Avaya Solution & Interoperability Test Lab

Application Notes for Configuring NovaLink NovaConf SIP with Avaya IP Office – Issue 1.0

Abstract

These Application Notes describe the configuration of the NovaLink NovaConf conference system connected to Avaya IP Office via a SIP link.

Information in these Application Notes has been obtained through DevConnect compliance testing and additional technical discussions. Testing was conducted via the DevConnect Program at the Avaya Solution and Interoperability Test Lab.

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1. Introduction

The purpose of this document is to describe the configuration of NovaLink NovaConf and Avaya IP Office, including a description of the tests that were performed, and a summary of the results of those tests.

The NovaLink NovaConf server includes a Web-based administration facility that allows remote administration of users and conferences from a Web browser. Various types of conferences can be configured, dependent on conference participant needs:

Incoming Conferences allow users to "dial in" to conferences held at specific times.

Outgoing Conferences can be configured to call a pre-defined list of conference participants as a specific time.

Ad-hoc conferences can be created to meet an immediate need.

Chief conferences are started by calling a pre-defined telephone number, and calling a pre-defined list of conference participants at that time.

Conference participants can optionally be assigned a PIN code with which they are required to authenticate themselves.

NovaLink NovaConf supports multiple interfaces, including the SIP link described in these Application Notes.

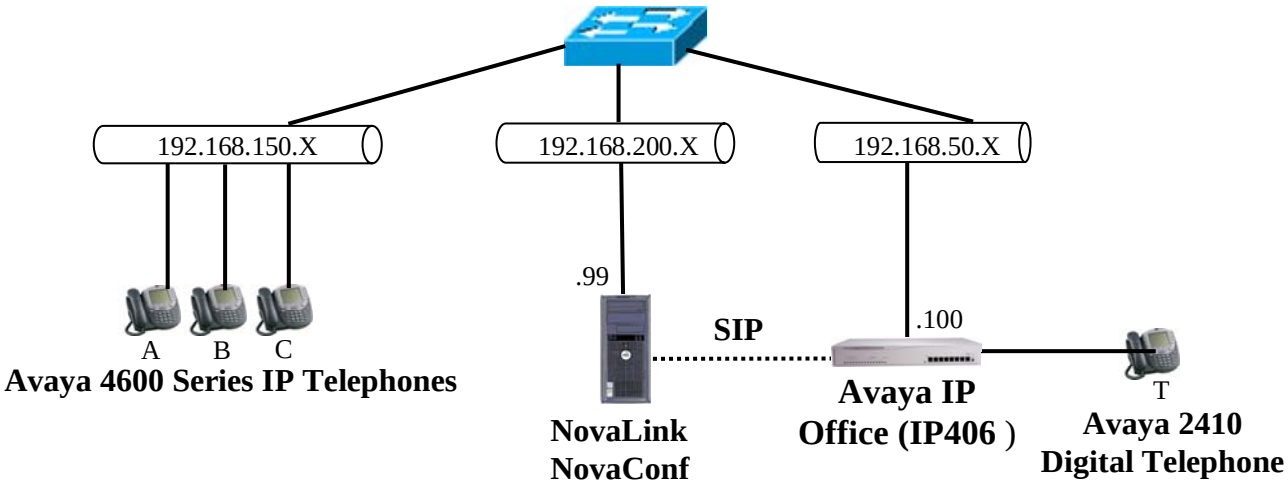

Figure 1: NovaLink NovaConf Test Configuration

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The function of each of the components in **Figure 1** is as follows:

- The NovaLink NovaConf server is attached to Avaya IP Office via a SIP link.
- Avaya Telephones are connected Avaya IP Office either directly via digital interface or via the IP network.

The following extensions were used in the test configuration:

Extension	Designation
5000136	A
5000134	B
5000133	C
5000001	T
3111111	NovaLink NovaConf via SIP

Table 1: Extensions Used in Test Configuration

2. Equipment and Software Validated

The following equipment and software were used for the sample configuration provided:

Equipment	Software Version
Avaya IP Office (IP406)	4.0 (5)
Avaya 4600 Series IP Telephones	2.8
Avaya 2410 Digital Telephone	5.0
NovaLink NovaConf	7.5 SP 1A
Microsoft Windows Server 2003 SE	SP2

Table 2: Version Numbers of Equipment and Software

3. Configure Avaya IP Office

The configuration and verification operations illustrated in this section were all performed using the Avaya IP Office Manager application. The information provided in this section describes the configuration of Avaya IP Office for this solution. For other information concerning installation, configuration, and provisioning please refer to the product documentation in reference [1].

The configuration operations described in this section can be summarized as follows:

- Configure the dial plan and call routing required for the NovaLink NovaConf configuration.
- Configure the SIP link which is used to connect to the NovaLink NovaConf server.
- Configure the telephone stations which are to be used for testing.

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Many of the descriptions contained within this section make reference to the “left frame” of the Avaya IP Office Manager application. This portion contains a list of the components which can be configured as follows:

