nexVortex Setup Guide

3CX

January 2015

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1 Introduction

1. This document is intended only for nexVortex customers and resellers as an aid to setting up the 3CX PBX software to connect to the nexVortex Business Grade SIP Trunking Service. Please reference the nexVortex SIP Trunking Implementation and Planning Guide at http://www.nexvortex.com/pdf_files/nexVortex-Implementation-Guide.pdf for additional information. Further 3CX information can also be found at http://www.3cx.com/support/index.html

Further help may be obtained by emailing at support@nexvortex.com.

If you find any errors in this document or have any suggestions, please email us at support@nexvortex.com so that we can make updates to this document.

Important! DNS Address

A specific DNS address was provided in the Account Set Up email you received the day you opened your account. Your Authentication User ID and password are also in this email. If you need assistance locating this information, please contact at support@nexvortex.com.

Note: For all instructions throughout this Guide, you must substitute the provided DNS address wherever xx.xx.xxx.xxx is referenced.

Proxy Servers

To connect to the nexVortex network, you will need to add our proxy address into your phone system or device. The address of our proxy server will be a fully qualified domain name (FQDN). It was automatically sent to you when your account was setup. If you no longer have this information or would like us to issue a new proxy key, please contact us at support@nexvortex.com.

Note: If your system does not support a fully qualified domain name format, please contact our technical support team at support@nexvortex.com for a list of valid IP addresses for your account.

Special Characters

Please note that special characters should not be used anywhere in SIP configurations. These include, but are not limited to, @#$%&! and spaces.

2 Step 1: Trunk Configuration

Inbound service – You may receive SIP signaling from nexVortex from any of the following IP addresses:

- 66.23.129.253
- 66.23.138.162
- 66.23.190.100
- 66.23.190.200
- 209.193.79.80

If you need additional assistance ensuring your local PBX configuration meets this requirement, please contact technical support for 3CX directly.

Outbound service – The most efficient way to ensure redundancy for outbound calling is to utilize DNS SRV for routing traffic to nexVortex. At present, if your PBX supports DNS SRV, pointing to 'nexvortex.com' as your Proxy IP address is all that should be necessary to ensure outbound redundancy.

If your PBX does not support DNS SRV, hopefully it supports configuration of multiple outbound proxies. If so, you should configure px1.nexvortex.com or px3.nexvortex.com as your primary proxy IP address, and px5.nexvortex.com as your secondary IP address. If you need additional assistance with DNS SRV or configuring multiple outbound proxy IPs on your PBX, please contact technical support for 3CX directly.

3 Step 2: Trunk Settings

Your trunks MUST be configured to present your provisioned E911 number(s), (i.e. the E911 settings you created for your account at nexVortex.com) for Emergency calls (911) or emergency TEST calls (311 or 933). Either a proper FROM or P-Asserted-Identity (preferred) header containing your provisioned Emergency number, if you require additional information, please contact our technical support team at support@nexvortex.com

In order to provide the highest level of service availability possible, nexVortex utilizes an n+1 architectural model for our call processing. You will need to ensure that your network edge (router and/or firewall) is configured to accommodate this architecture.

You may receive SIP signaling from nexVortex from any of the following IP addresses:

- 66.23.129.253
- 66.23.138.162
- 66.23.190.100
- 66.23.190.200
- 209.193.79.80

You must ensure that each of these IPs are allowed to pass UDP 5060 traffic into your network and that this traffic is port-forwarded (if necessary) to the internal IP of your PBX.

You will also need to open the RTP or audio ports. This is different for each customer premise device. Please reference 3CX for this detail. Your edge device must be configured to allow inbound RTP traffic on this port range from ALL IP addresses.

4 Best Practices

4.1 Security

SIP, unfortunately, is a high-value target for hackers. There are a few things you should do to ensure that your PBX installation is secure and well protected against the normal attack vectors for this technology.

4.1.1 PBX Extensions

If your PBX is configured to allow external extensions (outside the private LAN), then you must configure your extensions with strong passwords. Password extensions should NEVER be the same as the extension number itself.

4.1.2 GUI Access

If your PBX is configurable via a web browser GUI, it should NOT be accessible via a public IP. If you MUST make changes to your PBX configuration from outside your network, you should only enable remote access while you are working on the configuration and then immediately remove access when your updates are complete.

4.1.3 Access Lists

If your PBX supports access lists for IP authorization, these should be extremely conservative. Allowing unauthorized users to place calls through your network is a good way to rack up thousands of dollars in fraudulent charges if someone identifies this weakness in your configuration.

4.1.4 Dialplan Restrictions

An effective way to keep unauthorized users from using your PBX to place fraudulent calls is to restrict your dialplan. If you do not make International calls, do not allow users to dial 011 as their first three digits. If you do make International calls, consider restricting allowable dial strings to only the country codes to which you place calls.

Don't forget to protect your dialplan against Caribbean dialing (Check here for Caribbean area codes http://www.everythinglongdistance.com/caribbean-area-codes.htm).

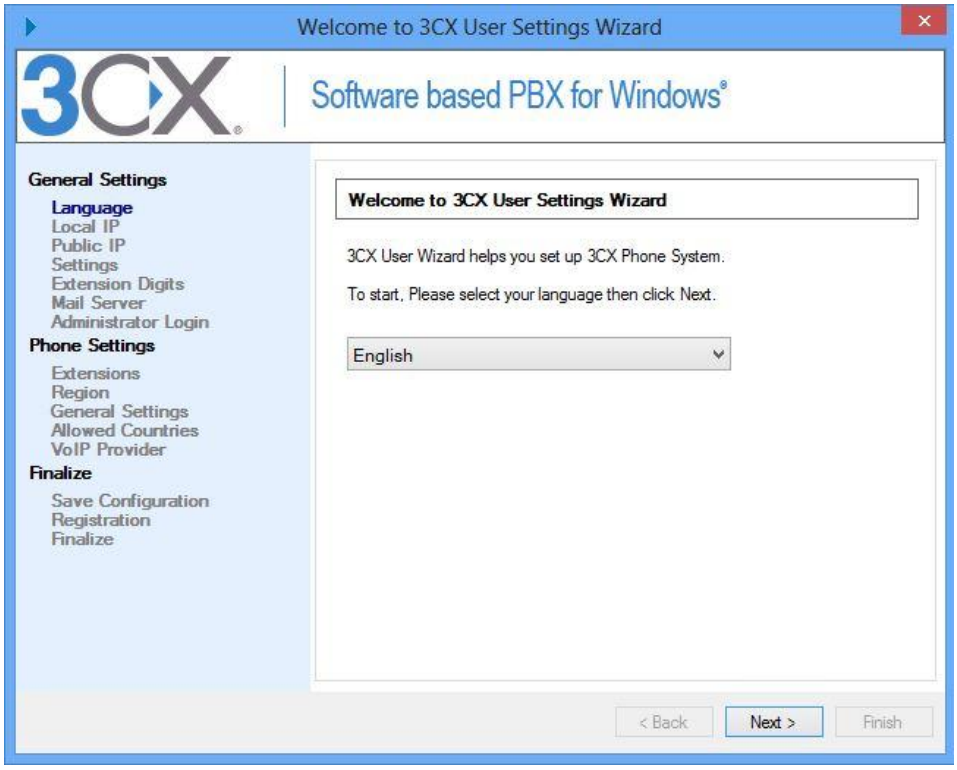
4.2 IVR

IVRs should always be configured to utilize a timeout-based call disconnect rule. Failure to do so could result in long calls of up to, or exceeding, 24 hours. By configuring automatic disconnects into your IVRs, you will ensure that you do not pay excessive usage fees for these types of calls.

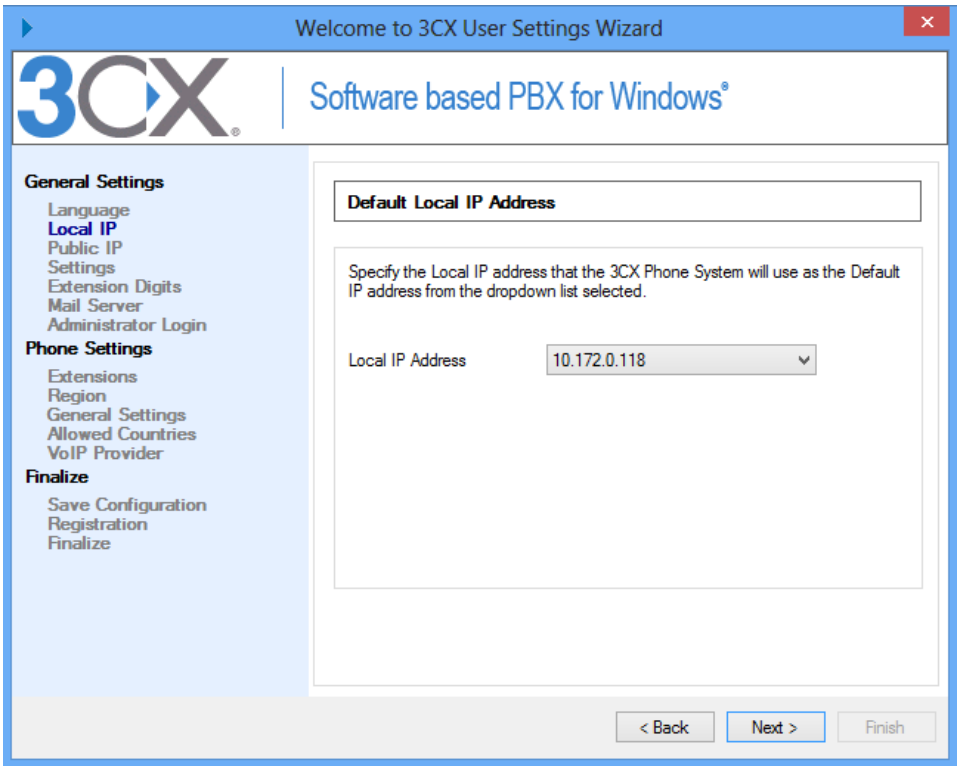
5 3CX Set up Instructions

Configuring the system is very simple. Before you start, please ensure that you have access to the email sent to the registered user on the nexVortex account with the title *'nexvortex: Account Setup'.* This email was sent after you registered and contains the account information you need to complete the setup process. From within the 3CX configuration screens:

