2: Configure the VoIP Gateway in 3CX Phone System

The second step is to create the VoIP gateway in the 3CX Management Console and configure it.

1. In the 3CX Management Console, click the **"PSTN Gateways"** node **> "Add Gateway"**.
2. In the name field, enter a friendly name for the VoIP gateway. Now choose the gateway brand and model that you are using from the list. Click **"Next"**.
3. Depending on the gateway you selected, you might be asked additional options, such as what country the device will be connected in. Some options are line specific and you may need to check with your line provider.

4. Enter the hostname or IP of the VoIP Gateway in the **"Gateway Hostname or IP"** field, and specify the SIP Port on which the gateway is operating. By default this is 5060.
5. Specify the number and type of ports the gateway supports, i.e. analog, BRI, PRI or T1. This will set up one account for each port and enable the corresponding number of calls/lines for that account.
   - An analog line supports 1 call.
   - A BRI port supports 2 calls.
   - An E1 (PRI) supports 30, and a T1 (PRI) supports 23.

For example, if you specify 1 x T1 port, it will create one SIP account which can handle up to 23 calls. Click **"Next"**.

6. The individual ports will be "created" and displayed in a columnar format.
   - **Virtual extension number** – In effect the VoIP Gateway "converts" each line/port to an extension, so that the phone system can receive and forward calls to it. The virtual extension number is a number assigned by 3CX Phone System so that it can address it as an extension. There is no need to change this field.
   - **Authentication ID & Password** – These values are used to authenticate the ports with 3CX Phone System.

- **Channels** – The Channels field shows how many simultaneous calls the port supports. An analog line supports 1 call; a BRI port supports 2 calls, an E1 (PRI) 30, and a T1 (PRI) 23. **Port Identification** – This field shows the identification number given to the port. Here you can specify the number that was assigned by your telco provider.
- **Inbound Route Day/Night** – If the port will receive inbound calls, you can specify to which extension, ring group or digital receptionist a call must be routed. This can be changed and extended to support multiple DIDs at a later stage.

7. On the next page, you can create an outbound rule for the VoIP Gateway that is being configured. For example, you can have calls where the called number starts with a prefix routed to this Gateway. Click **"Finish"** to create the VoIP Gateway.

See Also

- Configure [BeroNet BeroFix /Small Business/ 400/1600/6400](#) – 1 or 2 BRI | GSM | FXO | FXS
- [Patton Smartnode 4112, 4114](#) – [FXO (Analog lines)](#) & [FXS (fax)](#)
- [Patton Smartnode 4970](#) – T1 & E1 (1 or 4 port)
- [Patton SmartNode 4120](#) – ISDN BRI (1 & 2 port)
- [Welltech WellGate 2540](#) – 4 port FXO or 4 port FXS
- [Welltech WellGate 2424s](#) – 24 Port FXS
- [Welltech WellGate ATA 172plus-POE](#) – 2 Port FXS (fax)
- [Connecting A SmartNode to the Network](#)

Trunk Management

On this topic

Introduction

Outbound and inbound rules dictate how 3CX Phone System routes calls based on certain criteria. You can, for example, configure rules to control through which VoIP gateway or provider a call will be placed through, based on least cost routing, so that local calls go through your ISDN lines and international calls through your VoIP provider. You can also create DID (Direct Inward Dialing) numbers which will allow you to place calls directly to a user's extension, bypassing the receptionist or IVR.

Creating Outbound Call Rules

An outbound rule denotes through which VoIP gateway/provider an outbound call should be placed. Based on who is making the call, the number that is being dialled or the length of the number.

When configuring a VoIP Gateway or a VoIP Provider, you will be asked to create an outbound rule that will be used to route calls to the Gateway or Provider. You can also edit these rules or create new ones from the outbound rules node.

Create an Outbound Call Rule to configure on which PSTN port, VOIP provider or bridge an outbound calls should be placed on

General

Rule Name	Route to PSTN

Apply this rule to these calls

Define to which outbound calls the rule must apply

Calls to numbers starting with prefix	9
Calls from extension(s)	100-200
Calls to Numbers with a length of	8
Calls from extension group	... Select

Make outbound calls on

Configure up to 3 routes for calls. The second and third route will be used as backup. For each route, digits can be stripped or added.

			Strip Digits	Prepend
Route	1	Welltech	0	
Route	2		1	
Route	3		1	

To create an outbound rule:
1. From the 3CX Management Console menu under select **"Outbound Rules" > "Add Outbound Rule"**, and enter a name for the new rule.
2. Specify the criteria that should be matched for this outbound rule to be triggered with. In the **"Apply this rule to these calls"** section, specify any of the following options:
   - **Calls to numbers starting with prefix** – Apply this rule to all calls starting with the number you specify. For example, enter 9 to specify that all calls starting with a 9 are outbound calls and should trigger this rule. Callers should dial "9123456" to reach number "123456".
   - **Calls from extension(s)** – Select this option to define a particular extension or extensions range for which this rule applies. Specify one or more extensions separated by commas, or specify a range using a -, for example 100-120.
   - **Calls to Numbers with a length of** – Select this option to apply the rule to numbers with a particular digit length, for example 8 digits. This way you can capture calls to local area numbers or national numbers without requiring a prefix.
   - **Calls from extension group** – Rather than specifying individual extensions, you can select an extension group.
3. Now specify how outbound calls matching the criteria should be handled. In the **"Make outbound calls on"** section, select up to three routes for the call. Each defined gateway or provider will be listed as a possible route. If the first route is not available or busy, 3CX Phone System will automatically try the second route.

The alternative Outbound Routes will have to be configured in order for calls to take these routes, when the first is unavailable. By default the second and third routes Block Calls.

Create an Outbound Call Rule to configure on which PSTN port, VOIP provider or bridge an outbound calls should be placed on

General

Rule Name — Default Route

Apply this rule to these calls

Define to which outbound calls the rule must apply

Calls to numbers starting with prefix

Calls from extension(s)

Calls to Numbers with a length of

Calls from extension group — DEFAULT — Select

Make outbound calls on

Configure up to 3 routes for calls. The second and third route will be used as backup. For each route, digits can be stripped or added.

			Strip Digits	Prepend
Route	1	Bero	0	
Route	2	Welltech	0	
Route	3	BLOCK CALLS	1	

4. You can transform the number that matches the outbound rule before the call is routed to the selected gateway or provider using the "**Strip Digits**" and "**Prepend**" fields:
   - **Strip digits** – Allows you to remove one or more digits from the called number. Use this to remove the prefix before a call is dialled on the gateway or provider if it is not required. In the example above, you would specify to remove one digit, in order to remove the prefix "9" before it is dialled.
   - **Prepend** – Allows you to add one or more digits at the beginning of the number if this is required by the provider or gateway.
5. You can configure these options per outbound rule, since a rule that applies to a VoIP gateway connected to the local PSTN would normally require different criteria than a rule that applies to a VoIP Provider.

See our Outbound Rules – A Complete Example of how to create an outbound rule in 3CX Phone System.

Creating DID Numbers / Inbound Rules

Many companies provide users and/or departments with "Direct or DID numbers", which allow their contacts to call them directly, bypassing the receptionist. DID numbers are referred to as DDI numbers in the United Kingdom and as MSN numbers in Germany. Even if you make use of a digital receptionist, a direct line / number is often preferable because it's more convenient for the caller.

	VoIP Gateway/Provider	Port Identification	DID Name	DID Number	During Office Hours	Out of Office Hours
DID	VoIP Gateway	90001	Sales	*600	800	800
DID	VoIP Gateway	90001	Marketing	*601	803	803
DID	VoIP Gateway	90001	Technical Support	*602	801	801
DID	VoIP Gateway	90001	Management	*603	102	102
DID	VoIP Gateway	90001	Development	*604	101	101
DID	VoIP Gateway	90001	HR	*605	888	888
DID	VoIP Gateway	90001	Security	*606	101	101
DID	VoIP Gateway	90001	IT	*608	100	100
DID	VoIP Gateway	90001	Operations	*607	100	100
DID	VoIP Gateway	90001	Accounting	*609	100	100
DID	VoIP Gateway	90001	Compliance	*610	100	100

Direct dial numbers are easily implemented using **"Inbound Rules"**. DID numbers are provided by your VoIP provider or Phone Company and are virtual numbers assigned to your physical lines. Usually you are assigned a range of numbers, which are linked to an existing BRI/T1/E1. There will be an extra charge per number or per range, but this will be a fraction of the cost of adding physical lines. Enquire with your Phone Company or VoIP provider for more information about DID numbers.

Adding DID's

Configure inbound routing of calls based on DID/DDI or Caller ID

Inbound rule name

Enter a DID or string to look for in the SIP "to" field. Use wildcards (*) to match any digit for that entry. For example, entries 22444032 OR 2244403* will both match calls with a dialled number of +35722444032 in the "to" field

Inbound rule name: Sales ⓘ

Number/Mask

Select from the drop-down below the type of inbound rule you want to create and enter a mask for this DID. You can use the * as a wildcard either before or after your mask.

Inbound Rule type: Caller ID number/mask ⓘ
DID/DDI number/mask: *900 ⓘ

Apply this rule to these ports

Select the Gateway you want this DID/DDI rule to be applied to. You can select on the whole gateway which will apply the rule to all the ports, or you can select individual ports.

Available ports:
- Welltech
  - ✔ 90001[90001]
  - 90002[90002]
  - 90003[90003]
  - 90004[90004]
- Bero

Office Hours

Configure where calls to this DID/DDI should be routed during office hours.