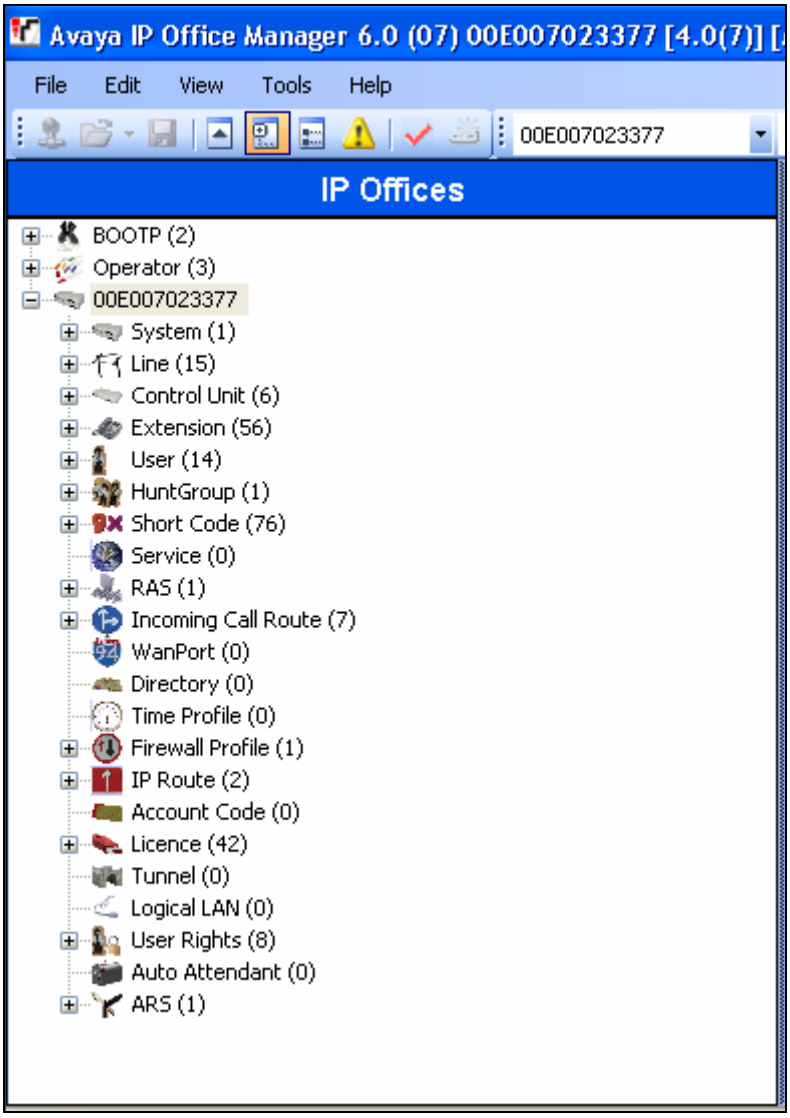

Figure 2: Avaya IP Office Manager Main Menu

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3.1. Configure System Settings

Select the Avaya IP Office "System" icon and set the parameters as shown in **Table 3**.

Tab	Parameter	Usage
LAN1 / LAN Settings	IP Address	Enter the IP address which is to be assigned to Avaya IP Office.
	IP Mask	Enter the IP mask which is to be assigned to Avaya IP Office.
Telephony	Companding Law: Switch	Select the appropriate value for the region in which the system is located: ALAW for Europe.
	Companding Law: Line	Select the appropriate value for the region in which the system is located: ALAW for Europe.

Table 3: "System" Parameters

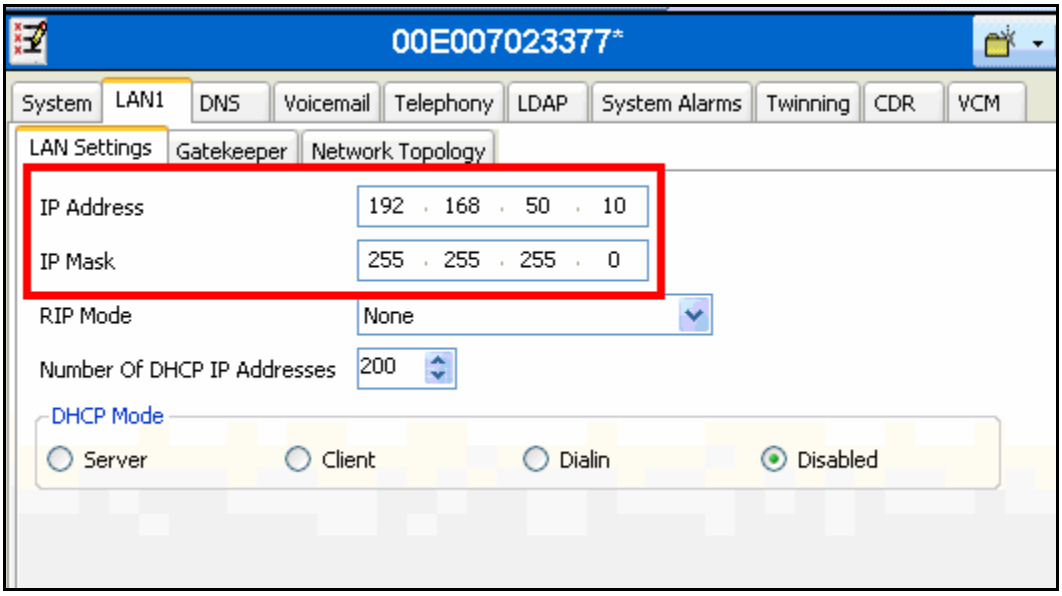

Figure 3: Avaya IP Office System Parameters: LAN1 / LAN Settings

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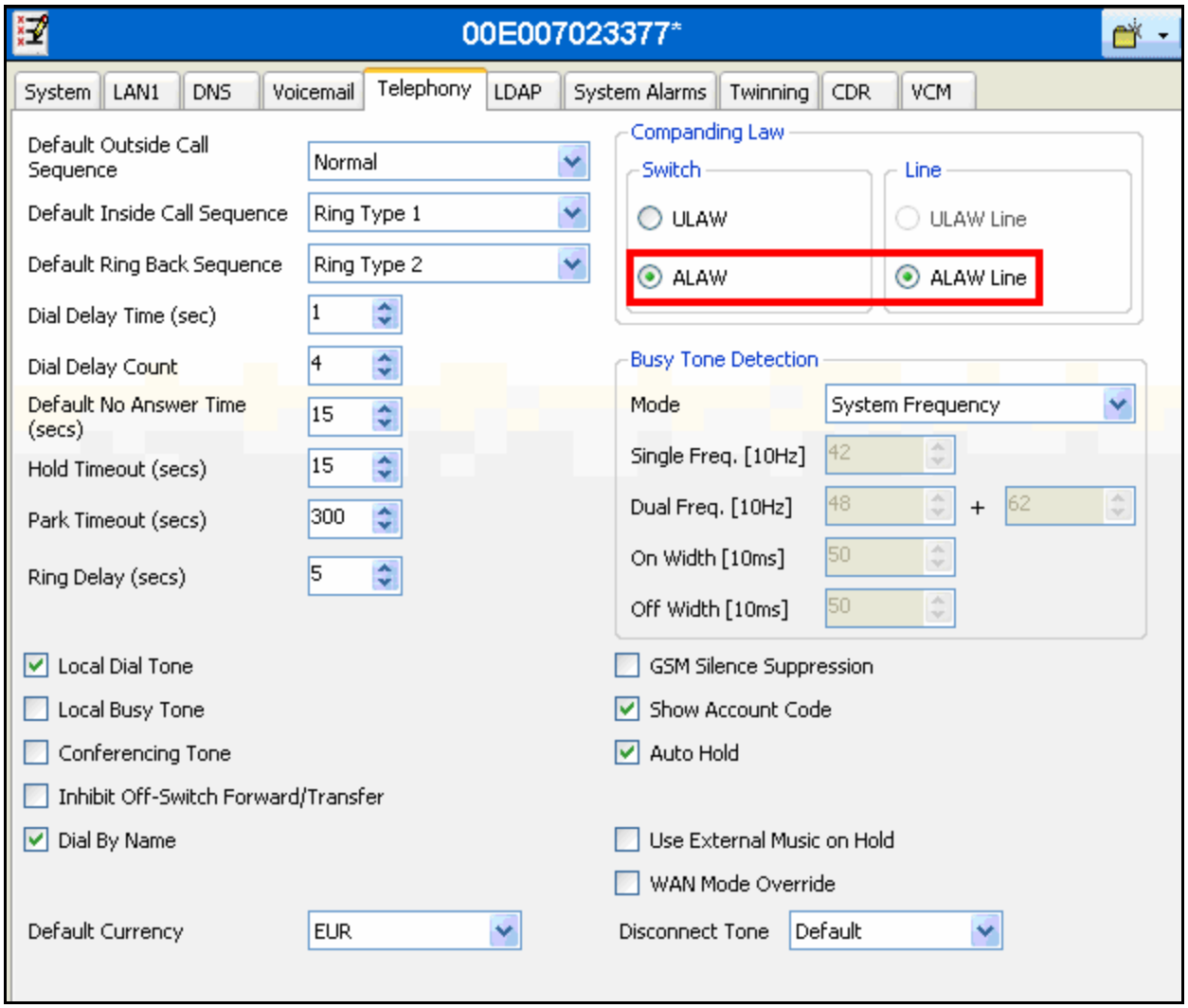