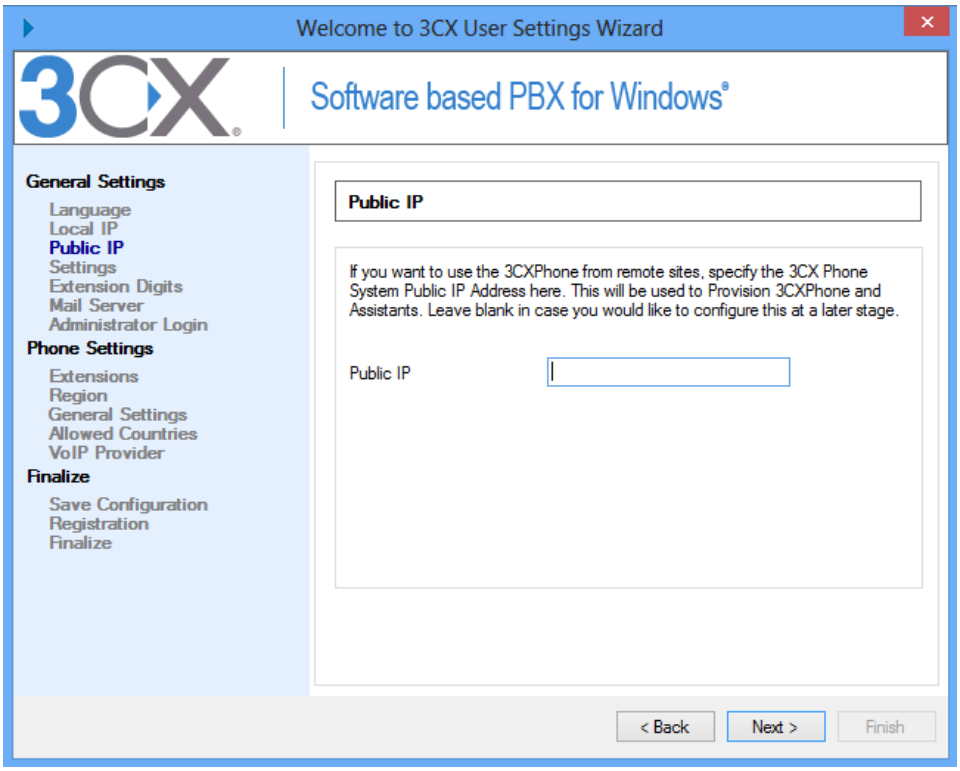
5.1 Step 1: After installing 3CX, the Setup Wizard will start automatically.



5.2 Step 2: Choose the private IP address of your PBX.

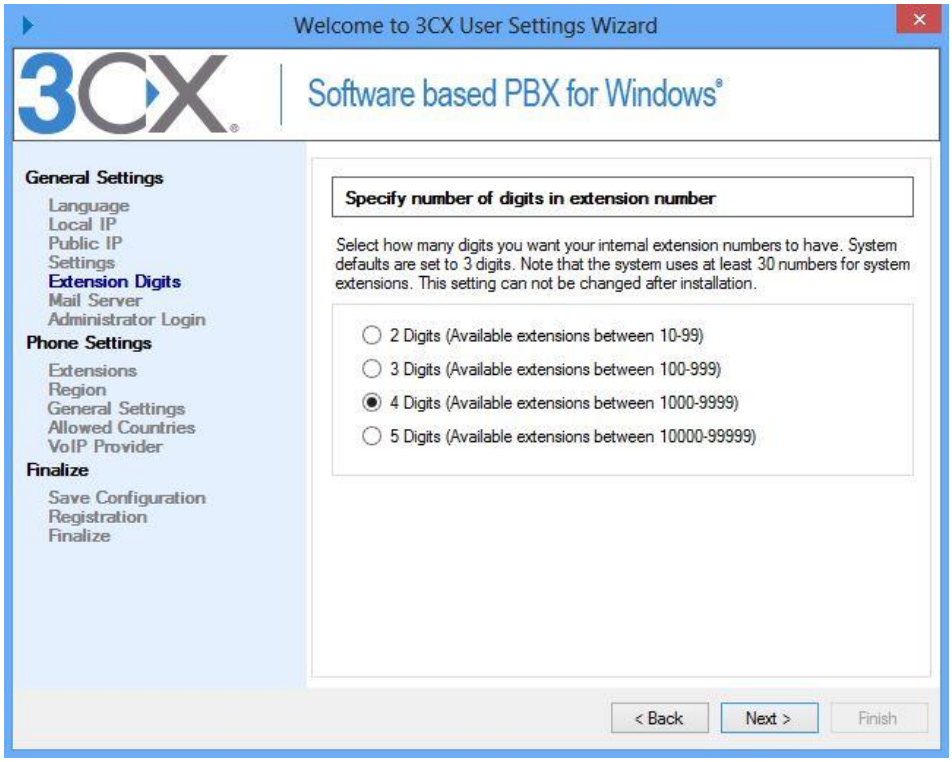


5.3 Step 3: If you have a Public IP address, enter it here.

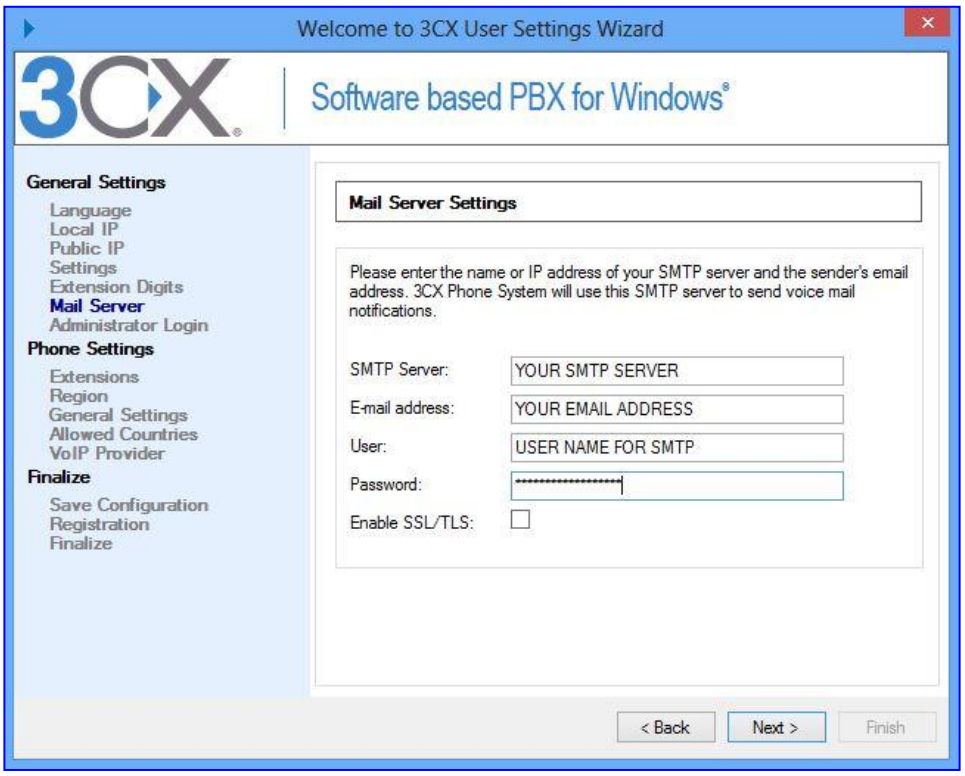


5.4 Step 4: Create a new PBX.

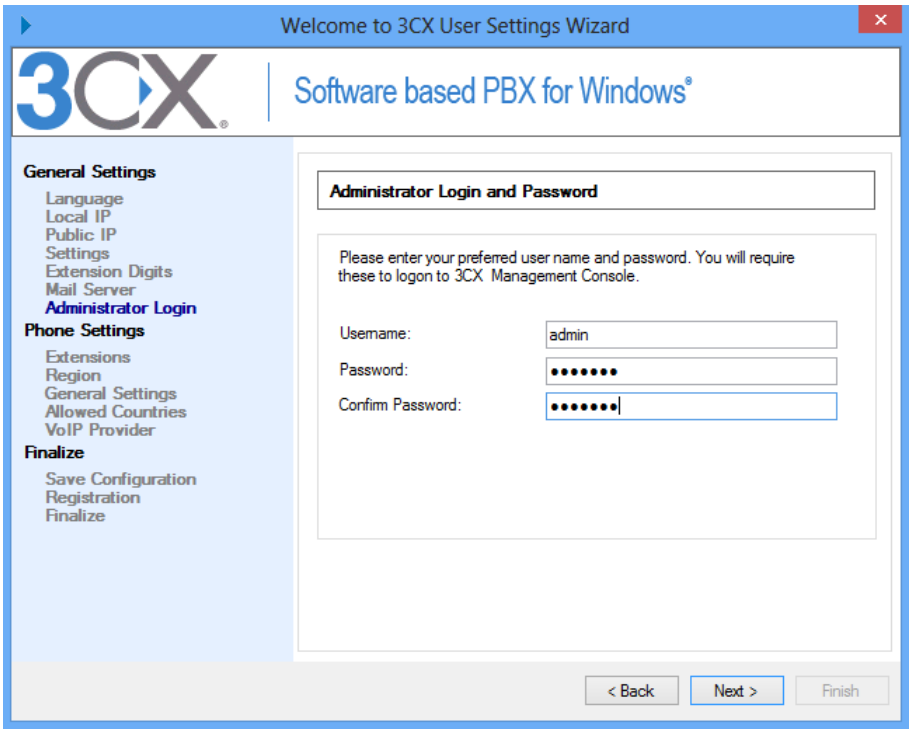
Step 5: For security reasons, we recommend that extensions be at least 4 digits. Also 4 digits is a good number in case you plan to expand later on in the future.