- ◯ End Call
- ◯ Connect to Extension — 100 Operator ⓘ
- ◯ Connect to Queue / Ring Group — 801 Sales ⓘ
- ◯ Connect to Digital Receptionist — ⓘ
- ◯ Voicemail box for Extension — 100 Operator ⓘ
- ◯ Forward to Outside Number — ⓘ
- ◉ Send fax to — email of extension 888 ⓘ
- ☐ Set up Specific Office Hours — Set up Specific Office Hours
- ☐ Include holidays ⓘ

✔ Apply the same routing logic Outside of office hours
☐ Play Holiday Prompt on Public Holiday ⓘ

To add a DID:
1. From the 3CX Management Console, select **"Inbound Rules" > "Add DID"**.
2. Enter a name for the DID (for example Sales). Note: The DID name can be prepended or appended to the Caller ID so as to identify on which number a caller has called you from. You can enable this from the **"Settings" > "General" > "Global options"** page under

"Inbound name to Caller ID".

3. Under the new "Inbound Rule", the **"Inbound Rule Type"** allows you to choose between a DID/DDI or caller ID number mask.

4. In the **"DID/DDI Number/mask"** field, enter the DID number as it will appear in the SIP "to" header (The number your provider has supplied as your main, or first, DID number). 3CX Phone System will match the number inserted in this field with the "to" header, starting from the last part of the received string, thus avoiding any differences in the format of the number. For example, if you are based in the UK and your DID number is 0845-2304024, then you can enter the number 2304024. This will match any DID number inserted in the "to" field ending with these numbers, including +448452304024, 08452304024, 00448452304024, and, of course, 2304024.

5. Select for which Gateway or Provider ports you wish to add this DID to. If the DID number is associated with multiple ports, then you must select each port. An inbound rule will be created for each port that you select.

6. Specify where you wish to direct calls made to this DID:
   ● End Call
   ● Connection to extension
   ● Connect to Queue/Ring Group
   ● Connect to Digital receptionist
   ● Voicemail for extension
   ● Forward to outside number
   ● Send fax to email of extension

7. You can specify that an incoming call is routed differently if it is received outside office hours. De-select the **"Same as during office hours"** option to specify a different route.

8. Click **"OK"** to create the DID / Inbound rule.

Configuring Different Office Hours per DID

Businesses working globally across different time zones, will want to configure different office hours and holidays per DID.

To do this:
1. From the 3CX Management Console menu, click **"Add" > "DID / Inbound route".**
2. Give the rule a descriptive name. This will be used to identify which DID has been used when troubleshooting, as it can be seen in the logs. It will also be used for identifying which DID is being used to to make the call, and will be displayed in the Caller ID of the destination phone. This option can be selected, in the **Global Options**, to prepend the name of the DID.
3. In the "**DID number/mask**" type in the number. This can be a whole number, or a wildcard, both formats will be considered for processing. For example **1235551234** or ***234**.

4. Choose the provider/gateway port. This is used to identify over which line the call will be coming in from. A VoIP provider will only have one available port. A VoIP (PSTN) Gateway, will have one port for each physical line, depending on the make and model. FXO gateways for example will have one port for each line. E1/T1 gateways will only have one port per gateway.

5. In order to enable custom DID opening hours, uncheck the **"Apply the same routing logic Outside of office hours"** box.

6. Choose where you want to route out of office hours calls in the **"Outside Office Hours"** section.

7. Check **"Set up Specific Office Hours"**. This option will only be enabled if you disable **"Apply the same routing logic Outside of office hours"**. Click **"Set up Specific Office Hours"** to open up the dialog box.

8. Set your office hours and click **"OK"**.
9. Check **"Play Holiday Prompt on Public Holiday"** to play the holiday prompt whenever there is a holiday.
10. Click **"OK"** to accept the configuration of both the routing of the call as well as the opening

hours of the DID.

11. Go to the **"Settings" node > "General"**.

12. In the **"Office Hours"** section click on **"Configure Holidays"**. This will open up a special dialog box, where you can define holidays and record or select pre recorded .wav files to play for the holidays.

13. Give the Holiday a name, for example, **"New Year"**.
14. Choose the date for the holiday, for example 1 January. Since New Years Day recurs every year, you can choose **"each"** instead of a year. Holidays with a steady date each year can be defined like this. Dates which do not have a steady date each year can be defined as and when a holiday occurs, for example a bank holiday, you can define the current year or the next year.
15. Choose a prompt to play for the Holiday. Click **"Add"**.
16. Choose a prompt from the list of files already in the repository, and click **"OK"**.
17. Click **"Add"** to add the holiday and prompt to the PBX.
18. Click **"OK"** to exit the holiday configuration
19. Click **"OK"** in the General Settings to save the configuration.

Troubleshooting DID Numbers

If you have created the DIDs, but calls are not being forwarded as expected, do the following:

1. Go to the "**Server Activity**" log node in the 3CX Management Console. The Server Status screen lists current server activity and logs calls that are being received and for which number they were received on.
2. Call the DID number that you configured, and monitor the Server Status log. You will see a line similar to:
   Incoming call from 1000 to <sip:789456123@3CXPhone System>

where "1000" is the internal number of the line configured to receive calls from the VoIP Gateway or VoIP Provider and *<sip:789456123@3CXPhone System>* is the content of the "To" header of the INVITE, i.e. the intended recipient. (Note logging level should be set to Medium or Verbose to see additional messages.)

3. Now analyse the "**To**" header carefully and ensure that the DID number you have dialled is present in the "**To**" header: *<sip:789456123@3CXPhone System>.*
4. If you see a text 'Review invite & adjust source identification', you need to configure Source identification. See the chapter "Configuring a VoIP Provider / SIP Trunk" for more information.

Exporting & Importing DIDs

Exporting DIDs

If you need to export your Inbound Rules to a .CSV file format to either save them as backup or to make changes to them, follow these steps:

1. Log into the 3CX Management Console.
2. Click on the **"Inbound Rules"** node and select the DID's that you want to export.
3. Click on the **"Export"** button to begin exporting your DID rules.
4. Select a location and a file name for your exported DID rule file and click "**Save**". Your rules will be exported and saved in the CSV file.

Importing DIDs

If you want to create multiple DID rules you can do so by creating the necessary fields on a CSV file using the correct format, then importing them back into 3CX by using the import function.
To import your DIDs into 3CX from a CSV file follow these steps.

1. Log into the 3CX Management Console.
2. Click on the **"Inbound Rules"** node and click on the **"Import"** button.
3. Browse to the file that contains the DID rules that you want to import, select it and click **"Open"**.
4. The rules will be imported in 3CX Phone System.

See Creating and Importing DIDs for more information.

Caller ID Reformatting (Caller ID Re-Write)

Here you can find more information about Caller ID Reformatting

See Also

● See our Outbound Rules – A Complete Example of how to create an outbound rules
● See Configuring a VoIP Provider / SIP Trunk for more information on source identification.
● See how to create Extension Groups to add to outbound routes.

Configuring Digital Receptionist / Auto Attendant

On this topic

Introduction

The digital receptionist feature allows 3CX Phone System to answer phone calls automatically. When a call comes in to the phone system the caller is presented with a list of options. The caller can then choose the appropriate option using the numbers on their phone keypad. Using this feature you can implement a menu.

For example, "For sales press 1. For support press 2 or wait on the line to be transferred to the operator". A digital receptionist is also known as an auto attendant.

You can configure many different digital receptionists each with their own extension number. Depending on your preferences you may configure these to answer calls based on which line the call comes in from, as well on whether the call is received inside or outside office hours. For example, you can have a different prompt for outside office hours that does not include the options to be transferred to groups/queues that do not have agents available to take calls.

Recording a Menu Prompt

Before you create your digital receptionist, you must first write down the menu options you wish to offer the caller and then record the announcement. A simple example would be, "Welcome to Company XYZ, For sales press 1. For support press 2 or stay on the line for an operator"

Note: It is generally recommended to put the number the user should press after the option, i.e. "For sales, press 1", rather than "press 1 for sales". This is because the user will wait for the desired option and only then "register" what number to press.

Creating a Digital Receptionist

The Digital Receptionist (Auto Attendant) answers and directs calls automatically

You can create multiple digital receptionists and link them to a particular line. To create a digital receptionist:

1. In the 3CX Management Console menu, select **"Digital Receptionist" > "Add Digital Receptionist"**.
2. Specify a name and virtual extension number for the digital receptionist.
3. Now click on the **"Record"** button and enter your extension number.
   - You will be called so that you can record the prompt. The file will be copied into the %allusersprofile%\3CX\Data\Ivr\Prompts or C:\ProgramData\3CX\Data\Ivr\Prompts directory depending on your OS.
   - Alternatively click on the browse button and specify a file that you previously recorded. You must save the file in WAV format in **PCM, 8 kHz, 16 bit, Mono** format. (In Windows Sound Recorder you must use the "Save As" option to save this format) **Do not use MP3 format.**
4. Specify the menu options. Select the appropriate key, and then select from the available actions. Then specify the extension number or virtual extension number (virtual extension number in the case of Ring Group, Call Queue or to another Digital receptionist)
5. The last option, **Timeout**, allows you to specify how long the system should wait for an input. If it receives no input, it will automatically perform this action. This is handy for callers who did not understand the menu or who do not have a DTMF capable phone. When ready, click **"OK"** to save the digital receptionist.

Allowing Callers to Dial a Known Extension Directly

Whilst a digital receptionist prompt is playing, a caller can enter the extension number directly to be connected to an extension immediately. This allows callers who know their party's extension to avoid going through a receptionist. This option is enabled by default. If you wish to make use of this feature simply instruct your callers by explaining this in the voice prompt.

For example, "Welcome to Company XYZ. If you know your party's extension number, you may enter it now, otherwise, for sales press 1. For support press 2".

Call by Name

Using a Digital Receptionist, you can also direct callers to the call by name function. This allows them to find the person they wish to speak to by entering the first letters of the person's last name on the phone dial pad. The call by name function requires:

1. A self-identification message for the user. Users without a self-identification message are not accessible via the call-by-name feature.
2. Users can not have a last name with Unicode characters.
3. The Call-by-name menu feature must be made available from a Digital Receptionist as one of the menu options.