Figure 4: Avaya IP Office System Parameters: Telephony

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3.2. Configure SIP Link to NovaLink NovaConf

3.2.1. Configure SIP Line

Configure the SIP line which connects Avaya IP Office to the NovaLink NovaConf server, using the parameters shown in the following table.

Tab	Value	Usage
ITSP Domain Name	ITSP Domain Name	Enter the domain name configured for NovaLink NovaConf.
	ITSP IP Address	Enter the IP address of the NovaLink NovaConf server.
SIP URI	Local URI	Select 5000000 from the drop-down list.
	Contact	Select 5000000 from the drop-down list.
	Display Name	Select 5000000 from the drop-down list.
	Incoming Group	Enter “1”, the group number of the SIP line.
	Outgoing Group	Enter “1”, the group number of the SIP line.

Table 4: SIP Line Parameters

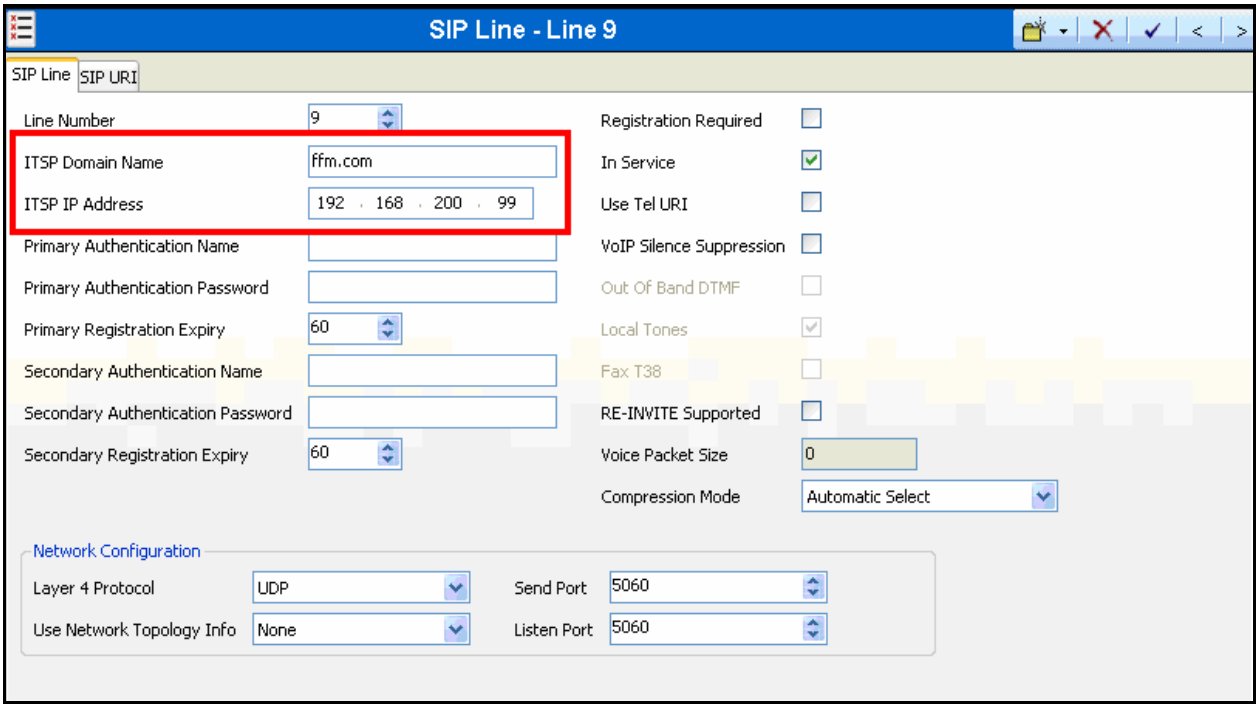

Figure 5: SIP Line Form

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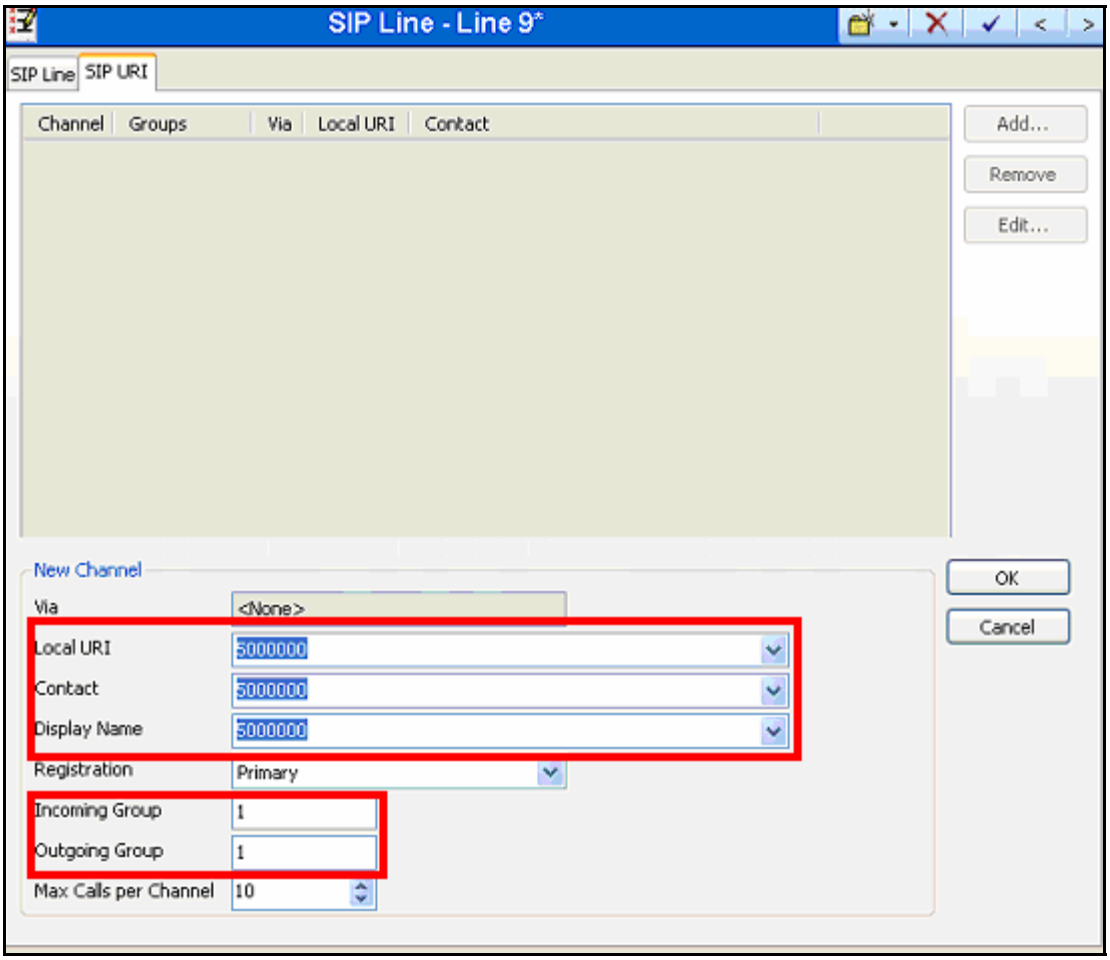

Figure 6: SIP URI Form

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3.2.2. Configure Incoming Call Routes

Configure the Incoming Call route for the SIP line which is connected to NovaLink NovaConf.

Value	Usage