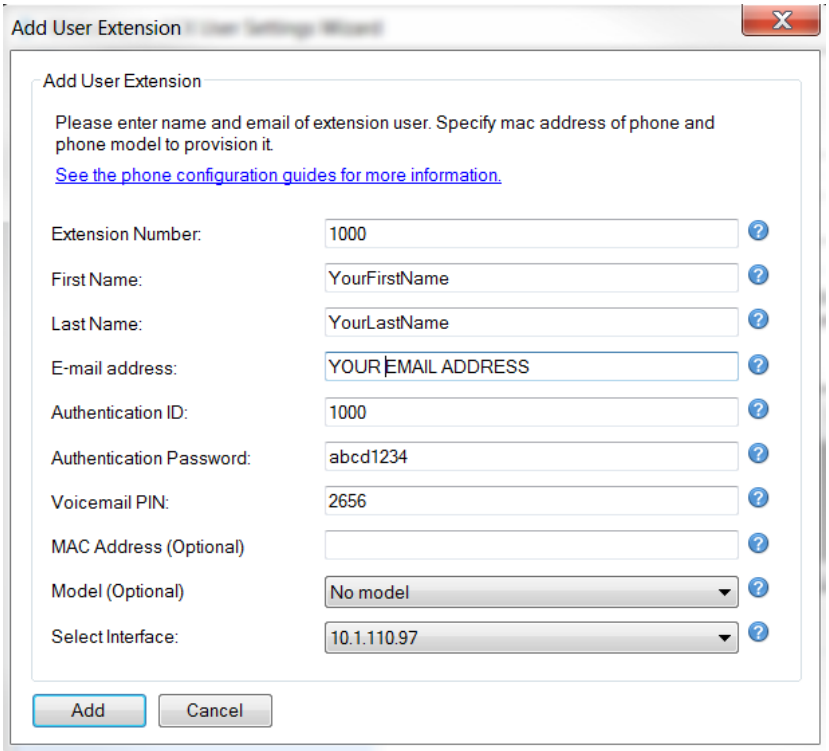

Welcome to 3CX User Settings Wizard
Software based PBX for Windows®
General Settings
Language
Local IP
Public IP
Settings
Extension Digits
Mail Server
Administrator Login
Phone Settings
Extensions
Region
General Settings
Allowed Countries
VoIP Provider
Finalize
Save Configuration
Registration
Finalize
Specify number of digits in extension number
Select how many digits you want your internal extension numbers to have. System defaults are set to 3 digits. Note that the system uses at least 30 numbers for system extensions. This setting can not be changed after installation.
2 Digits (Available extensions between 10-99)
3 Digits (Available extensions between 100-999)
4 Digits (Available extensions between 1000-9999)
5 Digits (Available extensions between 10000-99999)
< Back
Next >
Finish

5.5 Step 6: Enter your E-mail Server information so the 3CX Phone System can send alerts and email notifications.

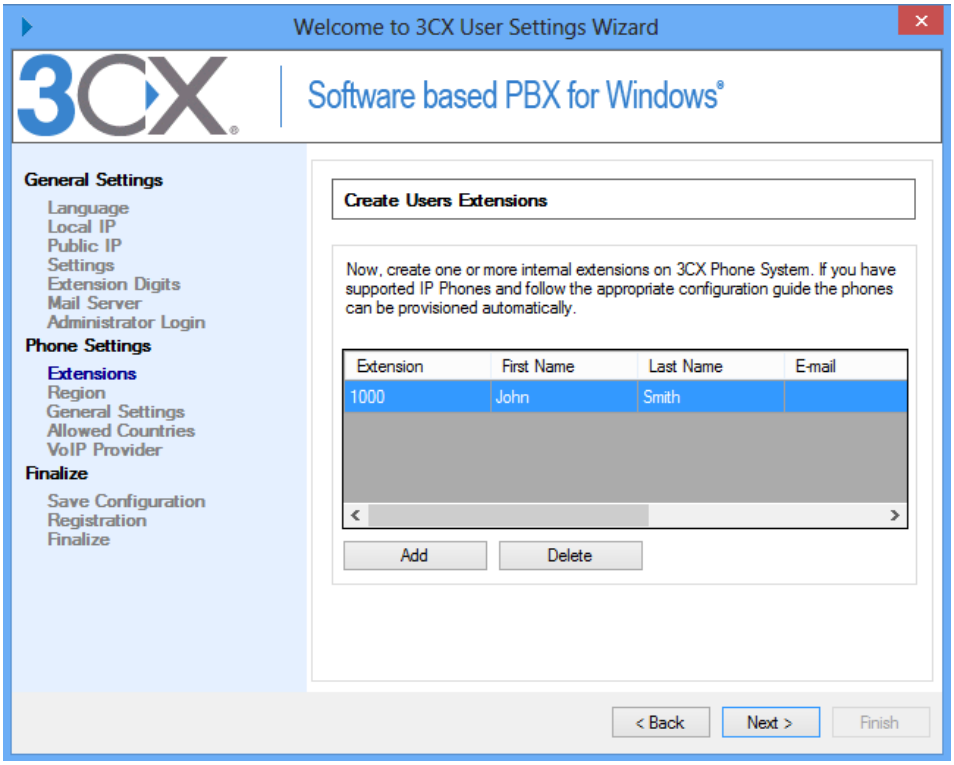


5.6 Step 7: Configure the Username and Password to access the 3CX Management console.

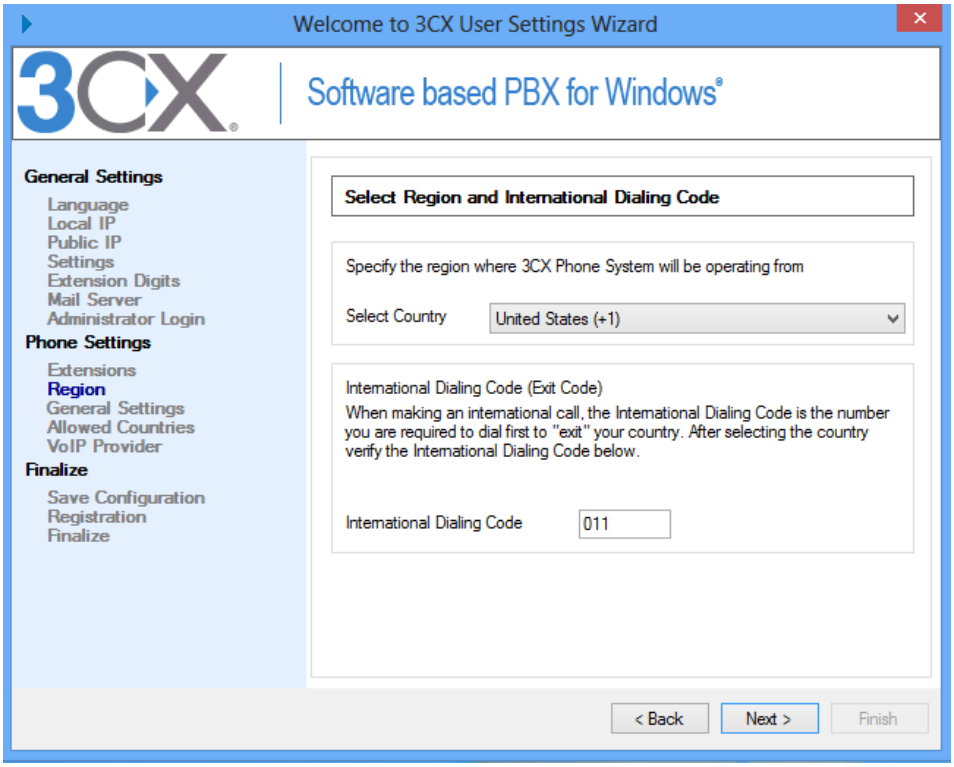




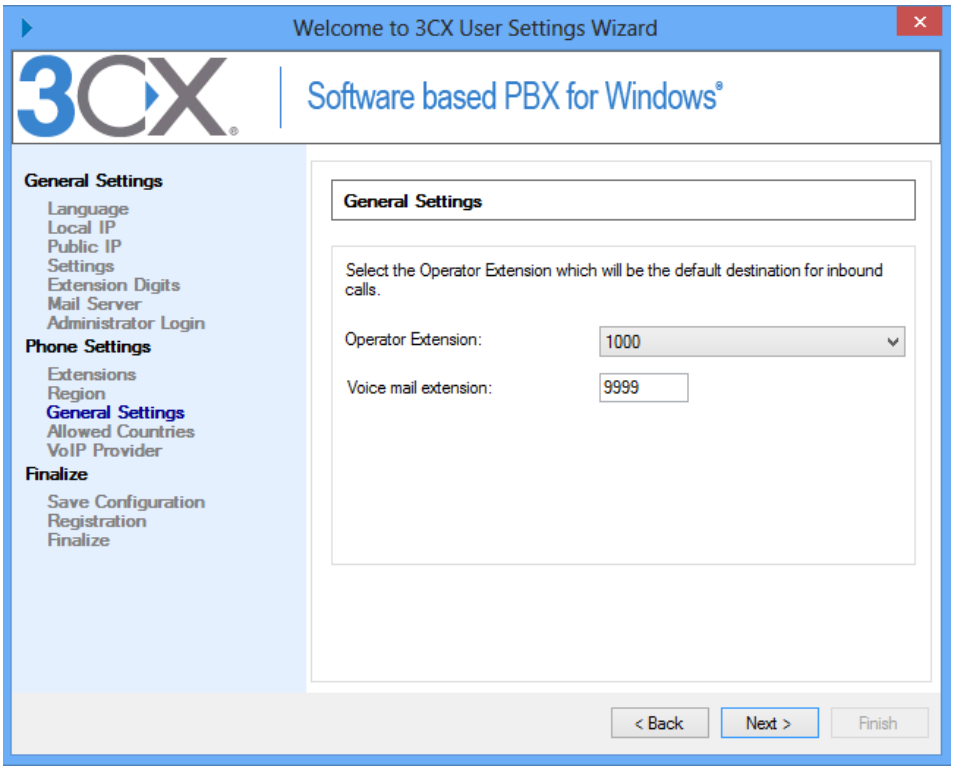
5.7 Step 8: Add at least one extension to your PBX. You can then add more later.