Self-Identification Message

To record your self-identification message:

1. Go to your voicemail menu (Default 999).
2. Enter your voicemail PIN number.
3. Go to the options menu ('9' key).
4. Press '5' key to record the self ID message.
5. Record your name only, i.e. "Sarah Jones".

How it Works

The Call-by-name feature uses the last name of the user and compares it with the input (that has been entered on the phone keypad). The following rules are used:

- The last name is converted to uppercase.
- All symbols except [2-9] and [A-Z] are ignored.
- The following translations for symbols are used:
  - 'ABC2' => '2'
  - 'DEF3' => '3'
  - 'GHI4' => '4'
  - 'JKL5' => '5'
  - 'MNO6' => '6'
  - 'PQRS7' => '7'
  - 'TUV8' => '8'
  - 'WXYZ9' => '9'

The caller has to type a minimum of three digits ('0' – '9') to call to a user. Digits '0' and '1' are ignored, but can be used to call users with short last names (for example, to access someone with the last name 'Li', you can type '540').

After the user has entered three digits, IVR queries the phone system database for matching users. If there are no matching users, you hear "extension not found". If there is only one matching user, the IVR plays "Please hold while I transfer your call" and redirects the call to the chosen extension. If there are more than one matching user, the IVR will wait for additional digits to be entered by the caller, for 2 seconds.

- If IVR waits for additional digits (more than one matching user) and caller presses any digit, the IVR will add this digit to the current input and check currently matching users. If there are no matching users, the IVR will play "extension not found".
- If the user does not input any more digits (2 seconds elapsed or '#' has been pressed) and more than one user is matched, then the IVR will play: "To call to Van Damme press 0. To call to Van Halen press 1. To exit press pound, (#)". In this example 'Van Damme' and 'Van Halen' are the self-identification prompts of the matching users.

Exchange Server IVR Integration

Note: Requires 3CX Pro Edition License.

Exchange Server 2013 SP1 includes a voicemail and an IVR feature that can be interesting to use for companies that deploy Microsoft Exchange Server. The Exchange IVR feature allows you to leverage speech recognition in your company's IVR. The voicemail feature allows you to convert voicemails to text and forward them via email.

More information on [Configuring MS Exchange Server 2013 Unified Messaging with 3CX Phone System](#) is available on this page.

See Also

- See our [3CX Online Training: Digital Receptionists](#) video and see first hand how to setup and configure your Auto Attendant.

Configuring Ring Groups / Paging / Intercom

On this topic

Introduction

The Ring Groups / Paging and Intercom features add powerful capabilities to your PBX. Ring groups will help you to never miss that important customer call, whilst the Paging feature allows you to make announcements to groups of people rather like a PA system.

Ring Groups

A ring group allows you to direct calls to a group of extensions. For example, you could define a group of three sales people, and have the general sales number "DID" ring on all three extensions

at the same time or after each other. When you create a ring group, you assign it a virtual extension number. This will be the number used by the phone system to "address" the ring group.

To add a ring group:
1. In the 3CX Management Console, select **"Ring Groups" > "Add Ring Group"**.
2. Now enter the ring group options:
    - Virtual extension number – This number identifies the ring group from other extensions. Keep the automatically generated extension number, or specify a new one as needed. Do not specify an existing extension number.
    - Name – Enter a friendly name for the ring group.
    - Ring strategy – Select the appropriate ring strategy for this ring group:
        - Prioritised Hunt – This will start ringing on the first extension, then the second etc.
        - Ring all – All phones will ring at the same time
        - Paging – This will page all extensions part of the group (see next section)
    - Ring time – Specify how long the phones should ring for.
3. In the section **"Ring group members"** specify the extensions that should be part of this ring group. Simply click on the extensions to the left and click on the **"Add"** button to add them to the ring group. Move the extensions up or down to configure the priority of an extension.
4. In the section **"Destination if no answer"**, you can define what should happen if the call does not get answered by the ring group.

Paging

Paging allows someone to ring a group of extensions and make an announcement via the phone speaker. The called party will not need to pick up the handset as the audio will be played via the phones speaker. The person paging will not hear any audio back from the people being paged. Both paging and intercom features require a phone that supports intercom and that is configured to allow it. To add a paging group:

1. Click on **"Ring Groups" > " Add Ring Group"** option to bring up the **"Add Ring Group"** page.
2. Now enter the ring group options:
    - Virtual extension number – Specify an extension number which will be used for this paging group.
    - Name – Enter a friendly name for the ring group.
    - Ring strategy – Select the "**Paging"** ring strategy.
    - Ring time – Specify how long the phones should ring for.
3. If you have phones that support multicast, and you have a very large installation with specialized requirements, you can enable the Multicast option. For most installations this option is not required.
4. In the **"Ring group members"** section specify the extensions that should be part of this paging ring group. Simply click on the extensions and click on **"Add"** to make them a member.

Important: Before using the Paging or Intercom feature make sure that you have specified the paging/intercom prefix number by:
1. From the 3CX Management Console, select **"Settings" > "Advanced" > "Dial Codes" tab** and adding the paging prefix in the **"Paging"** field (*11 for example).

2. Make sure that the user who is trying to page a group has the right to do so, select "**Extensions" > "Edit Extension" > "Rights",** Check the **"Can Intercom"** option in **"Rights currently assigned"** section.

Note: The **"Ring time"** and **"Destination if no answer"** options will be ignored, since they are not relevant for paging.

Intercom

The intercom feature allows a phone system user to make an announcement to a single extension. In this scenario the audio is two way, and the called party can respond immediately without picking up the handset. To call a user via the intercom function:

1. Prefix the extension you wish to call with the paging/intercom prefix (that you specified in **"Settings" > "Advanced" > "Dial codes" > "Paging" field**), followed by the extension number. For example you specified the paging prefix to be ***11** to make an intercom call to extension 100 you should dial: ***11100.**
2. You can now announce your message.

See Also

- Learn about [Busy Lamp Field](#) (BLF) – What it is and how it works
- Learn about [Dial Codes](#) and how to program them

Configuring Call Queues

On this topic

Introduction

Call Queues allow calls to be queued whilst agents (members of a call queue) answer calls. Calls do not go unanswered but wait in a queue until an agent is available to take the call.

For example, you can define a group of three sales people, and have the general sales number route to a sales call queue. If all three sales people are busy, callers will be kept in the queue until the next sales person is free.

When you create a call queue, you also assign it a virtual extension number. This will be the number used by the phone system to "address" the Call Queue.

Creating a Call Queue

To add a Call Queue:
1. In the 3CX Phone Management Console, select **"Call Queues" > "Add Queue"**.
2. Now enter the call queue options:

- **Virtual extension number** – Optionally change the suggested virtual extension number. Note that this extension number will be automatically created. Do not specify an existing extension number.
- **Name** – Enter a friendly name for the Queue.
- **Polling strategy** – This option allows you to choose how calls should be distributed to agents:
    - **Hunt random start** – 3CX will randomly choose an agent to distribute the call to. This will evenly distribute the calls to each of the agents.
    - **Ring All** – The phones of ALL the agents will ring.
    - **Prioritised Hunt** – 3CX will distribute the call according to the order specified in the Queue members section. All calls will go to the first agent first, and only if this agent is busy, it will go to the next agent. This strategy can be used to set up skills based routing, by ordering the agents according to their skills.

3. **Ring timeout** – Indicate the timeout in seconds, i.e. for how long the phone should keep ringing before it considers the call unanswered by that agent.
4. In the **"Call Queue Agents"** section specify the extensions that should be part of this Call queue. Simply click on the extensions and click on **"Add"** to make them a member. Move the extensions up or down to configure the priority of an extension.

In addition to being a member, an extension/user must also login to start answering calls routed to this call queue. Users can login to a call queue using the login button in the 3CXPhone or via a schedule using the Office Hours Schedule.

Configuring Queue Options

You can configure advanced queue options such as destination if no answer.

1. In the **"Destination if no answer"** section, you can define what should happen if the call does not get answered by an agent. If no agent is logged into the queue, this option gets triggered immediately. In addition, this option gets triggered if the caller presses the **'*'** button on his phone. This gives callers an option to exit out of the queue and leave a

message.

2. In the **"Other options"** section, you can specify a custom introduction prompt and a custom music on hold file. You can now choose whether to play the full intro prompt before the system starts to call queue agents. You can also decide whether you wish to announce a caller's position in the queue and what the maximum wait time should be.

Adding an External Agent to a Queue

3CX Phone System also allows you to add external numbers as agents of a Queue. This is particularly useful in the case that you want to use a mobile number, a remote extension, or even a VoIP number as an agent of a queue. To add an external agent to a queue:

1. Open your 3CX Management Console and click on the **"Call Queues"** node.
2. Double click the queue that you want to add an external agent to and below the list of queue agents click the **"Add"** button next to **"Add External Agent Number"**.
3. Fill in the external agent's details (an extension will also be created for the external agent).
4. Click **"OK"** when done and the external agent will be added to your queue.

Advanced Queue Features (Available in PRO Edition)

3CX Phone System Pro Edition adds additional Call Centre like features. No further installation is required – you just purchase the module, reactivate your existing key and the additional call queue features will become available.

Additional Queue Strategies

With the Pro edition, you have these additional Queue strategies:

- Longest Waiting Time– Will forward a call to the agent who has been waiting the longest to take a call.
- Least Talk Time – Will forward the call to the agent with the least total talk time.
- Fewest Answered – Will forward the call to the agent that has answered the least number of calls.
- Hunt by threes prioritized – Will forward the call to the top 3 agents (as configured in the call queue agent section simultaneously).
- Hunt by threes random start – Will send call to 3 random agents simultaneously.

- Round Robin – Will target only active agents, that are logged into the queue, in round robin manner, i.e. first call will be sent to agent 1, the second call to agent 2 and so on.