Line Group Id	Specify “1”, the group ID assigned to the SIP line.
Destination	Enter “.” to preserve the number.

Table 5: Extension Parameters

The screen below shows Incoming Call Route assignments for the SIP connection to Avaya IP Office.

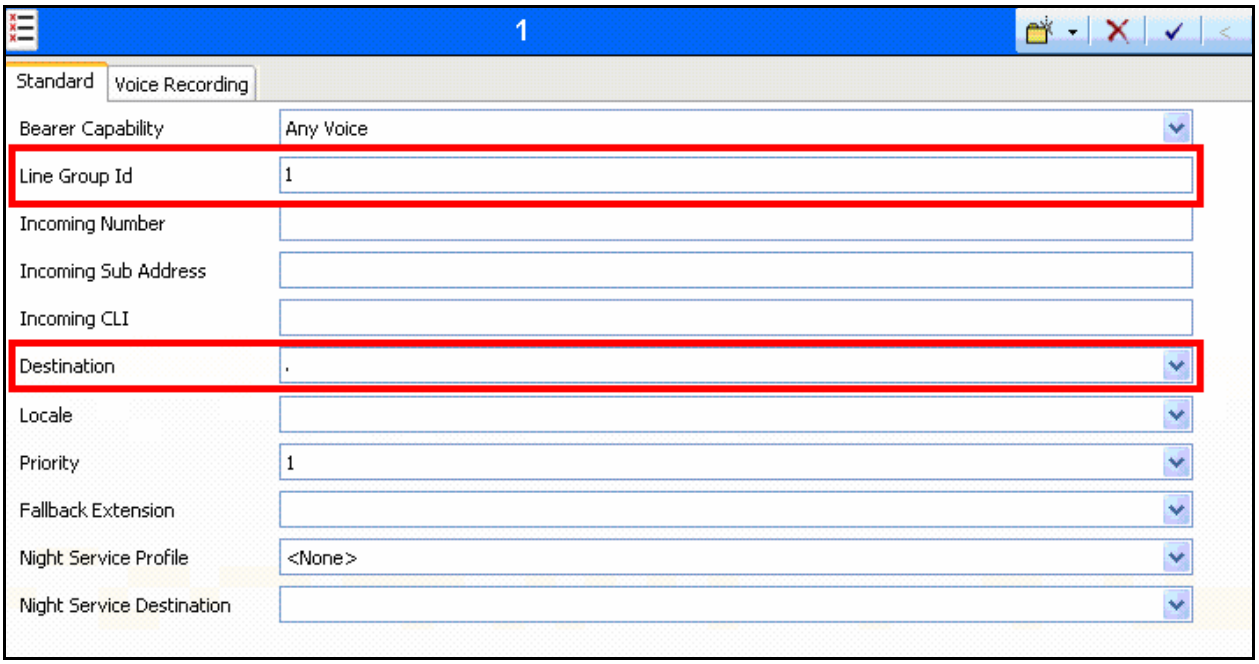

Figure 7: Short Codes: User Tab

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3.3. Configure H.323 Telephone Extensions

When the Call Server address Avaya IP Telephone is assigned to the IP address of Avaya IP Office, a default extension is allocated by Avaya IP Office for that device upon its initial registration. For each of the stations A-C, reassign this default extension to one of the extensions shown in Error! Reference source not found., and configure each of these extensions using the parameters shown in Error! Reference source not found..

Tab	Parameter	Usage
Extn	Base Extension	Enter one of the extensions to be assigned to stations A-C.
	Device type	Accept the device type which was assigned when this device was initially registered by Avaya IP Office.
VoIP	Compression Mode	Select G.711 ALAW 64K.
	Out Of Band DTMF	Check this box.
	Allow Direct Media Path	Check this box.