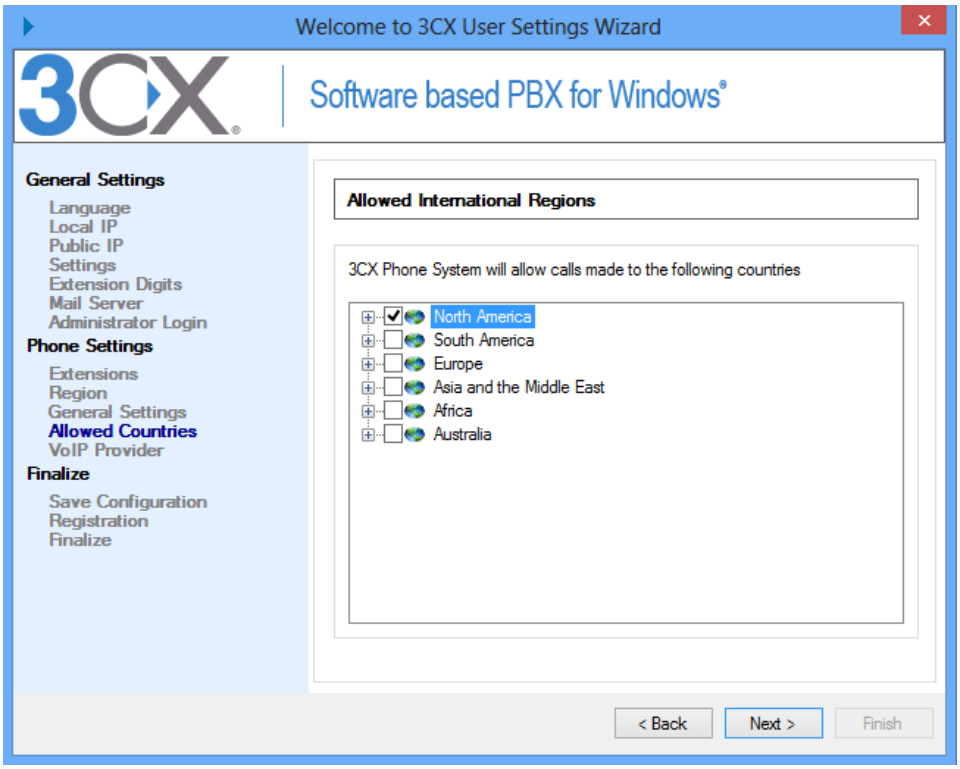
5.8 Step 9: Select United States from the country dropdown list. The International Dialing Code will be filled in automatically for you.



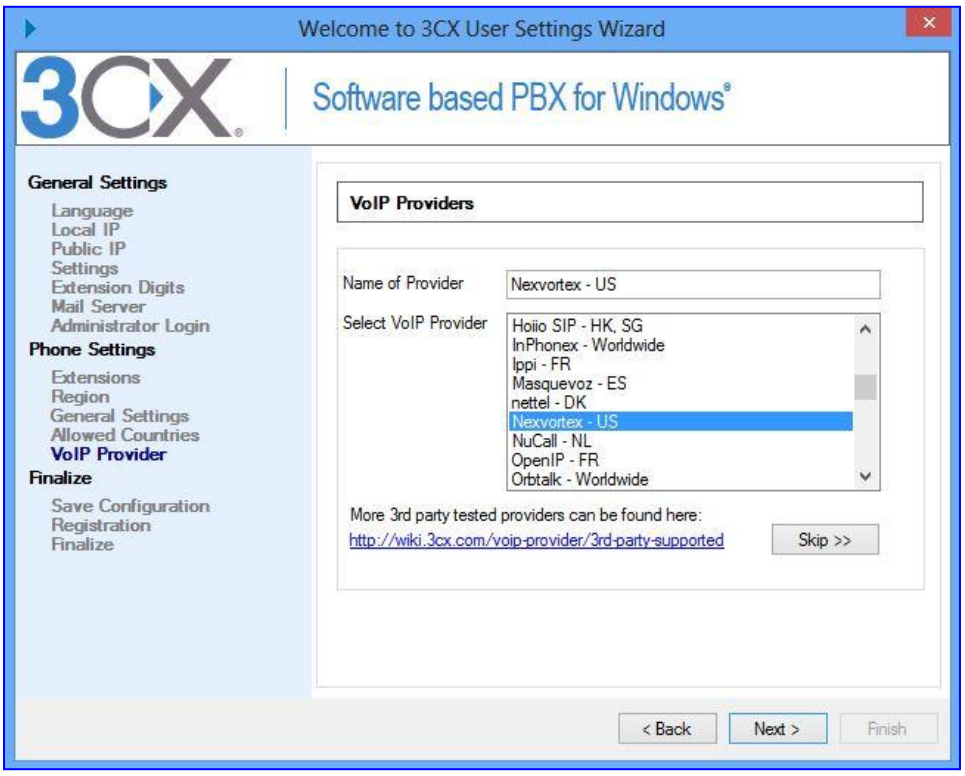
5.9 Step 10: Select your Operator Extension and Voice Mail extension number



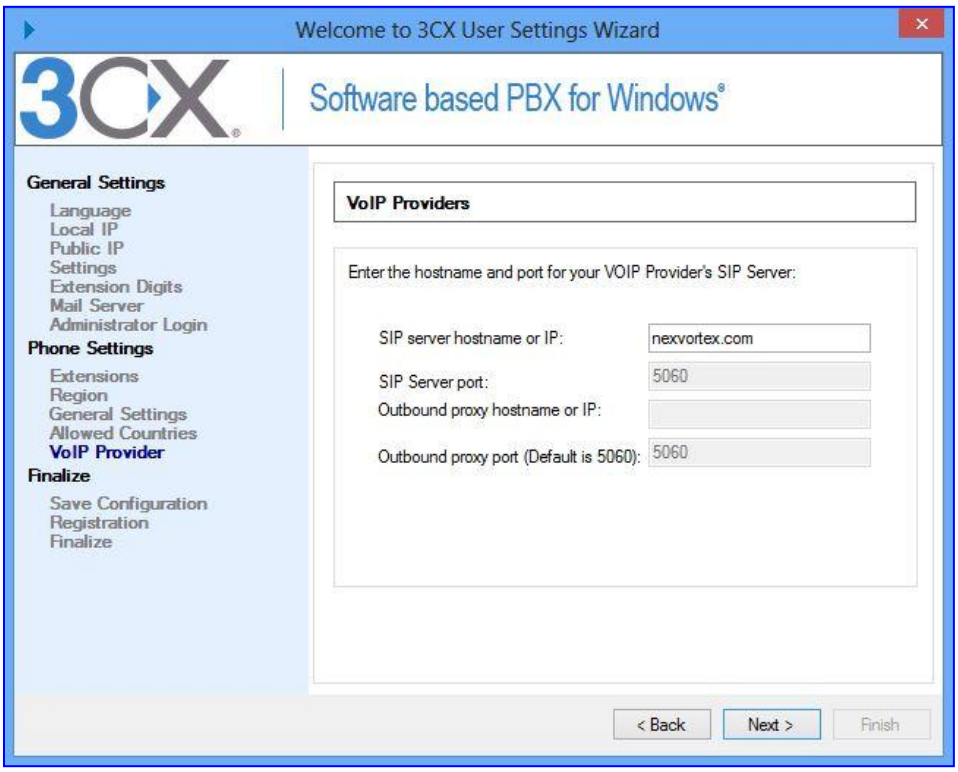
5.10 Step 11: Configure the continents or countries which are allowed for outbound calls. Calls to countries which are unchecked will be automatically blocked.