Additional Queue Options

In the PRO edition, you have additional options that you can configure:
- You can enable a Callback option – This allows callers to hang up and get called back when it's their turn. This option requires that you specify an outbound rule to which the configured prefix, matching the rule, is used to trigger the call. The Callback option can be requested by the caller (Option 2) or it can be offered, if the timeout of the queue is reached.
- You can specify the wrap up time in seconds – This gives the agent time to enter notes into the call record after taking a call.
- You can specify the maximum number of callers in the queue – When this is reached, the caller will be routed according to the setting in the **"Destination if no answer"** section.
- Reset Call Statistics for this Queue – Detailed statistics for the queue, such as average call time, average wait time and so on are visible through the Presence and Queue Monitoring function of 3CXPhone. You can reset the Agent Call Statistics for the Queue by clicking the **"Reset"** button. This is also available in 3CX Wallboard.
- Call statistics can also be reset automatically using a preconfigured schedule.
- Priority Queue – The administrator can configure this queue as a priority queue. This is useful when the same people are part of two queues, and calls on one of the queues should receive priority over calls in the other queue. For example, a support team might have one line (and one queue) for normal support calls, and another line (a different queue) for VIP customers. Both queues are serviced by the same people. The queue for VIP customers will have the **"Priority Queue"** feature enabled.
- Give Caller ability to opt out of recording: This gives the option to the caller to press DTMF 3 to stop being recorded during a call.
- Queue Notifications – Various notifications can be enabled so that the Queue Manager is

notified when certain conditions are encountered, such as the SLA time has been breached, or a call in the Queue has been lost.

See Also

- See your [3CX Online Training: Call Queues](#) and find out from the experts how to set them up.
- Read our guide on [Managing Queue Calls](#) using the presence screen built into the 3CXPhone for Windows.

Configuring Fax Server

On this topic

Introduction

3CX Phone System includes a fax server that allows you to receive faxes. 3CX Fax Server is based on the T.38 standard protocol and requires a compatible supported T.38 VoIP gateway or provider. VoIP providers and gateways must be configured according to our configuration guides, so that fax reception is enabled. It is also possible to use a VoIP provider that does not support the T.38 protocol, however, the quality of the fax implementation between VoIP providers varies and therefore can not be guaranteed.

Fax Receiving Configuration

To receive faxes, you must configure a line or a DID to be dedicated for receiving of faxes, so that all calls on this number are forwarded to the 3CX Fax Server. The 3CX Fax Server will then receive

the fax, convert it to PDF and email the fax to the configured email address. To configure fax reception:

1. In the 3CX Management Console, select the Inbound rule for the port or DID which will be dedicated for receiving faxes.
2. From the **"Office hours"** routing options, select **"Send fax to email of extension"**.
3. Select the extension that should receive incoming faxes. If you select **"Default Email Address"**, incoming faxes will be sent to the email address configured for the virtual fax extension number. You can configure the email address of the default virtual fax extension from the **"Fax Machines"** and select **"888"** then click **"Edit Fax Extension"**
4. Alternatively you can forward incoming faxes to the email address configured for a user's extension. This even allows you to create multiple DID rules and give personal fax numbers.

Configuring Fax Machines / Fax Servers

The **"Fax machines"** node in the management console lists all known **"Fax extensions"** including the extension used by the 3CX Fax Server. These **"Fax extensions"** are similar to a normal extension and require an authentication ID and password to login to the SIP server.

3CX Phone System included a pre-configured fax extension (ext: 888). This extension is used by the 3CX Fax Server for incoming fax calls, which will then be routed to an email address. In addition, 3CX Phone System can be configured to proxy fax calls (T.38 traffic) to a fax machine connected to an ATA or another software based T.38 fax server, by creating additional fax extension.

Step 1: Creating a Fax Extension

To create a new fax extension:
1. In the 3CX Management Console, select **"Fax machines" > "Add Fax Extension"**.
2. In the **"Fax Server Extension Number"** field, specify the fax extension number. Any calls forwarded to this extension will be assumed to be a fax and receive a fax tone.
3. Specify the Fax Server Authentication ID and Password – These credentials will be used by the ATA / 3rd party fax server to login to 3CX Phone System.
4. If this extension is used by the 3CX Fax Server, you can specify the default email address to which all faxes should be sent to.
5. If this extension is used for an ATA or 3rd party T.38 fax software, the extension will be used only to register to the SIP server and receive T.38 fax traffic.
6. If the fax extension is created to be used for an ATA or 3rd party T.38 fax software, you can configure the "Outbound Caller ID" to be sent when an Outgoing Fax call is made.

Note: You must restart the fax service for these changes to take effect.

Step 2: Connecting a Fax Machine using an ATA to the Fax Extension

Once you have configured the fax extension you can connect the fax machine to a supported ATA device and configure the ATA device to connect to the fax extension. The guide Configure Your Fax Machine with 3CX Phone System outlines this process step by step.

See Also

- Find out How to Setup Inbound Fax Routing in 3CX Phone System.
- Read more about Fax Configuration with 3CX Phone System.

Configuring Web & Call Conferencing

On this topic

Introduction

Call conferencing allows you to easily configure up to eight conference calls that can allow a total of 64 callers (license permitting). The 64 caller limit is for all conferences, not per conference. Although many conference call services exist, it's often easier and cheaper to host your own audio conferences. To simplify the set-up of conference calls, conferences can be set-up ad hoc, without the need to reserve a conference room.

3CX WebMeeting

In addition to standard voice conferencing, 3CX Phone System also has an advanced web / video conferencing feature called 3CX WebMeeting. This is a separately licensed service based on the number of concurrent participants you wish to host.

Call Conferencing

Configuring Conferencing

1. In the 3CX Management Console, expand the **"Settings" >** node, select **"Advanced"** and switch to the **"Conferencing"** tab.
2. Specify the conferencing extension number. This is the number that users must call to setup and connect to a conference.
3. Specify whether to require a PIN to create a conference. If you enable this, users that **create** a conference must enter this conference PIN, after the Conference ID. The PIN will be used automatically when a user creates the conference via 3CXPhone.

Creating a Conference Call

Conference calls can be created using one of the following methods:

1. From 3CXPhone, the user can create an ad hoc conference. For more information how to do this see the online user manual:
   - 3CXPhone for Windows
   - 3CXPhone for Mac
   - 3CXPhone for Android

- ○ [3CXPhone for iOS](#)

From the Conference section in 3CXPhone, the user can also schedule conference calls to occur in the future. Users will receive an email with the conference call details. External users need to be notified by the conference creator.

2. Users can also create conference calls using their IP phones. They will need to dial the Conference Extension number (700) by default, and follow the prompts.

See the guide for information on how to [Create an Ad-hoc Conference Call using your Desk Phone](#).

Web Conferencing

3CX Phone System has a powerful video conferencing feature called 3CX WebMeeting. By default you can host video conferences for up to 10 participants, included with every Standard or Pro License. You can license additional participants if you wish. See [3CX](#) [WebMeeting](#) [Pricing](#) to find out the full pricing structure and other available 3CX WebMeeting versions.

Configuring 3CX WebMeeting

Follow these steps to configure 3CX WebMeeting on your 3CX Phone System:

Step 1 - Enable the 3CX WebMeeting Feature

3CX WebMeeting requires 3CX Phone System Version 12 SP5 or above.

1. Navigate to the **"WebMeeting"** node.
2. Select whether you will use 3CX WebMeeting for up to 10 participants (included with every 3CX Phone System license) or whether you will buy a 3CX WebMeeting license to get more participants. In this case enter your license key.

3. Enter your company details.
4. Click **"Upgrade"**.

Step 2 - Create your 3CX WebMeeting Account

A 3CX WebMeeting portal, hosted on the 3CX WebMeeting Servers, is required so you can start creating meetings.

To create an account:
1. Switch to the **"Account Management"** tab (After activating the license).
2. Select the Region that applies to you.
3. Choose a web meeting location that is the closest to you.
4. Enter your URL, normally the company name. This URL will be shown in the meeting invites, i.e. the link that users will click on.
5. Select the extension user that is the administrator. Choose this correctly because this cannot be changed later.
6. Enter a password for the admin. Choose this correctly because this cannot be changed.
7. Click the **"Create Account"** button. An account will be created and dedicated to your organization.

Step 3 - Add users to your 3CX WebMeeting Account

Now you can create user accounts on your portal so they are able to create web meetings.

1. Click on the **"Users and Access"** tab.
2. The column on the left shows all available extensions inside 3CX Phone System. Select a user and click the **"Add >"** button to create user accounts in your portal. Each extension user that is moved to the right will be able to organize web meetings.
3. Click **"Save"**. Accounts will be created for the selected users.

Organizing web meetings from 3CXPhone

Users that have a 3CX WebMeeting user account created, are now able to organize and schedule web meeting sessions. All this can be done from within 3CXPhone. Start 3CXPhone for Windows or Mac and click on the **"Conference"** tab in the bottom operations toolbar. Two new options will be visible at this point: **"Create WebMeeting"** and **"Scheduled WebMeetings"**.

See Also

- Read how to Create an Ad-hoc Conference Call using your Desk Phone.
- How to create a Conference Call from 3CXPhone: Windows, Mac, Android, iOS.
- Find more information about Hosting a 3CX WebMeeting.
- How to Join a 3CX WebMeeting
- See also "Organizing Video Conferences" section in the User Manual.

Delegating 3CX Management Console Access

On this topic

Introduction

3CX Phone System allows you to delegate access to the 3CX Management Console; managerial tasks can be shared with department heads, or an IT Administrator may have access to manage the company's extensions. The level of access can be adjusted depending on what the user needs to have access to. Managerial tasks can now be delegated and divided between a group of individuals, rather than one administrator, allowing 3CX Phone System to be managed more efficiently.

Configuring Extension Access Permissions

To configure an extension's Management Console access:
1. From the 3CX Management Console, select the **"Extensions"** node.
2. Select the extension you want to grant access and click **"Edit extension"**.
3. Switch to the **"Options"** tab and set a 3CX Web Access password (provide it to the user of that extension).

The user can then login into the 3CX Management Console using their extension number as the username and the password you set for them.