Table 6: Extension Parameters

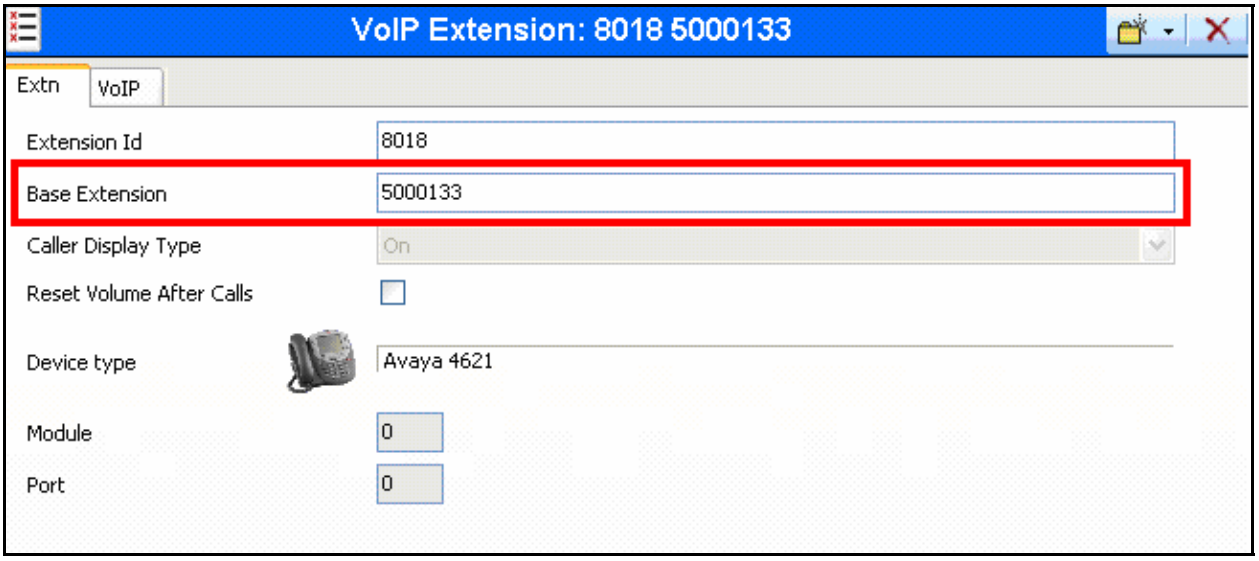

Figure 8: Extensions: Extn Tab

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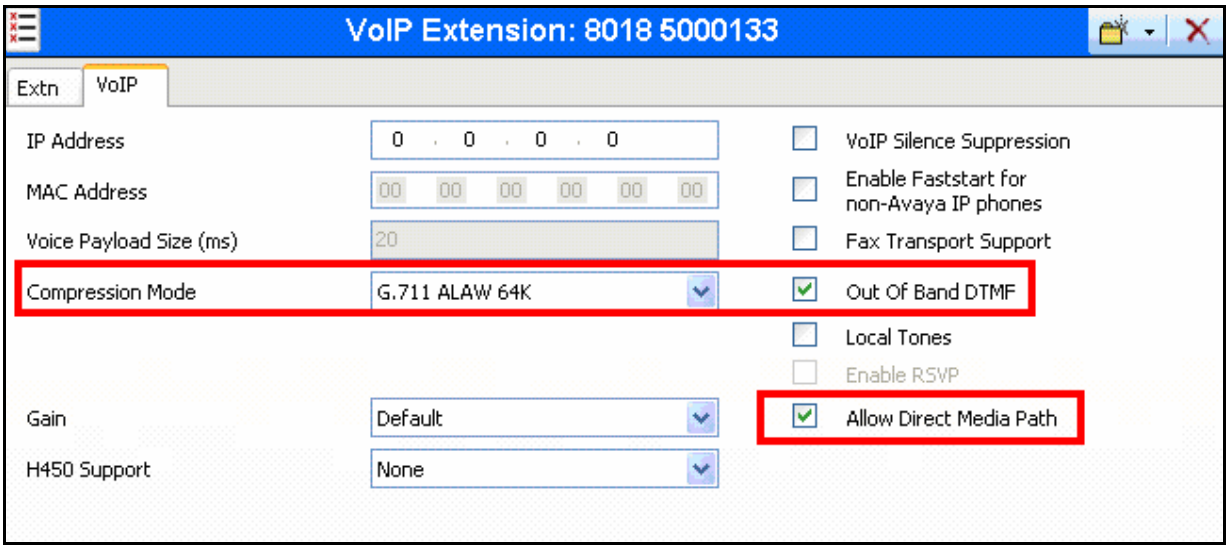

Figure 9: Extensions: VoIP Tab

3.4. Configure Digital Telephone Extensions

When the Avaya 2410 Digital Telephone (shown as "T" in **Error! Reference source not found.**) is initially attached to Avaya IP Office, it is assigned a default extension. Select the "Extension" icon from the IP Office Manager, as shown in **Error! Reference source not found.**, and assign parameter the values shown in Error! Reference source not found..

Tab	Parameter	Usage
Extn	Base Extension	Enter the extension to be assigned to station T.
	Device type	Use the value which was assigned by Avaya IP Office when the device was initially registered.