5.11 Step 12: Select “Nexvortex – US” from the providers list.

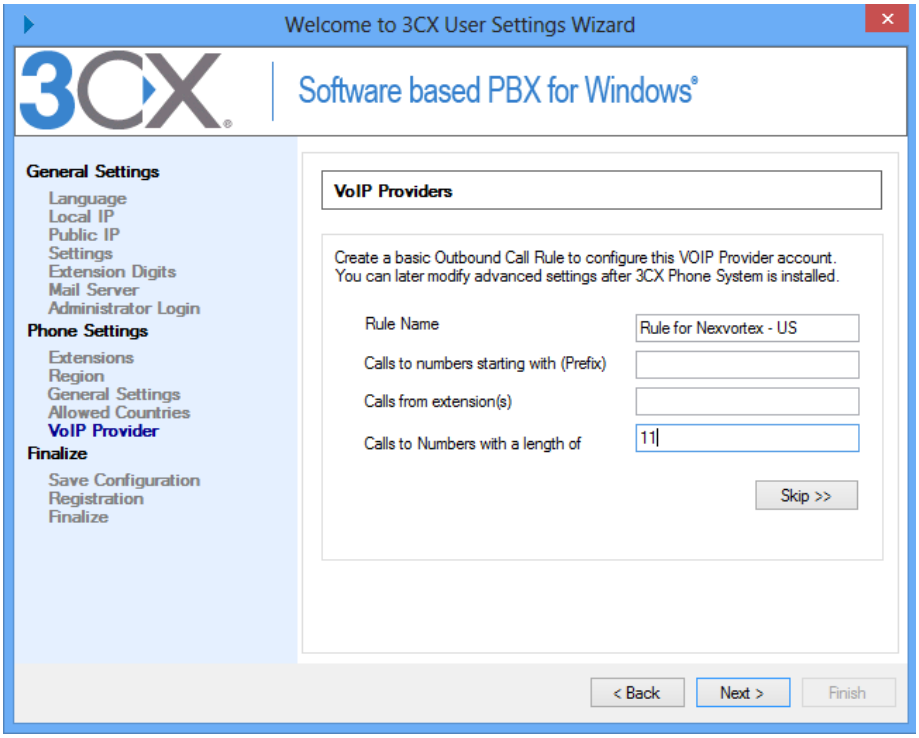


5.12 Step 13: As you can see the SIP Server hostname is already configured to nexvortex.com

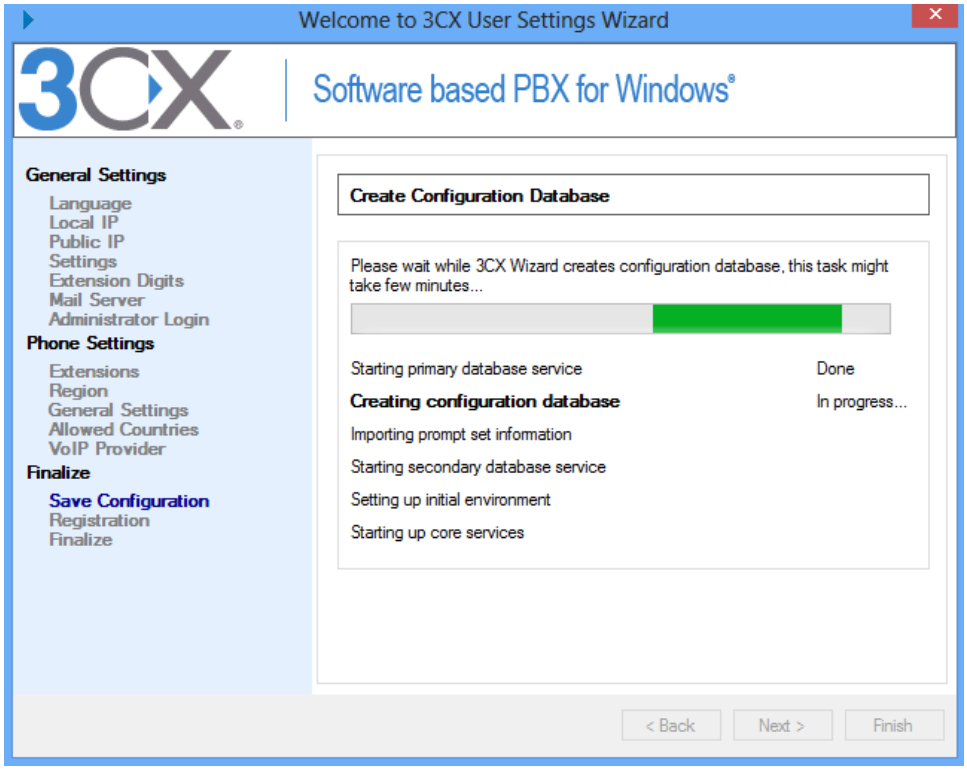


5.13 Step 14: Enter your *primary* phone number as External Number. You can get this information by logging in to your nexVortex portal. Configure the Authentication ID and Authentication Password provided to you in your nexVortex welcome email.

Step 15: Create an Outbound rule for nexVortex. In this example any calls with 11 digits in length will be allowed. You can add more rules later from the 3CX management console.



Step 16: Press "Next" to finalize the 3CX Wizard. When this is done, the 3CX Management console will automatically launch. You can also access the 3CX Management console in its Winforms version by going to Start > All Programs > 3CX Phone System > Windows Management Console.


Welcome to 3CX User Settings Wizard
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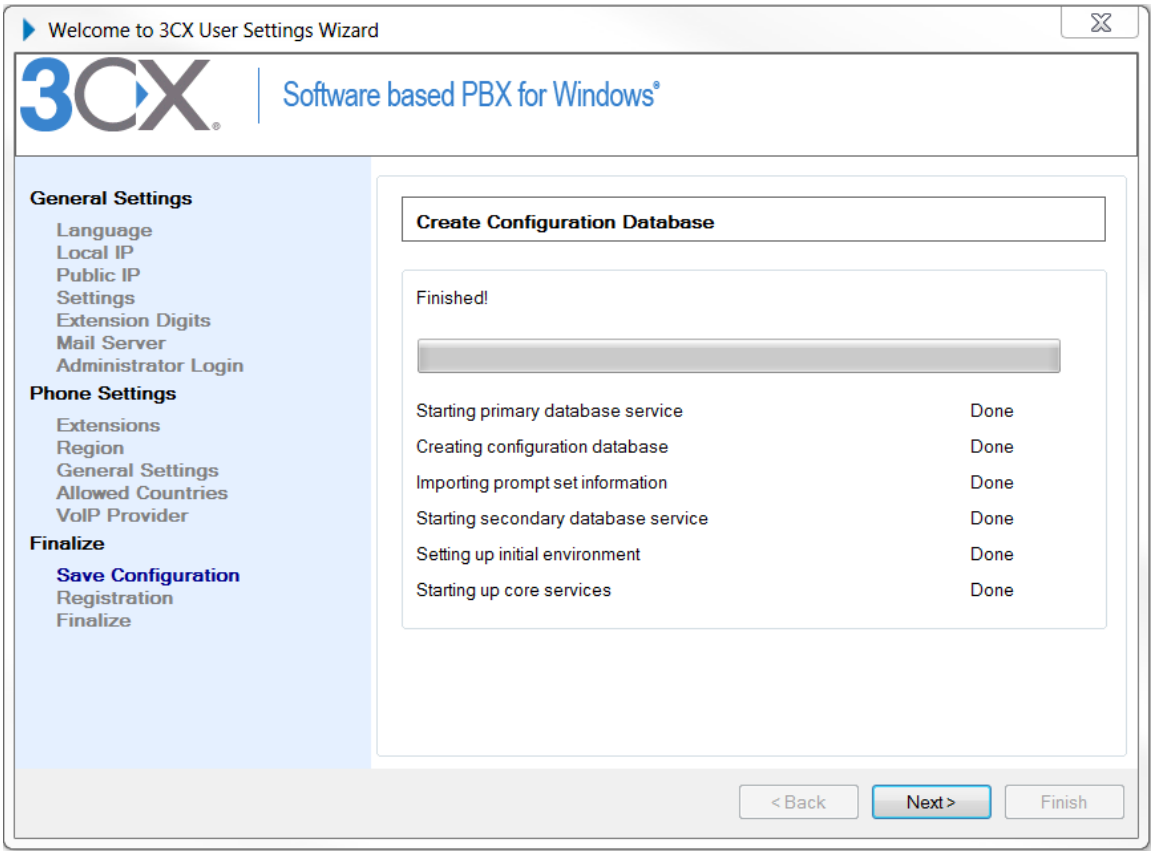
General Settings
Language
Local IP
Public IP
Settings
Extension Digits
Mail Server
Administrator Login
Phone Settings
Extensions
Region
General Settings
Allowed Countries
VoIP Provider
Finalize
Save Configuration
Registration
Finalize
Create Configuration Database
Please wait while 3CX Wizard creates configuration database, this task might take few minutes...
Starting primary database service Done
Creating configuration database In progress...
Importing prompt set information
Starting secondary database service
Setting up initial environment
Starting up core services
< Back
Next >
Finish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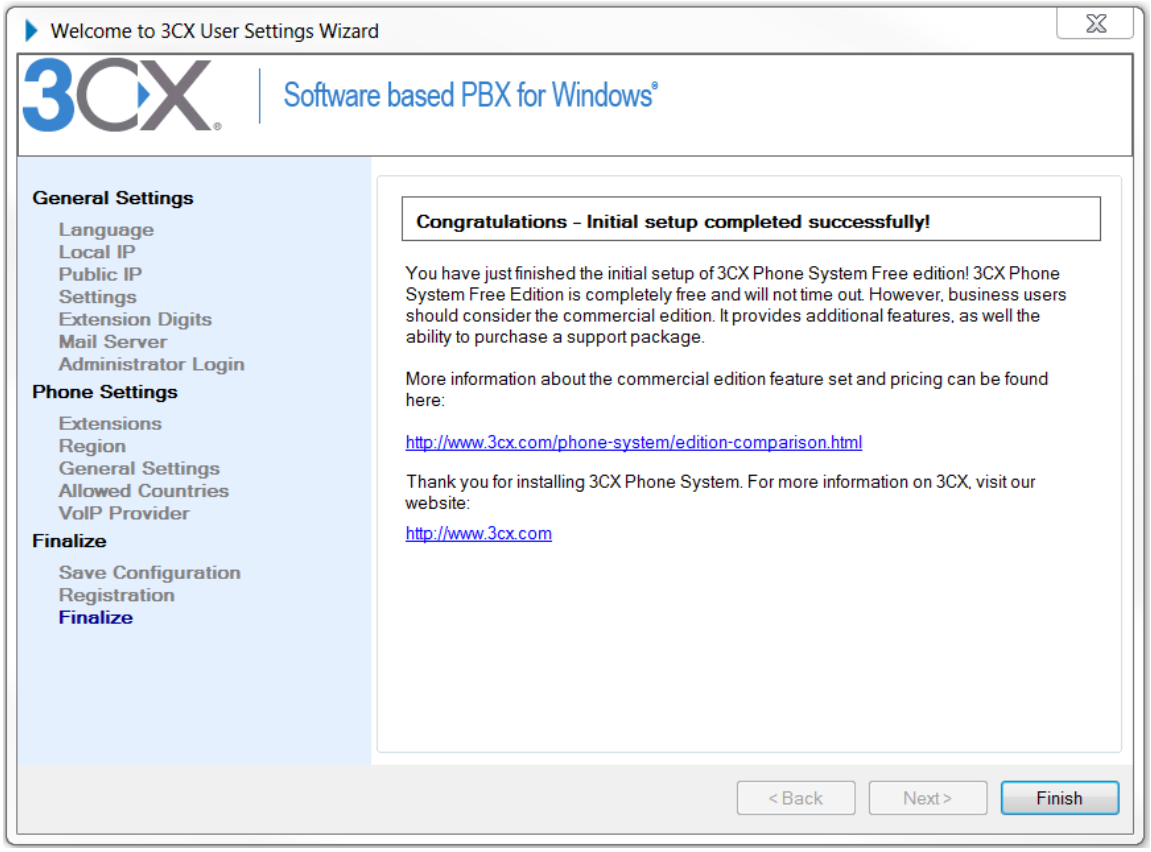
Settings
Extension Digits
Mail Server
Administrator Login
Phone Settings
Extensions
Region
General Settings
Allowed Countries
VoIP Provider
Finalize
Save Configuration
Registration
Finalize
Create Configuration Database
Finished!
Starting primary database service Done
Creating configuration database Done
Importing prompt set information Done
Starting secondary database service Done
Setting up initial environment Done
Starting up core services Done
< Back
Next >
Finish

Click ‘Skip’ if do not want to register.