The following sections are a number of sample use cases that outline how to configure 3CX Phone System, for each case:

Use Case 1: Allow Power Users to Manage their own Extensions

Power users can be allowed access to the management console to configure their extensions' parameters, such as edit their voice mail PIN number and configure their email notifications.
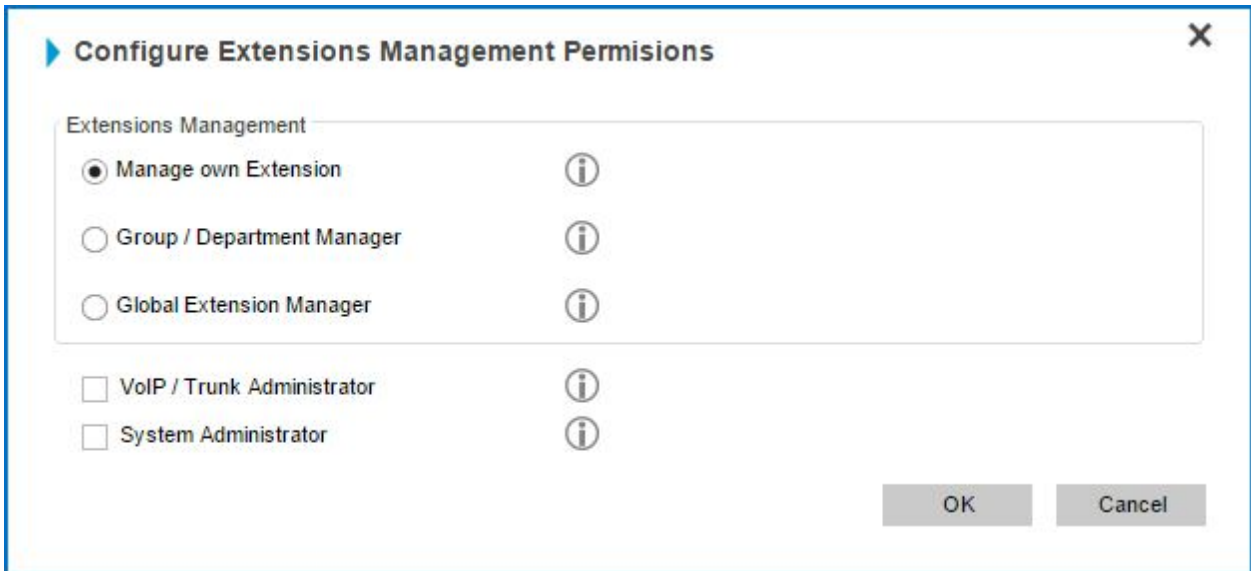
To do this:

1. From the **"Extensions"** node **>** Choose the extension then either double click the extension or click on **"Edit Extension"** from the top menu, switch to the **"Options"** tab and check the **"Allow 3CX Management Console Access"** checkbox.
2. Click the **"Configure Permissions"** button.

3. From the dialog window choose **"Manage own Extension"** and click **"OK"**.
4. Click **"Apply"** to save Changes.

By allowing a user to manage his/her own extension, they can:
- Edit their email address and mobile phone number.
- Configure voicemail options such as disable PIN authentication to listen to messages, or edit PIN number.
- Configure email notifications such as whether to receive voicemails as email attachments and receive email notification on missed calls.
- Configure voicemail greetings.

Use Case 2: Allow Department Heads to Manage their Departments Extensions

Department heads can be allowed to manage users in their department. This allows the head of a call center for example, to control which extensions are allowed to make external calls, or enable/disable the recording of calls.

To give access to a department head:

1. From the **"Options"** tab, check the **"Allow 3CX Management Console Access"** checkbox.
2. Click the **"Configure Permissions"** button.
3. From the dialog window choose **"Group / Department Manager"** and click **"OK"**.
4. Click **"Apply"** to save Changes.

By allowing Group / Department Manager access, the user can:
● Create, edit and manage extensions within the extension group(s) that they belong to.
● Control which extensions are allowed to make external calls.
● Enable/disable the recording of calls.
● Log in/out agents from Queues.
● Configure forwarding rules for extensions.

Use Case 3: Allow Access to an IT Administrator to Manage Company Extensions

A company's IT administrator can be given access to create and manage his company's extensions. This is especially useful in a hosted server environment where the System Administrator is in charge of updates, system settings and day-to-day extension management tasks.

To do this:
1. From the **"Options"** tab, check the **"Allow 3CX Management Console Access"** checkbox.
2. Click the **"Configure Permissions"** button.
3. From the dialog window choose **"Global Extension Manager"** and click **"OK"**.
4. Click **"Apply"** to save Changes.

By allowing Global Extension Manager access, the user can:
● Create and edit and manage extensions. Includes all the points from the previous use cases.
● Create and edit and manage extension groups.

Use Case 4: Access to VoIP/Trunks and System Administrator

In addition to managing his company's extensions, the IT administrator can be given access to add/edit VoIP/Trunks and be given System Administrator access. Access to these two options can be given independently of each other.
● Users with access to "VoIP / Trunk" can configure VoIP Gateways, VoIP Providers and 3CX Phone System Bridges.
● Users with "System Administrator" access can modify system extensions (Queues, Ring Groups, Digital Receptionists), and also have access to Settings and Updates.

To enable access to these options:
1. From the **"Options"** tab, check the **"Allow 3CX Management Console Access"** checkbox.
2. Click the **"Configure Permissions"** button.
3. From the dialog window check **"VoIP / Trunk Administrator"** and/or **"System Administrator",** click **"OK"**.
4. Click **"Apply"** to save Changes.

By allowing access to VoIP/Trunks and System Administration, the user can:
● Configure VoIP Gateways, VoIP Providers and 3CX Phone System Bridges (VoIP / Trunk).
● Modify system extensions: Queues, Ring Groups, Digital Receptionists (Sys Admin).
● Access to the System node, where Network, Security, General and Advanced settings reside (Sys Admin).
● Access and perform system updates (Sys Admin).

See Also
● See the guide on Extension Management for more information about giving access rights to users.

Connecting 3CX Phone Systems (Bridges)

On this topic

Introduction

You can connect two separate 3CX Phone Systems together, allowing you to make calls between branch offices for free just by utilizing your existing internet connection.

A "Bridge" can be assigned a prefix, which you will dial to access the other 3CX Phone System. This prefix must be followed by the extension number you wish to reach on the other 3CX Phone System.

Alternatively, you can assign the extensions in one Office to start with one number (e.g. 100, 101, 102 where all extensions start with 1), and the extensions in the second Office to start with a different number (e.g. 200, 201, 202 where all extensions start with 2). This way, users from one office can directly dial the extension number without using a prefix making calling between offices or branches seamless. In this case, when the outbound rule is created, you must ensure that the prefix corresponds to the numbering plan selected and that no digits are stripped.

Creating a Bridge

A bridge can have 2 types: "Master" or "Slave". When you create a bridge between 2 3CX Phone Systems, one end must be configured as a "Master" and the other end must be configured as a "Slave".

When you create a bridge between two 3CX Phone Systems ensure that you first create the Master endpoint on one 3CX, and then create the Slave endpoint on the other 3CX. Follow this order when creating bridges to get the connection working quicker.

Step 1: Create a Bridge on the Master Phone System

A Bridge allows you to connect two 3CX Phone Systems, and make free calls between offices.

General
Enter Virtual Extension Number and name of this bridge

Virtual extension number	10000
Name of bridge	New York Office

Type of Bridge
Configure whether this bridge should be master, slave or use the tunnel.

Type of 3CX Bridge	Master
Outbound rule prefix to reach remote 3CX PBX	6

Bridge Selected: Master
This 'Master' Bridge will receive registrations. The other PBX must register with this system.

Authentication Password	cf0wm13c

1. In the 3CX Management Console go to **"Bridges"** node and click **"Add Bridge"**.
2. Enter a name for the bridge and take note of the virtual extension number. (You will need this number when you create the "Slave" Bridge connection so ensure that the virtual extension number generated is not in use on the other 3CX Phone System which will host the "Slave" bridge endpoint)
3. Type of 3CX Bridge - choose **"Master"**
4. Specify a prefix to be used for this bridge. If you specify 6, then a you must dial 6100 to reach extension 100 on the other 3CX Phone System. You can also dial 600 to reach extension 600. This prefix is also used to redial missed calls between offices.
5. Authentication Password – The password that will be used for authentication.

Allow tunneled connection	✓	
Remote end of Bridge/Tunnel (Public IP of Remote 3CX)	office2.3cx.com	Port 5090

6. The **"Allow Tunneled Connection"** option allows all SIP and RTP traffic to be sent via a single TCP port. The 3CX Tunnel vastly simplifies firewall configuration, reduces bandwidth and also secures your phone calls.
   - If "Allow tunneled connection" is enabled, enter the public IP address or FQDN of the "Slave" 3CX Phone System. In the example above "office2.3cx.com" is the FQDN of the office in New York.
   - Configure the 3CX Tunnel port of the New York 3CX Phone System. By default this is 5090. however in multiple instances installations or cloud installation this port will differ for each instance.

Remote PBX Presence Information
Publish and receive 3CXPhone presence information to/from remote offices

- ✓ Publish Information
- ✓ Receive Information (Requires 3CX PRO Edition)

7. Select if you want to publish and/or receive presence information to/from the New York 3CX Phone System.

- Publish Information is available in Standard and Pro.
- Receive information is available only with a Pro Edition license.