Table 7: Extension Parameters

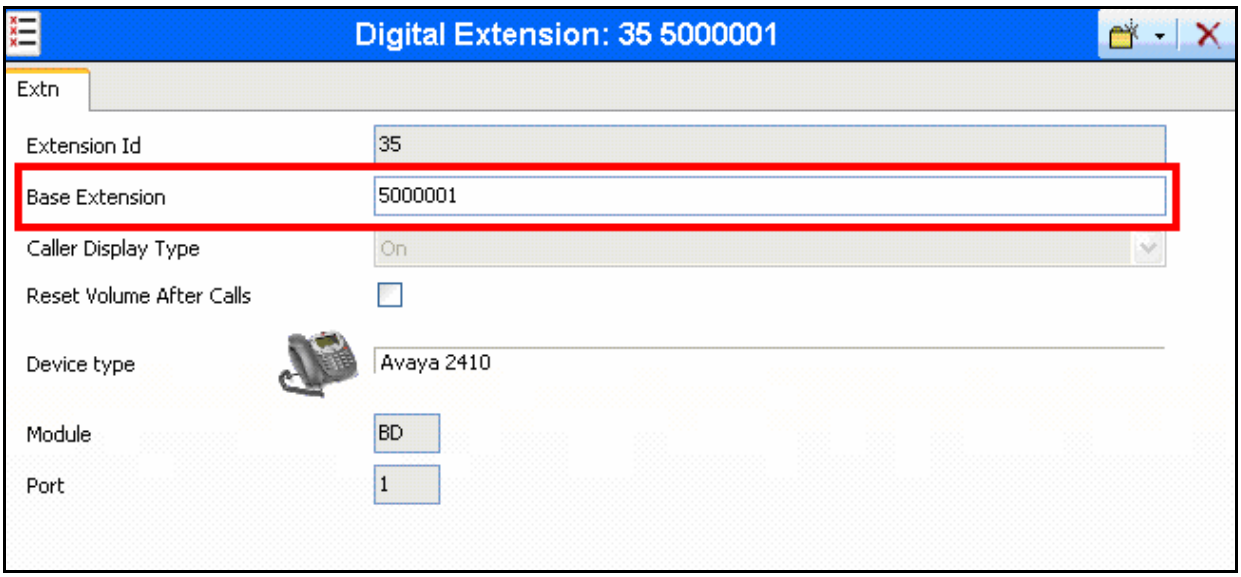

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Figure 10: Extensions: Extn Tab

3.5. Configure Users

Configure users by performing an "add" operation via the "Users" icon contained in the left frame for stations A-C and T.

Tab	Parameter	Usage
User	Name	Enter a name which identifies the user.
	Extension	Enter one of the extension A-C,T.
Telephony	Can Intrude	Check this box.
	Cannot be Intruded	Uncheck this box.
SIP	All parameters	Accept defaults.