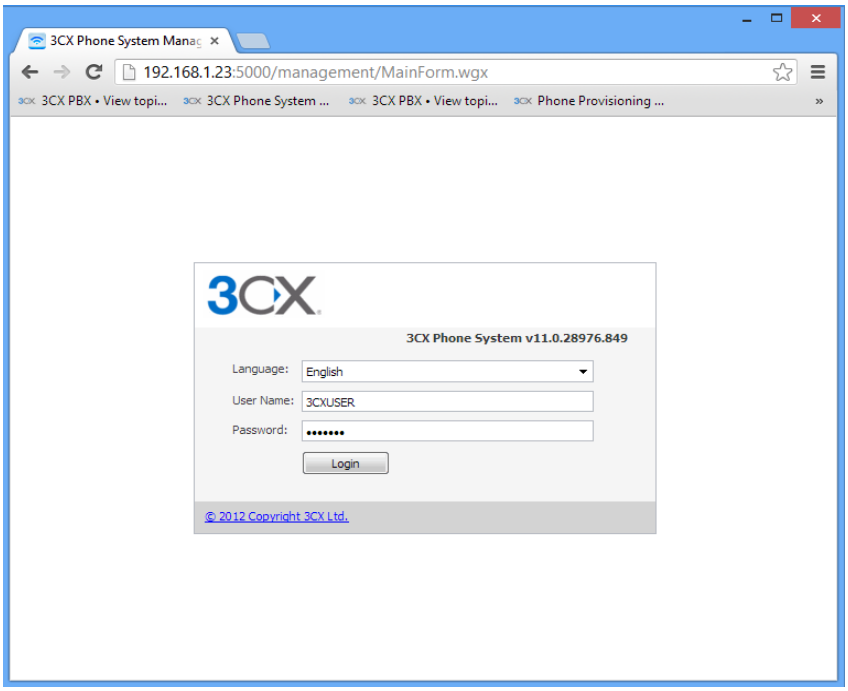
Below window will pop-up with ‘Congratulations’ message.

Click on ‘Finish’



6 Configuring 3CX Phone System

6.1 Step 1: Access the 3CX Management console via any web browser. For example: http://3CXIPADDRESS:5000/management.

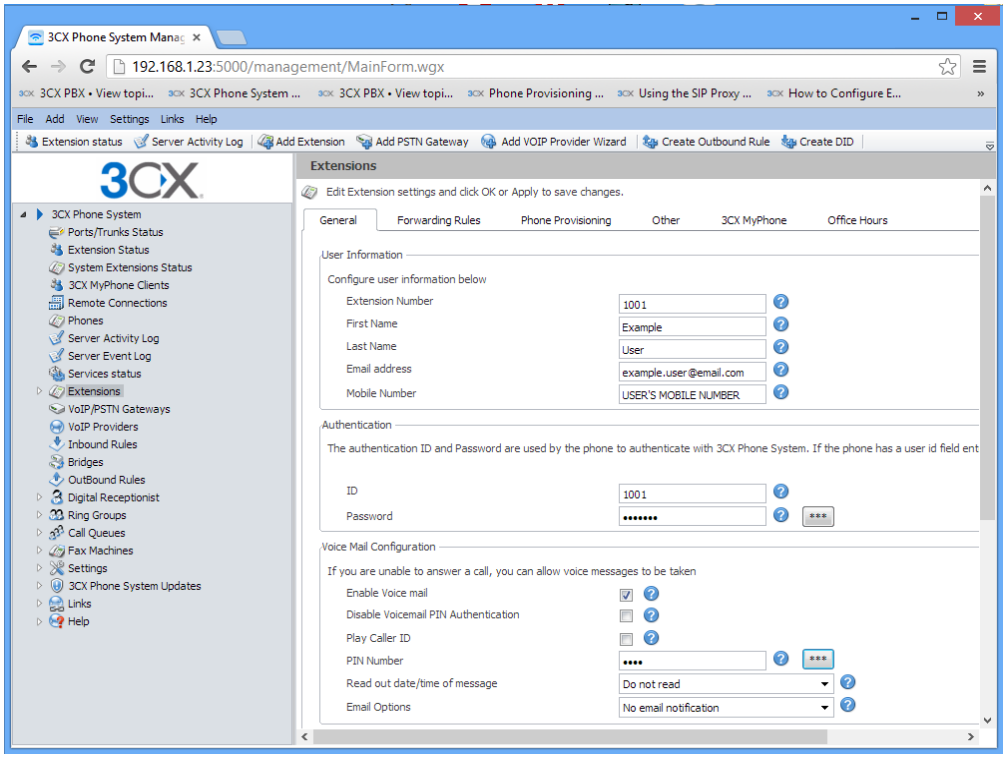


Step 2: Creating Extensions

Create extensions for the users in your company.

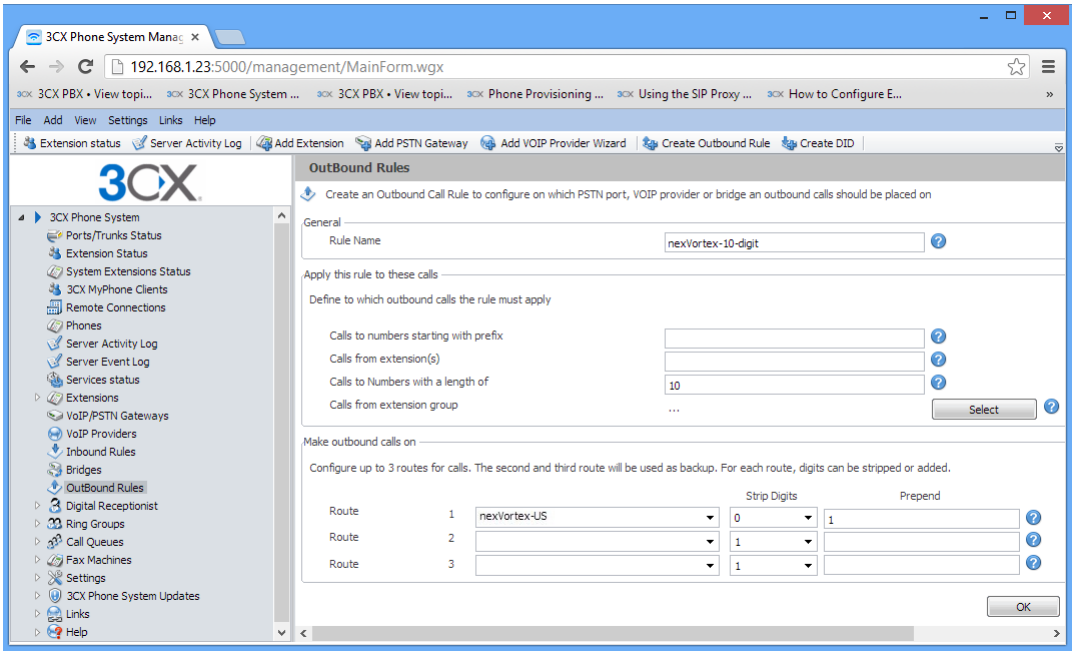
IMPORTANT: Make sure that extension passwords are secure to avoid hacking attempts. 3CX Phone System will mark insecure passwords in red.

You can configure a mobile number per extension and also user's email address. For security reasons, all extensions by default do not allow registrations from outside your LAN. If you have extensions that require remote registrations or users that work from home, you will need to go to Edit Extensions > Other> and uncheck the option "Disallow use of Extension outside the LAN"