8. Configure the protocol (http or https) to be used to transfer presence data between 3CX Phone Systems and enter the FQDN of the remote 3CX. (If a tunneled connection is configured, this will be automatically populated). If the webserver of the New York 3CX Phone System is running on non default HTTP/HTTPS ports - example 5000 or 5001, then you need to specify the port after the FQDN example:
   - If the HTTP Port of the second pbx is 5000, specify: office2.3cx.com:5000
   - If the HTTPS Port of the second pbx is 5001, specify: office2.3cx.com:5001
9. Select the users that are able to see this remote connection from within their 3CXPhone.
10. Accept all other defaults and click **"Next"** to create the bridge.
11. The "Outbound Rules" dialog will be presented. If a prefix was configured in the bridge Bridge type section, the same prefix will be automatically used for the outbound rule prefix and the bridge route will be set automatically. By default Strip Digits will be set to 1. You can change this setting and if you choose an extension numbering plan that does not require you to strip the prefix, set Strip Digits to 0.

Step 2: Create a Bridge on the Slave Phone System

1. In the 3CX Management Console of the "Slave" 3CX Phone System, Select the **"Bridges"** node and click **"Add Bridge"**.
2. Enter a name for the bridge and assign the same virtual extension number as the one configured on the Master 3CX Phone System.
3. Type of 3CX Bridge - choose **"Slave"**
4. Specify a prefix to be used for this bridge. I.e. if you specify 7, then a you must dial 7100 to reach extension 100 on the other 3CX Phone System. It could also be that the extensions on the other pbx start with 7 example 706, 708 etc)
5. Enter the Public IP or FQDN of the **"Master"** 3CX Phone System and the port.

- ○ If you selected "Use tunneled connection" in the port field you have to enter the Master's Tunnel port e.g 5090.

- ○ If "Use tunneled connection" is not selected, then this slave connection is a direct bridge so in the port you have to enter the Master's SIP port e.g 5060.
6. Authentication Password – The password configured on the "Master" 3CX Phone System Bridge.
7. Select if you want to publish and receive presence information from the other 3CX Phone System
8. Configure the protocol, url and users for 3CX Presence.
9. Accept all other defaults and click **"Next"** to create the bridge.
10. If you have specified a prefix, the "Outbound Rules" window will open and automatically configure your chosen prefix as the outbound route for the new bridge. By default Strip Digits will be set to 1. You can change this setting and if you choose an extension numbering plan that does not require you to strip the prefix, set Strip Digits to 0.

See Also

- Troubleshooting Remote Extensions and VoIP Providers Using the 3CX Firewall Checker.
- Take a look at the 3CX Advanced Training: Bridge Configuration video.
- Find a full guide on the 3CX Tunnel / 3CX Session Border Controller .

The Phonebook / Directory Service

On this topic

Introduction

The phonebook feature allows you to easily publish a phonebook company wide. Used in tandem with a personal phonebook, it allows users to quickly launch calls without wasting time finding a contact's number and subsequently entering it in the phone.

The Company phonebook is company wide and is managed from the management console. The personal phonebook is only available to a particular extension and is managed from 3CXPhone on that extension.

Synchronize the Phonebook With your IP Phones

The company phonebook is also published to a directory in a format that Cisco, Fanvil, Htek, Polycom, snom, and Yealink phones can download. These phones can then show the same phonebook on their display.

Resolves Caller ID to Name

One of the most important features of the phonebook is that incoming caller IDs are searched against the phonebook, and if a match is found, the caller's name is shown in the caller ID rather than just showing the number.

Using the Phonebook

To use the phonebook, users enter a name, or part of the name, in the search box of the 3CXPhone Phonebook. 3CXPhone will automatically resolve the name or part of the name to a phonebook entry. To launch a call, the user just needs to double-click the name and click the **"Call"** button.

Link to Exchange Server, LDAP or ODBC

The 3CX Phonebook / Directory service can also synchronize with and query external data sources including Microsoft Exchange Server, aMicrosoft LDAP server or an ODBC database.

Import & Export of Phonebook entries

Importing Phonebook Entries

You can import phonebook entries from a CSV file. Each entry should be on a new line, and the fields separated by a comma as follows:

- "First name, Last name, Company, Mobile, Mobile2, Home, Home2, etc"

You can download a [Sample Phonebook](#) .csv and populate it with your phonebook entries.

To import the company phonebook entries into 3CX Phone System do the following:

1. Log into the 3CX Management Console and click on the **"Settings"** node.
2. Click on **"Company Phonebook"** and select **"Import"**.
3. Browse to your saved CSV file, select it and click **"Open"**.
4. Your Company Phonebook entries will be imported into 3CX.

Exporting Phonebook Entries

You can export your phonebook entries from the Company Phonebook in order to save them as a backup or to modify them and import them back at a later stage. To export your phonebook entries follow these steps:

1. Log into the 3CX Management Console and click on the **"Settings"** node.
2. Click on **"Company Phonebook"** and click the **"Export"** button.
3. Select a file location and a file name for your CSV file.
4. Click **"Save"** to export and save your Company Phonebook.

Synchronising with Exchange Server (PRO)

The 3CX Company Directory Service allows the Exchange Connector to connect the 3CX Phonebook with Microsoft Exchange Server 2013 SP1 and Office 365 (with Exchange) to import Exchange contacts to either the company or the personal phonebook.

The following import functions are available:

- Ability to select a public folder of contacts to be imported into the 3CX Company Phonebook.
- Ability to import personal contacts from one or more Exchange users and import them to their personal 3CX Phonebook.

How it Works

3CX Phone System will connect to Microsoft Exchange Server via an "impersonated user account" and import all the contacts from Exchange. Once per day (at 4am), the connector will login to the Exchange Server and check if there are any new updates to existing contacts, new contacts or to check where contacts need to be deleted.

IMPORTANT: 3CX Phone System will sync the contacts from Exchange to 3CX. If you want to make changes, then you need to make them at Exchange level first. 3CX Phone System will not allow you to edit an imported contact.

Configuring the Exchange Connector (MS Exchange Sync)

In order to configure 3CX Phone System to work and synchronize with Microsoft Exchange you will first need to Create an Impersonated Microsoft Exchange User Account.

After configure 3CX MS Exchange Sync section by following these steps:

1. Log in to your 3CX Management Console, select the **"Settings"** node, select **"Advanced"** and click the **"Company Directory Sync"** tab
2. Fill in the following fields:
    ○ FULL FQDN to OWA of the Microsoft Exchange Server. Office 365 users will need to use https://outlook.office365.com/owa
    ○ Insert your impersonated account details in the **"Impersonated User Account"** and **"User Account Password"** fields.
3. Select the email address and the public folders that you want synchronized and click **"Apply"**.
4. To check if your Exchange contacts have been synchronized with the 3CX Phone System Company Phonebook go to **"Settings"** and then select **"Company Phonebook"**.
5. You should see a list of contacts in the 3CX Company Phonebook imported from the email address that you selected to synchronize.

Enabling Exchange Calendar Profile Switching

After having successfully configured MS Exchange Sync, you can take advantage of the ability to automatically change your extension status, based on your status in the Outlook calendar (requires Exchange version 2010 or higher). If you have scheduled appointments where your "Show As" status is set to "Working Elsewhere" or "Out Of Office", then your status in 3CX Phone System will automatically change to the "Away" or "Out Of Office" status respectively.

To enable this feature, select "Settings" > "Advanced" > "Company Directory Sync" > "MS Exchange Sync" and check the "Enable Calendar Profile Switching" checkbox. A full guide on How to Use Exchange Calendar Status Synchronization details this process.

Configuring LDAP Directory Search (PRO)

LDAP (Lightweight Directory Access Protocol) Directory Search has the ability to connect with an external directory server, for instance, your company's Microsoft active directory. When an incoming call is received, 3CX Phone System can access LDAP and look for a contact match. If a match is found, the contact will be automatically added to the 3CX Company Phonebook and the contact information will be displayed for subsequent calls made by this caller.

To Configure LDAP Directory Search with 3CX Phone System:

1. Log in to the 3CX Management Console and click on the **"Settings"** node.
2. Click on **"General"** and click on **"Global Options"**.

3. Scroll down to the section Caller ID and Phonebook matching and check the option **"Resolve Caller ID to Phonebook entry"** and configure **"Minimum length"** to "6 digits".
4. Click on **"Advanced"** and click on **"Company Directory Sync"**.
5. Select **"LDAP Directory Search"**:
    ○ Fill in the LDAP server IP address or FQDN as in the example above.
    ○ Insert the LDAP server port number - default 389
    ○ Insert the LDAP User name and User Password.
    ○ Specify your LDAP search base. In this example we used "OU=User ,DC=test, DC=local" which means that the LDAP search will take place in the User contacts container, in the "test.local" domain.
    ○ Add a number of days that these contacts will be kept inside the 3CX Phone Book. Default is 1 year.

6. When you receive a call, 3CX Phone System will search for a match in the the 3CX Company phonebook. If a match is not found then it will contact the LDAP server. If a match is found, it will be automatically added to the 3CX Company Phonebook.

To clear all LDAP Entries from your Company Phonebook go to **"Settings" > "Advanced" > "Company Directory Sync" > "LDAP Directory Search" >** Click on the **"Clear all LDAP entries"** button.

Configuring ODBC Database Search (PRO)

3CX Phone System has an ODBC Search function that allows 3CX Phone System to connect to any data source which can be accessed via an ODBC driver. In this way any database driven ERP or CRM can import contact data from the shared database when an incoming call is received. See our detailed step-by-step configuration guide on [How to Setup Company Directory Synchronization - ODBC Search](#).

See Also

- See how to [Create an Impersonated Account Microsoft Exchange User Account.](#)
- Find a full guide on [How to Use Exchange Calendar Status Synchronization](#).
- See our user manual on [Using the 3CX Phonebook](#).

Call Reporting

On this topic

Introduction

The Call Reporting feature can be configured to send an email containing specific report statistics about calls to and from 3CX Phone System. Reports can be sent out ad hoc or be scheduled to be sent out daily, weekly on specific days or on the first day of the week. You can also receive these reports in various formats, PDF, CSV, HTML, Rich text format and XML.