Table 8: User Parameters

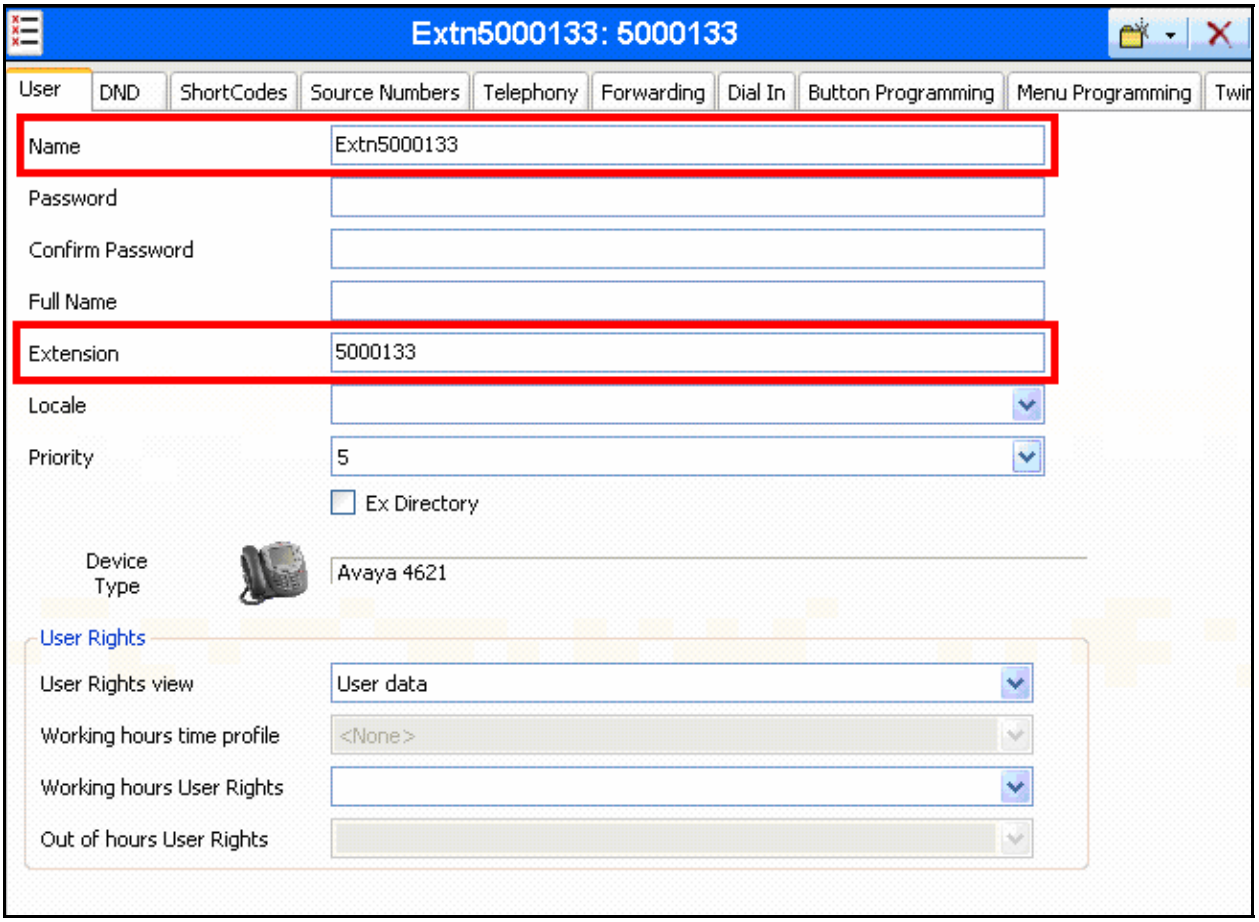

Figure 11: Users: User Tab

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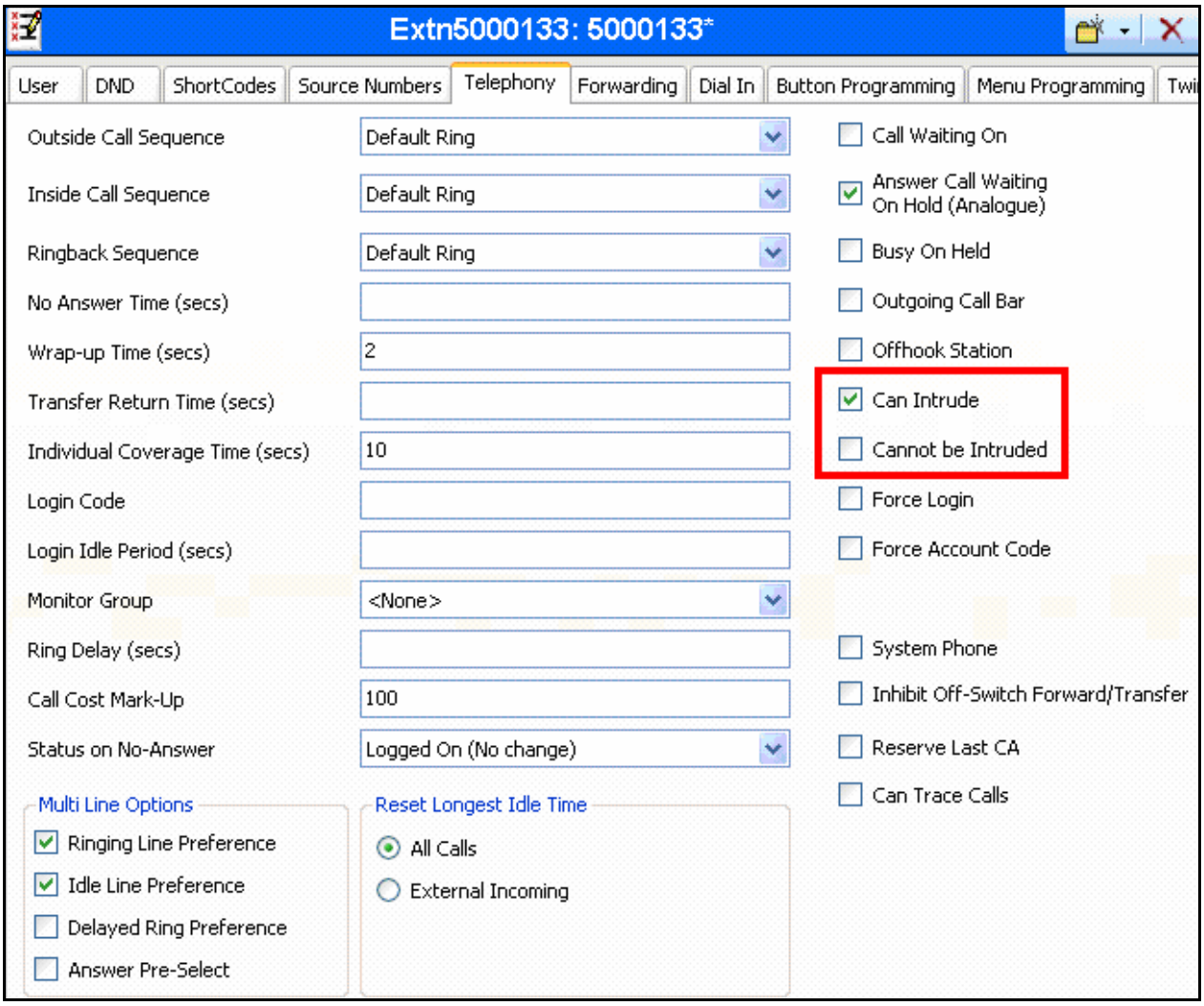

Figure 12: Users: Telephony Tab

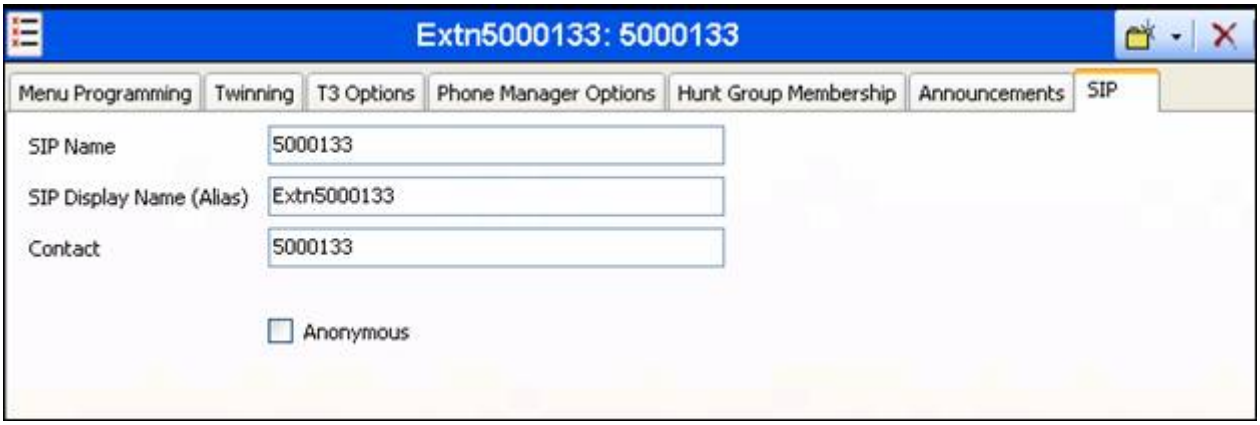

Figure 13: Users: SIP Tab

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3.6. Configure Short Codes

3.6.1. Configure SIP Line Short Codes

Configure Short Codes by performing an “add” operation via the “Short Codes” icon.

Tab	Parameter	Usage
Short Code	Code	Enter “3XXXXXX” to match all NovaConf extensions.
	Feature	Enter “Dial”.
	Telephone Number	Enter ‘3N”@ffm.com”’ to transform extensions assigned to NovaConf to the required form to cause Avaya IP Office to create a SIP URI which is sent on the NovaConf SIP trunk.
	Line Group Id	Enter the group number assigned to the SIP line.