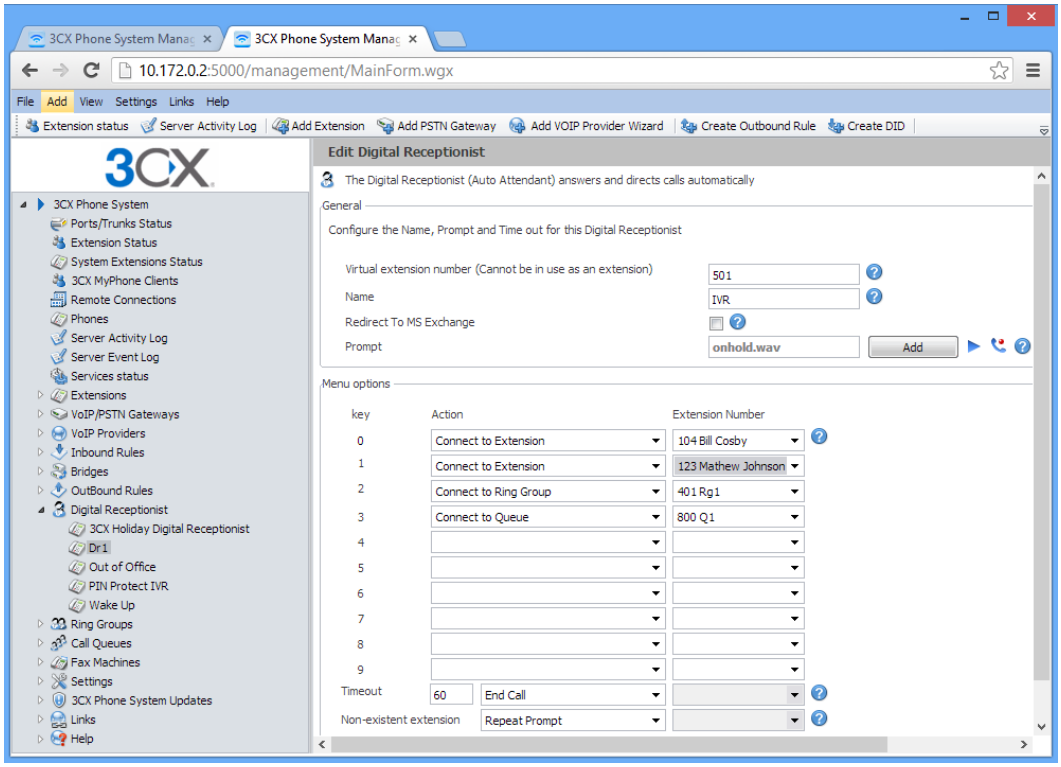
6.2 Step 3: Configuring Outbound Rules

You can create multiple outbound rules. In this example we have created an outbound rule that allows numbers starting with any prefix, and a length of 10 digits to route to your nexVortex trunk. No digits will be stripped and a 1 will be prepended automatically before the call is sent to nexVortex. With this setup users can dial the national number directly. You can also restrict usage of this outbound rule by selecting only specific extensions or groups that can use this outbound rule.



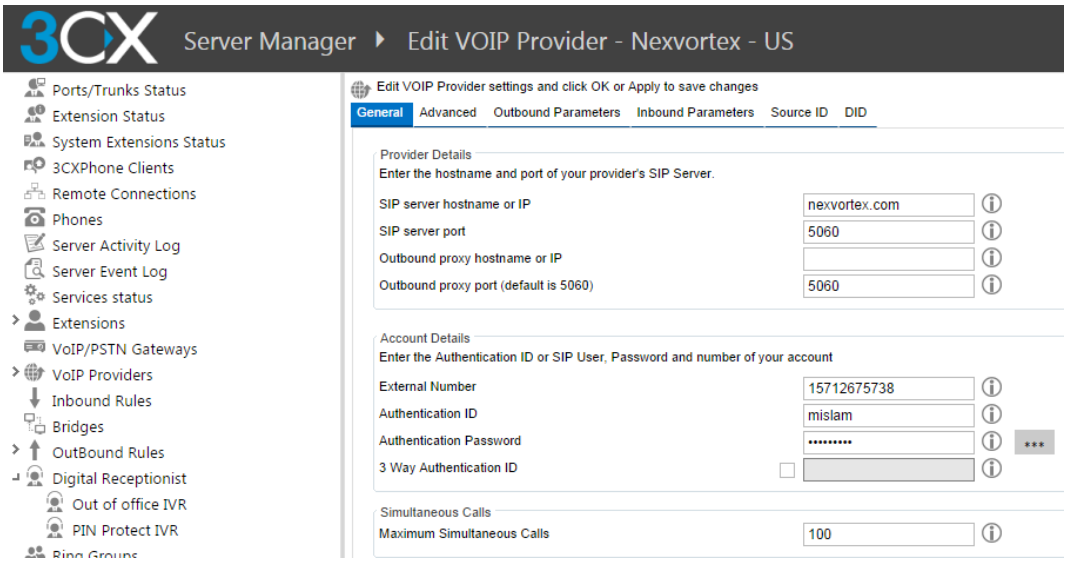
6.3 Step 4: Creating a Digital Receptionist

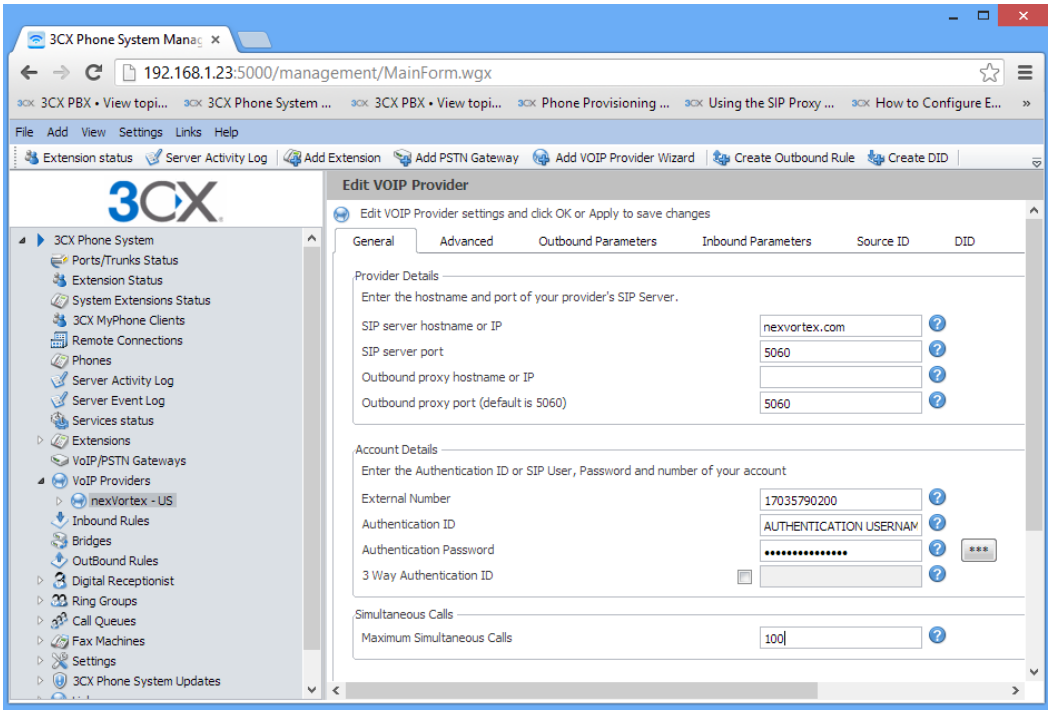
You can create a Digital Receptionist (or IVR) and apply a prompt that will be played to incoming callers.



6.4 Step 5: Editing your nexVortex account

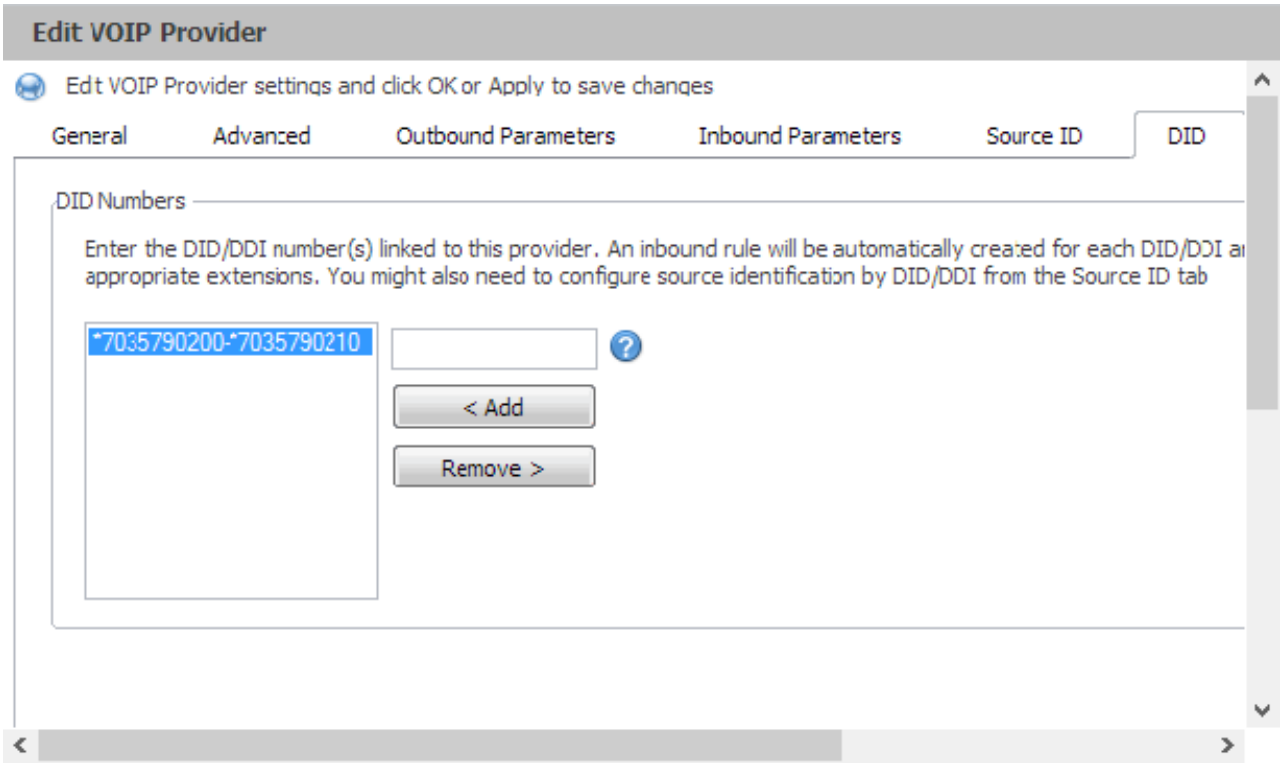
Click on the VoIP Providers node in the 3CX Management console and click Edit VoIP Provider.