The following report types are available:

- **Call Log** - View statistics about calls to and from 3CX Phone System.
- **Extension Statistics** - See reports about calls to and from specific extensions.
- **Call Cost by Extension Group** - Run reports on groups to see call costs.
- **Call Cost by Call Type** - Specify extensions and see their call costs.
- **Ring Group Statistics** - See information about calls to ring groups.
- **Basic Queue Statistics** - See how your queues are performing.

Note: To access advanced call reports you require a **3CX Pro Edition license**. These reports provide more detailed information on Detailed Queue Statistics, Team Statistics, Queue Performance Overview, Graphs, Lost calls, Call Distribution, Team Statistics, Abandoned Calls, SLA Statistics, Callback Statistics, Breached Calls, Agent Statistics, Login history of Agents and other reports useful in Call Center scenarios.

Creating Reports

Reports are generated and sent automatically by email, so that report creation can be executed as a low priority process and will not interfere with the phone system.

To create a report and receive it by email:

1. From the 3CX Management Console, select the **"Call Reports"** node.
2. From the report drop down menu choose the type of report to run.
3. Type a name for your report.

4. Depending on the type of report, you will see various options that you can configure. For example:
   - If you choose to run an "Extension Statistics Report" you can choose to generate a report for all extensions, a single extension or a range of extensions.
   - You can also choose a time range for your report. A Custom range allows you to customize the date and time from when the report should be generated. Other options include generation for calls made "Today", "Yesterday", "Last week", Last 7 days" or "Last 30 days".
   - For these types of report you can also choose to capture specific call types, for example, "Internal calls", "External calls" or "All calls". Click on "Next".

5. Configure your prefered Report Format from the drop down list.

6. Enter the email address that will receive the report.
7. From the frequency drop down box choose whether to run the report "One time now", schedule the report to run "Daily", "First day of each week" or "Weekly" on specific days.
8. If you have chosen to run the report "One time now" click the **"Email now"** button at the bottom to run the report and email it immediately. If you have chosen any other frequency for the report then click the **"Save and Schedule"** button.
9. Depending on the configured schedule, an email will be sent. Click the "Download" button to retrieve the report.

Manage your Scheduled Reports

If you have chosen to schedule reports, they will appear under the **"Scheduled Reports"** node. From here you can edit your scheduled tasks reports or delete them.

Custom Report Settings

The "**Settings**" subnode allows you to change the logo that is used when reports are generated. You may also choose to clear call log records since a specific date, delete daily or last week's call logs, or simply delete all call logs.

See Also

- Find more information on [Customizing Email Templates](#).

Monitoring your Phone System

On this topic

Introduction

3CX Phone System is easy to monitor for any Windows administrator, since it behaves just like any other Windows Server application. You can monitor 3CX Phone System using your favourite network monitoring solution, for example ActiveXperts or Microsoft Operations manager.

Things to Monitor

Systems Extensions Status

	Status	Extension	Type	IN/OUT	Caller ID	Destination
🟩	Registered (idle)	*0	Park Extension			
🟩	Registered (idle)	*1	Park Extension			
🟩	Registered (idle)	*777	Echo Test			
🟩	Registered (idle)	*888	Echo Call Back Tester			
🟩	Registered (idle)	700	ConferencePlaceExtension			
🟩	Registered (idle)	777	IVR			
🟩	Registered (idle)	800	Ring Group			
🟩	Registered (idle)	801	Queue			
🟩	Registered (idle)	888	Fax Extension			
🟩	Registered (idle)	999	Special Menu			
🟥	Registered (idle)	HOL	IVR			
🟩	Registered (idle)	SP0	Shared park extension 0			

3CX Phone System uses system extensions for services such as IVR, Queue, Fax, Parking and so on. Using the **"System Status" > "System Extensions Status"** node in the 3CX Management Console you can quickly monitor if all the system extensions are working and registered correctly.

3CX Services

A good first check is to monitor that all 3CX services are running. You can view all 3CX services from the **"System Status" > "Services Status"** node in the 3CX Management Console. Any network monitoring package can monitor Windows services remotely.

Server Events

You can configure email alerts to be sent to you for critical events from the **"Settings" > "General" > "Admin Email & Notifications" tab**.

Phone System Event Log

Server event logs are also posted to the Windows events log as application events so that you can monitor the events using your network monitoring package. The following server events are posted to the log:

- A person dialling the Emergency number (ID 4099).
- Changes to the status of a SIP Trunk (ID 4100).
- A trunk failover occurs, i.e. the backup rule is triggered (ID 12289).
- A Trunk or VoIP provider account responds with an error code (ID 12294) - This could happen if your account is inactive or reached the credit limit.
- Upon registration or unregistering of an IP phone (ID 4101).
- The licence limit has been reached (ID 8193). The 3CX license limit on concurrent calls. If this event occurs frequently you should consider upgrading your license.
- An IP is blacklisted (ID 12290) – This can happen if an IP has reached the maximum number of failed authentication attempts. Frequently this points to a hacking attempt.
- An IP is blacklisted because of too many requests (ID 12292) – This happens if the web server anti-hacking module blocks an IP because of too many requests.
- A Call Back request is triggered by the queue module (ID 102).
- Failure of a DNS resolution - (ID 12293) - This event occurs when the remote VoIP provider could not be contacted. This could occur when your internet connection is down or the specified IP or FQDN for the VoIP provider is incorrect or down.
- Failure of resolving an IP via STUN (ID 12295) – This happens when the STUN server is down. This event will also be triggered when the internet goes down.

Server Activity Log

The **Server Activity Log** node lists events related to 3CX Phone System. Monitor the Server Activity Log to troubleshoot issues. This utility shows the activity log of the server, and logs potential reasons for error conditions.

The Server Activity Log allows you to easily filter based on an Extension, or a particular call. In addition, you can filter the logging by date and time. Enabling Verbose Logging will show additional advanced logging, including the SIP messages. You can do this from "Settings" > "Advanced" > "Logging level". Note: Verbose logging consumes a lot of disk space and uses more processing power. It is important to change the level back to low or medium after the troubleshooting session is complete.

See Also

- See how to use the Server Activity Log to Identify Why a Call is Not Reaching its Destination
- See our Support Procedure for Troubleshooting Remote Extensions.
- Also find a 3CX Online Training: Basic Troubleshooting video to assist you to identify and resolve issues.

3CX Tunnel / 3CX Session Border Controller

On this topic

Introduction

3CX includes the 3CX Tunnel allowing easier bridging of remote 3CX Phone Systems and connecting remote extensions. The 3CX Tunnel combines all SIP (signaling) and RTP (media) VoIP Packets from one location and delivers them to and from another location (typically the PBX Server) using a custom TCP protocol. This simple concept allows 3CX to overcome firewall or telecom provider issues. The 3CX Tunnel can be used for the following reasons:

- Resolve issues of NAT Traversal at both the remote and the PBX location.
- Simplified Firewall configuration at both the remote and the PBX location.
- Overcome difficulties with ISPs that block VoIP Traffic based on port numbers.
- Allows VoIP-over-WiFi in some restricted locations, such as Hotel rooms.
- "Fixes" Firewalls that cannot handle VoIP traffic correctly or which are very problematic to configure correctly, such as Microsoft ISA Server

Note: Presence information does not get carried through the Tunnel to the remote network as of yet. Make sure that the HTTP/HTTPS ports you have chosen during the installation are open on the PBX server side.

How it Works

The 3CX Tunnel

The image above demonstrates how the 3CX Tunnel works. In this example, 3CX Phone System is on IP Address 10.0.0.181, and listens on TCP port 5090 (by default) for incoming Tunnel traffic. We must set up a single Port Forwarding rule on the Modem or NAT/Firewall Device, telling it that all incoming TCP traffic received on port 5090 should be delivered to LAN IP Address 10.0.0.181.

The remote setup is shown on the left hand side of the cloud. In this example, the machine with IP address of 192.168.0.2 has 3CXPhone installed. We will need to tell the VoIP Phone the public IP address of the PBX Server (which in this case is 213.165.190.51), and also the private IP address of the PBX Server (which in this case is 10.0.0.181). Since the 3CXPhone will by default use the

standard port numbers used by 3CX Phone System, typically no further configuration will be necessary.

3CX Tunnel technology can be used in the following scenarios:

- **Connect Remote Sites using the SBC** - For remote sites with a number of remote phones, you can deploy the 3CX SBC to the site so that all phones will communicate with the 3CX PBX over a single port. This is also the preferred option in case 3CX Phone System is running in the cloud.
- **Connect Remote 3CXPhone Users** - 3CXPhone for Windows, Mac, iOS and Android have a built in tunnel that will be used automatically when 3CXPhone detects it is not on the LAN. No configuration is necessary in 3CXPhone.
- **Connect 3CX Phone Systems via a Bridge** - When creating a Bridge to another 3CX Phone System, you can choose to use the 3CX Tunnel rather than a direct connection.

Configuring the Tunnel

We will use the above example in "How the 3CX Tunnel Works" to configure a tunnel connection.

Step 1 – Configure the PBX

In the 3CX Management Console, select **"Settings" > "Security" > "3CX Tunnel"** tab.
1. Configure the Tunnel Password (e.g. "r6W4Qi")
2. Set the Local IP to the Local IP Address of the NIC, which will be receiving tunnel connections. If the PBX has only one NIC, then there will be no need to set this field. In our example this is 192.168.9.213.
3. Set the Tunnel Listening Port to the port, which will be receiving tunnel connections. The default value is 5090.
4. Click **"OK"**. The Tunnel service will be restarted automatically.

Step 2 – Configure the Firewall

The Tunnel protocol is designed to eliminate NAT traversal problems and reduce Firewall configuration work to a minimum. There is only one Firewall setting that needs to be made – we must forward the TCP Tunnel port (set by default to 5090) to the PBX.

Firewall: NAT: Port Forward

	If	Proto	Src. addr	Src. ports	Dest. addr	Dest. ports	NAT IP	NAT Ports	Description	
∞	WAN	TCP/UDP	*	*	3.3.3.11	5060 (SIP)	192.168.9.213	5060 (SIP)	NP - SIP	
∞	WAN	UDP	*	*	3.3.3.11	9000 - 9255	192.168.9.213	9000 - 9255	NP - RTP	
∞	WAN	TCP/UDP	*	*	3.3.3.11	5090	192.168.9.213	5090	NP - TNL	
∞	WAN	TCP	*	*	3.3.3.11	5001	192.168.9.213	5001	NP - HTTPs	
∞	WAN	TCP	*	*	3.3.3.11	5000	192.168.9.213	5000	NP - HTTP	

Configuring a Port Forward Rule in pfSense

The above picture shows configuration for a pfSense firewall - most firewalls will provide similar functionality. In your firewall:

1. Enable Port Forwarding.
2. Specify the PBX's Local IP Address (which we had set previously to 192.168.9.213)
3. Set the Type to "**TCP**".
4. Set the Port Range to be from 5090 to 5090 (only one port).
5. Set the Comment field to "**3CX Tunnel**".
6. Click on the "**Add**" button followed by the "**Apply**" button. Your firewall configuration is now done!

Step 3 – Configuring Remote Sites via 3CX SBC, 3CXPhone, Bridges

After you have configured the local tunnel connection and the firewall, the tunnel is now "ready for use". At the client side you must configure the 3CXPhones, an SBC or the Bridges accordingly.

3CX SBC (Session Border Controller)

The 3CX SBC is suitable for sites with multiple IP Phones in the same LAN. The SBC must be installed at the remote site and is available for Windows and Raspberry Pi:

- Installing 3CX Session Border Controller for Windows
- Installing 3CX SBC Session Border Controller for Raspberry Pi.

3CXPhone Clients

No configuration is necessary for 3CXPhone clients. However to view 3CX Tunnel options, see the chapter "Configuring the 3CX Phone System Clients – 3CXPhone".

3CX Bridges

To configure a Bridge using the 3CX Tunnel, see the Chapter "Connecting 3CX - Bridges".

See Also

- Configuring a SIP Desk Phone as a Tunnelled External Extension with 3CX Phone System.

Configuring the WebRTC Gateway

On this topic

Introduction

With the 3CX WebRTC Gateway feature you can share a WebRTC call link with anyone via chat or email allowing them to place a call from any open standards browser (Chrome, Firefox), directly to your extension, without needing to install a client. You can also configure links or buttons on your website to enable visitors to call extensions directly from your site.

Important Note: To be able to configure WebRTC call links, you need to make sure that you have a Public IP Address and have configured a correct and resolvable FQDN during the setup of your 3CX Phone System.

Step 1: Configure WebRTC Links for your Extensions

Enable WebRTC links for your extensions. You will then be able to use these links from browsers that support WebRTC to receive calls directly to extensions.

1. Access the 3CX Management console and go to **"WebRTC Gateway" > "WebRTC Links"**.
2. Select the extensions that you wish to enable WebRTC URL's and check the **"Enabled"** checkbox. A random DID string will be generated. You can leave it as is, or modify it to make it easy to remember. In this example we modified the string and renamed it to "**support**".
   - **Note**: The DID mask you enter must not contain any special characters. Use only numbers from 0-9 and lowercase letters from a-z.
3. Proceed to enable WebRTC links for your Call Queues, Ring Groups, and Digital Receptionists.
4. Click **"Apply"** to save.

Step 2: Firewall Configuration - Port Forwarding for WebRTC

Go to your firewall and port forward the following range of ports UDP 9256-9500. See our guides on Firewall & Router Configuration for more information.

Note: You can directly open ports UDP 9000-9500. These ports are shared for Audio Calls (9000-9250) and WebRTC Calls (9256-9500).

After you have completed these changes, you can successfully give the WebRTC Url to anyone, via email, chat or add it to your email signature. Callers from outside your network, can simply click on the WebRTC Url, and reach the enabled extension, queue or digital receptionist from a WebRTC Standards browser without installing a SIP Client.

For Website only: Allow Click to Call

If you want to publish links on your website to allow "Click to Call", then you must whitelist your websites IP in the WebRTC gateway configuration.

1. From the 3CX Management Console, navigate to **"WebRTC Gateway" > "Advanced"** tab.

2. In the **"Trusted IP Addresses"** section type the Public IP Address of your website and click **"Add"**.
3. If you have multiple sites on different servers, you can add any additional IP Addresses you want.
4. Click **"OK"** to save changes.

Welcome to the 3CX Partner Portal!

The 3CX Partner Portal gives you access to your leads and our online shopping cart. You can also use it to send us feedback, update your account details, follow sales & technical trainings and download marketing materials.

3CX Technical Support - Contact Details and Working Hours

Country	Opening Hours (Monday to Friday)	Support Number	Call with WebRTC
US (NYC) & Canada	06:30 – 17:00		Call
United Kingdom	07:30 – 11:00 | 11:30 – 21:00		Call
Australia (SYD)	14:00 – 07:00		Call
France	08:30 – 12:00 | 12:30 – 17:00		Call
Germany	08:30 – 12:00 | 12:30 – 17:00		Call
Russia	10:00 – 19:00		Call
Italy	09:00 – 18:30		Call
Spain	08:00 – 17:30		Call
Netherlands	08:30 – 12:00 | 12:30 – 17:00		Call

READ THE ADMINISTRATION MANUAL, CONFIG GUIDES AND OUR TECH SUPPORT BLOG!

5. Now you can go to your website and add Call Buttons which trigger requests to WebRTC Url's.

6. When customers viewing your site clicks on the link, the WebRTC client page will be displayed. Depending on the browser, you will need to Allow use of microphone and camera. Press the button "Call Now" and a call will be made via WebRTC to the WebRTC URL destination.

See Also

- See How to share your WebRTC Call Link that will allow others to call you.
- Elevate a Call to a Video Call – Include video in your call (3CXPhone for Windows).
- Share your Screen – Conduct demonstrations or collaborate remotely (3CXPhone for Windows).
- Enabling chat in a WebRTC Call – Pass on written information to your callers (3CXPhone for Windows).
- See Installing 3CX Phone System for instructions on setting up your FQDN.

Backup and Restore

On this topic

Introduction

3CX Phone System has an integrated backup and restore functionality, which can serve a number of purposes:

- Create regular backups of your data.
- Allow for easy upgrades to newer versions of 3CX Phone System.
- Allow hassle-free moving from one machine to another.
- Ability to configure a standby server for fault tolerance.

The integrated backup functionality can be configured to create one-off backups or perform them on a scheduled basis.

Backing up your System

To backup your system, you will need to decide where, what and when to backup your PBX.

- Where: Choose from local or remote using FTP
- What: System configuration, Voice Mail, Recordings etc.
- When: One-off or at scheduled intervals

To take backups, the services will not need to be stopped. Still we recommend doing it at off peak hours.

Step 1: Choose a Location to Store Backups

3CX will save and restore backups to a central backup location. This backup location can be remote or local.

To choose a location to store backups:

1. Launch the 3CX Management Console and select the **"Backup and Restore"** node.
2. Go to the Backup Location tab. This tab shows the configured location and a list of performed backups.
3. Now select the location type and configure accordingly:
   - "Local disk" - Click the browse button to choose the location.
   - "FTP" - Enter the path to the FTP server and a username and password for the account that has rights to access the FTP folder.
4. Click **"Save"** to save the location.

Any backups that will be created will be stored to this location and shown in the backup repository window. You can then download or delete backups from there.

Step 2: Creating a Backup

To create a backup:

1. Go to the **"Backup and Restore"** node and select the **"Backup"** tab.
2. Press the **"Backup"** button and specify a name for the backup.
3. Select the items you would like to backup.
4. Click the **"Save"** button to start the backup immediately. Once the backup completes click **"Close"**. The new backup details will appear in the backup repository window.
5. To schedule a backup select the **"Schedule Backup"** button, choose what to backup and then choose between "**Daily**" or "**Weekly**".
6. You can also choose a backup rotation - this is the number of backups to keep before overwriting the oldest. For example, if you choose a weekly backup schedule and a rotation of 4, you will always have 4 backups to restore from, going back 4 weeks.
7. Press **"Save"**, to schedule your backup.

Restoring a Backup

You can restore a backup immediately, in case you wish to move 3CX Phone System to another server or upgrade from an old version. Alternatively you can schedule a restore. The main purpose of a scheduled restore is to keep a second system on standby with up to date configuration and user data.

TIP: If you have backups from a previous version or another installation you can put them into your chosen backup folder too. 3CX will recognize them and you will be able to use them to restore from.

Note: Restoring a backup stops all the 3CX Phone System Services.

▶ **Restore Schedule**

Schedule an automatic restore - Requires 3CX PRO License

Scheduled Restore will access the backup repository and restore backup file

```
3CXScheduledBackup.zip
```

Note: If you are scheduling backups automatically, then the scheduled restore will take the most recent backup.

Restore Schedule
Configure Restore Schedule

○ Daily at ___ 12:00 AM ▲▼

● Weekly at ___ 12:00 AM ▲▼ every ___ Saturday ▼

Save   Delete   Cancel

To perform a restore:
1. From the **"Backup & Restore"** node, go to the **"Restore"** tab.
2. Select when you want to perform the restore:
   ○ **"Restore Now"** to restore immediately.
   ○ **"Schedule Restore"** to choose a day and a time that your want your restore to take place. **Note:** Scheduled restores require a 3CX PRO License.
3. To restore immediately, choose which backup to restore and click the **"Restore"** button. A window will open warning you that all the services will be stopped during the restore process. Click **"Yes"** to restore or **"No"** to cancel.
4. The management console will return to the login window and the restore will proceed. You will then have to log back in once the restore is complete.

Note: In a scheduled restore, the most recent backup will be automatically selected for restore.

See Also
● [Backup and Restore of Virtual PBX Instances](#) - learn how to backup and restore your 3CX Phone System Virtual PBX instances.
● Find an upgrade procedure from previous versions in our [Installing 3CX Phone System for Windows](#) guide