6.5 Step 6: Configure a range of DID/DDI numbers

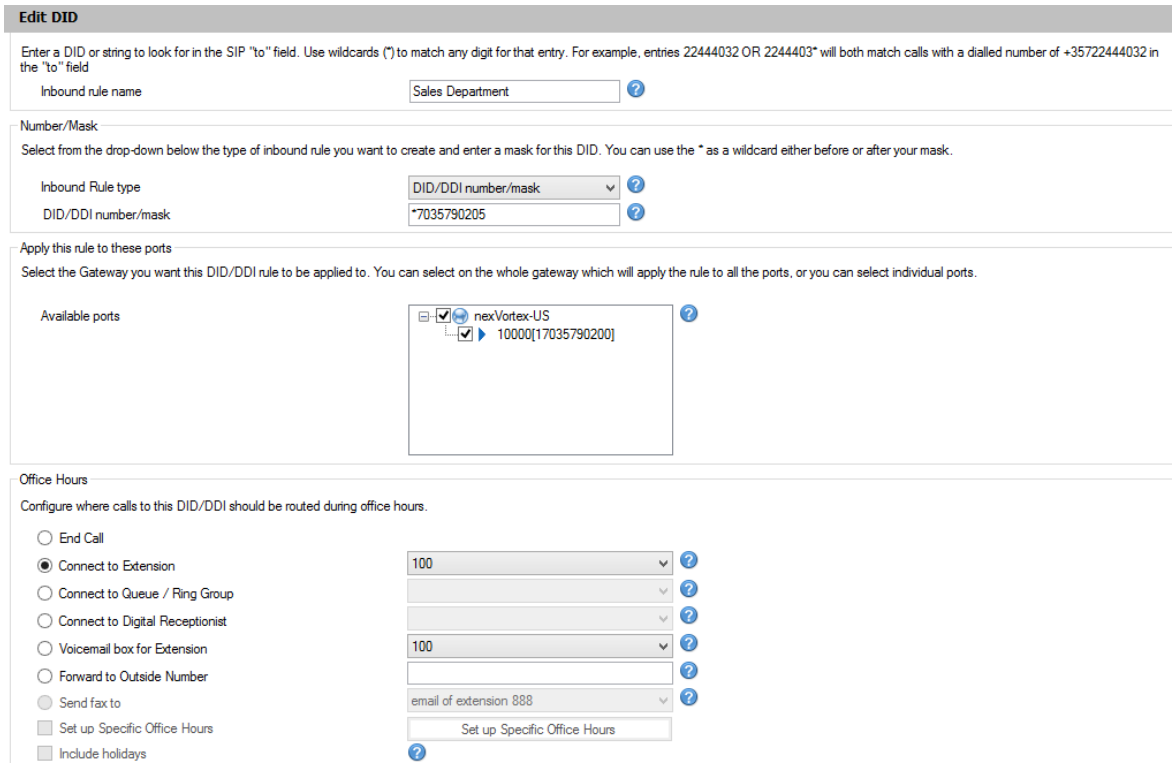
If you have additional numbers associated with your nexVortex account you need to configure DID/DDI for each number. If your DID numbers are consecutive, for example 7035790200, 7035790201, and so on, then you can configure a range of numbers as follows:



1. Click VoIP Providers node on 3CX Management Console
2. Select your nexVortex trunk and press Edit Provider button
3. Click on the DID tab
4. Enter DID range of numbers using wildcards (Example: *7035790200-*7035790210. This means all numbers in that range will be created - 7035790200, 7035790201, 7035790202 and so on up to 7035790210)
5. Press "< Add" button to add these numbers as DID's to this account and press Apply > OK to save. You should see these DID's when you expand Nexvortex-US port in the management console.
6. All inbound rules will be automatically forwarded to the operator extension. You can then change the forwarding options by clicking on the inbound rule from the inbound rules page.

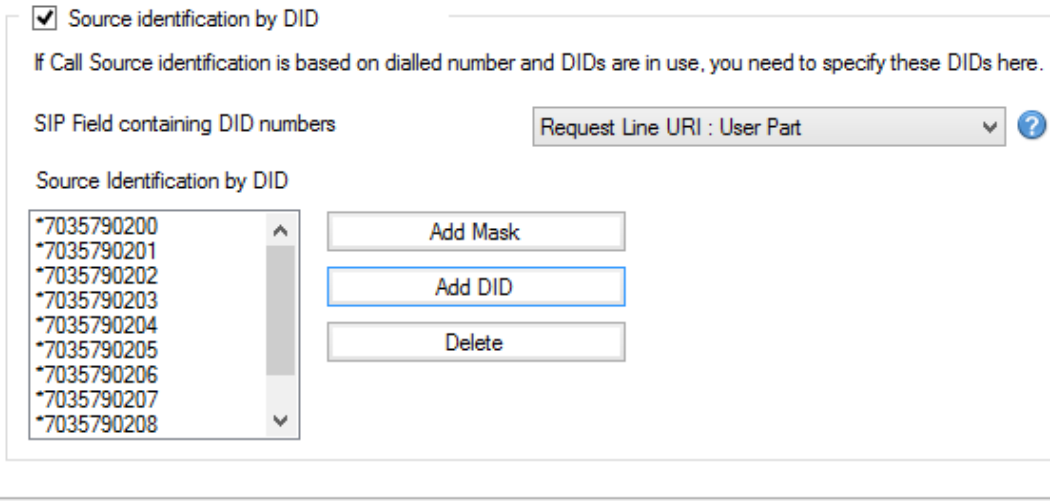
6.6 Step 7: Configure Inbound rules (DID/DDI)

You can configure an inbound rule to point to an extension, queue, fax extension or Digital receptionist.



1. Click on “Inbound Rules” node in the 3CX Management Console
2. Select the DID you would like to modify. You can select multiple DIDs by pressing the Control key on your keyboard.
3. Press the “Edit DID” button
4. Add a name for this rule, like “Sales Department”. This name can be appended or prepended to the incoming caller ID. This way the recipient of the call knows from which Inbound Rule the call is coming from.
5. Configure routing destinations for In Office and Out of Office hours. You can also configure specific office hours for each DID.
6. Press Apply > OK to save your changes.

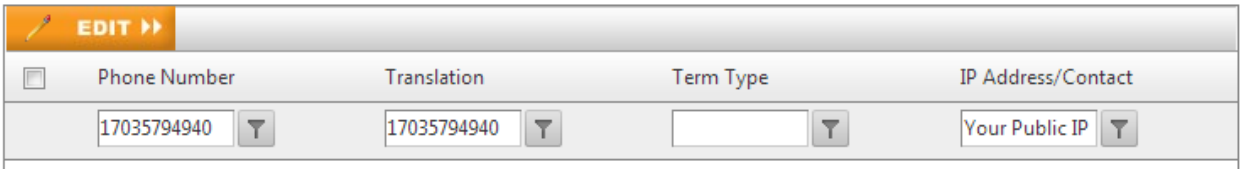
6.7 Step 7: DID/DDI Source Identification



If you use DID/DDI's then this step is very important. Enable source identification by did on the nexvortex-US account. To do this
Click on the VoIP Provider node in the 3CX management console

1. Select the nexVortex VoIP Provider account
2. Click Edit Voip Provider
3. Click the Source ID Tab
4. Check the checkbox "Source Identification by DID"
5. Make sure that in the SIP Field containing DID numbers, the field is set to "Request Line URI: User Part"
6. Click the "Add DID" button to display a list of all DID's created in step 6 and select the checkbox "Select all". Press OK and Save your changes.

6.8 Step 8: Route DID's to your network via the nexVortex portal



1. Open a browser and access http://www.nexvortex.com. Log in using your nexVortex Account credentials.
2. Click on Settings > Number Routing
3. In the Phone number field put the phone number example 17035794900
4. In the IP Address/Contact put your 3CX PBX Public IP Address.

6.9 Step 9: Congratulations! You should now be able to receive calls to any of your DIDs and place outbound calls.

7 Edge Configuration (Firewall/Router)

Your firewall needs to be configured properly to allow SIP and RTP traffic to traverse from the nexVortex networks to the 3CX Phone System. To do this the following ports are required to be open and port forwarded to the 3CX Phone System local / private IP Address

1. Port 5060 UDP
2. Port range 9000-9049 UDP – this range is used for RTP / Voice transmission.
3. You can find more information and an example of how to configure your firewall here: http://www.3cx.com/blog/support/firewall-configuration/
    - You also need to allow servers from nexVortex to reach your network. So you need to make sure that the following nexVortex IP Addresses are allowed (or on your Firewall's whitelist). These are: 66.23.129.253, 66.23.138.162, 66.23.190.100, 66.23.190.200, and 209.193.79.80.

8 Troubleshooting

Following are troubleshooting steps which you can follow:

8.1 Customer System will not register with nexVortex:

- Check the system is pointing at our registrar domain (reg.nexvortex.com)
- Check UDP port 5060 is open on the firewall
- Check NAT translation is correct between LAN private IP address and public IP address
- Check you have the correct proxy user name and password configured.

8.2 Customer System cannot make a call:

- Check that the system is pointing at the DNS address provided in your set up email.
- Check UDP port 5060 is open on the firewall.
- Check NAT translation is correct between LAN private IP address and public IP address.
- Check you have the correct proxy user name and password configured.

8.3 Customer System cannot receive a call:

- Some systems require our IP Address to be configured as an allowed gateway.
- Check UDP port 5060 is open on the firewall.
- Check NAT translation is correct between LAN private IP address and public IP address.
- Check that you have setup the IP route for the number correctly with nexVortex. This is done through the customer or reseller Partner Connect portal->Settings-> Number Routing.
- Check that the dial plan is configured to route the number to a valid location on the customer system.

8.4 One way audio or no audio after call is setup:

- Check the RTP audio ports are open on the firewall.
- Check that you are presenting the proper PUBLIC IP for your network.

Important! DNS Address

A specific DNS address was provided in the Account Set Up email you received the day you opened your account. Your Authentication User ID and password are also in this email. If you need assistance locating this information, please contact support@nexvortex.com.

Note: For all instructions throughout this Guide, you must substitute the provided DNS address wherever xx.xx.xxx.xxx is referenced.

Further help may be obtained by emailing support@nexvortex.com.