Table 9: User Parameters

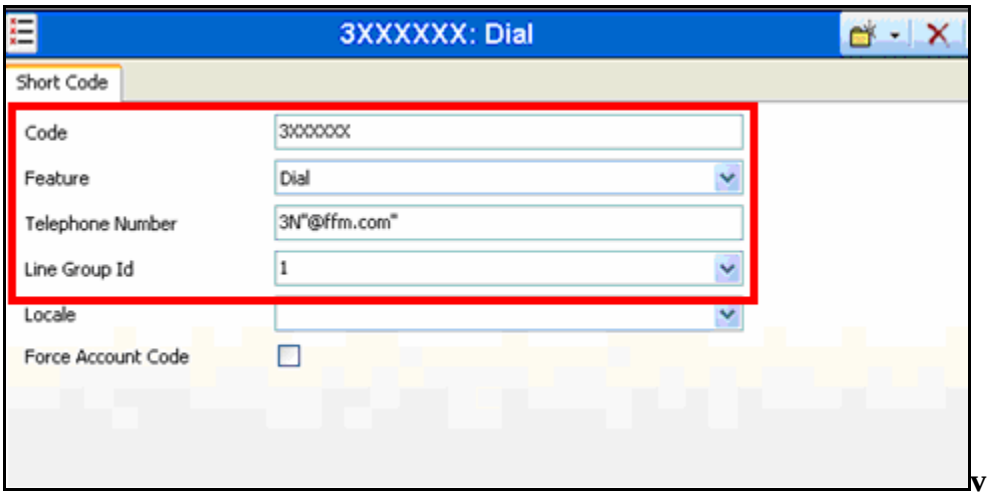

Figure 14: Short Codes: User Tab

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4. Configure NovaLink NovaConf

4.1. Configuration file NovaConf.ini

The NovaConf.ini configuration file is a "flat" ASCII file which can be edited with a text editor. This file is contained in the main installation directory on the NovaLink NovaConf server (e.g. C:\Program Files\NovaConf). Note that the "DefaultCallingParty" and "LocalUserName" parameters can be assigned to the same extension, as these parameters are used by different subcomponents of the NovaConf server.

Parameter	Usage
CardDriver	Set this value to "3" to select the SIP driver.
DefaultCallingParty	This is the number to be used as the calling party number for calls which originate from NovaLink NovaConf.
DriverPrev	Set this value to "3" for to select the SIP driver.
LocalUserName	This is the number to be used as the calling party number for calls which originate from NovaLink NovaConf.
SIP_Gateway	This is the domain name used by Avaya IP Office, followed by the IP address of Avaya IP Office.
Rufnummer	This is the number to be used as the calling party number for calls which originate from NovaLink NovaConf.

Table 10: Extension Parameters

The other parameters in this file should be configured with the default values which are not shown.

```
[CallInfo]
CardDriver=3
DefaultCallingParty=3111111

[VoIP]
DriverPref=3
LocalUserName=3111111
SIP_Gateway=ffm.com,192.168.50.10

[NovaConf]
Rufnummer=3111111
```

Figure 15: NovaConf.ini Configuration File Content

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4.2. Configure NovaLink NovaConf Application

Use the Windows “Start” button to select the program “NovaConf Webclient”. After entering the user name and password, the NovaLink NovaConf startup screen is displayed. Click the “Show users” icon to show potential conference participants.

Figure 16: NovaLink NovaConf Startup Screen

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4.2.1. Configure Users

Assuming that no other users have been defined, the user designated as administrator is displayed. The configuration of the administrator is beyond the scope of these Application Notes. See reference [2] for additional information. Click the "New person" icon to add a potential conference participant. A conference user should be configured for each of the telephone extensions shown in Error! Reference source not found..

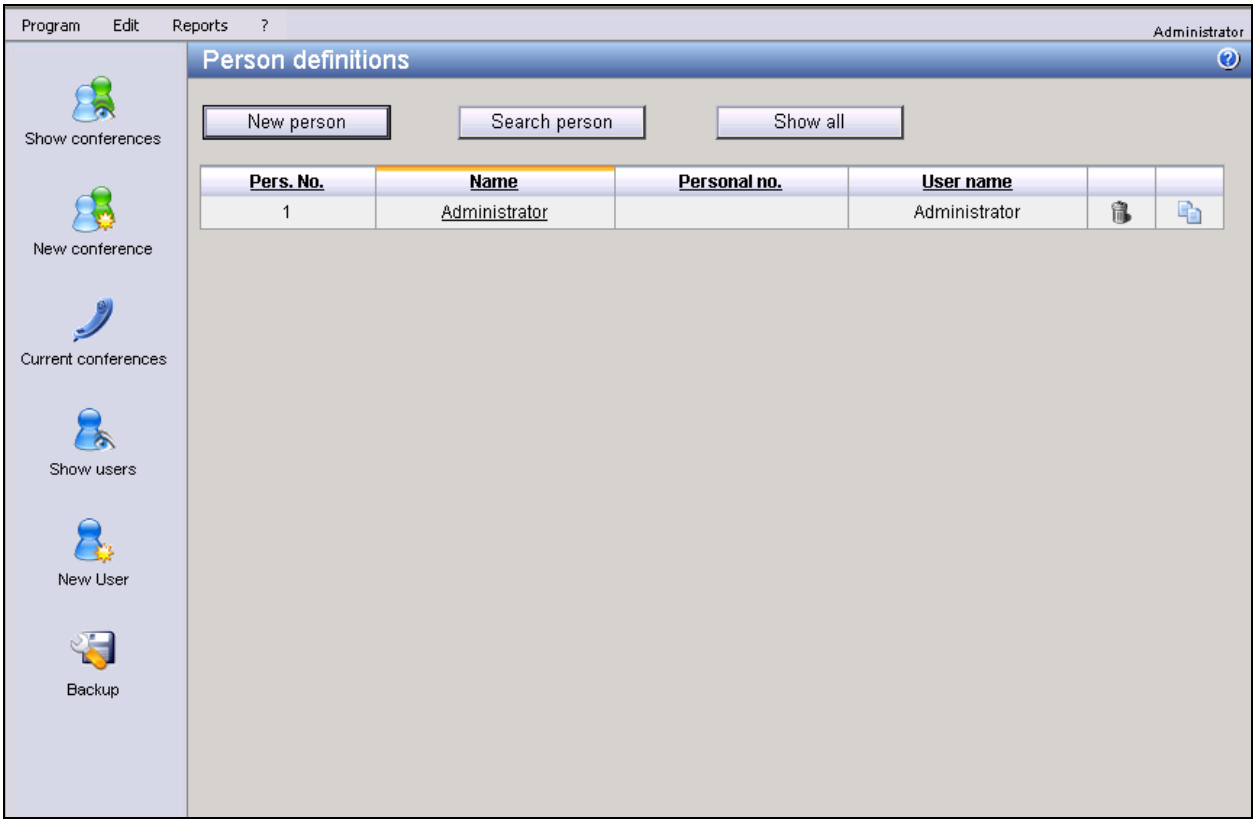

Figure 17: NovaLink NovaConf User Configuration Screen

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In the “Personal details” tab, enter the user’s name in the “Name” field and a numeric PIN code to be assigned to the user in the “PIN code” field. The user will use this PIN code when an authorization sequence for a conference operation is required.

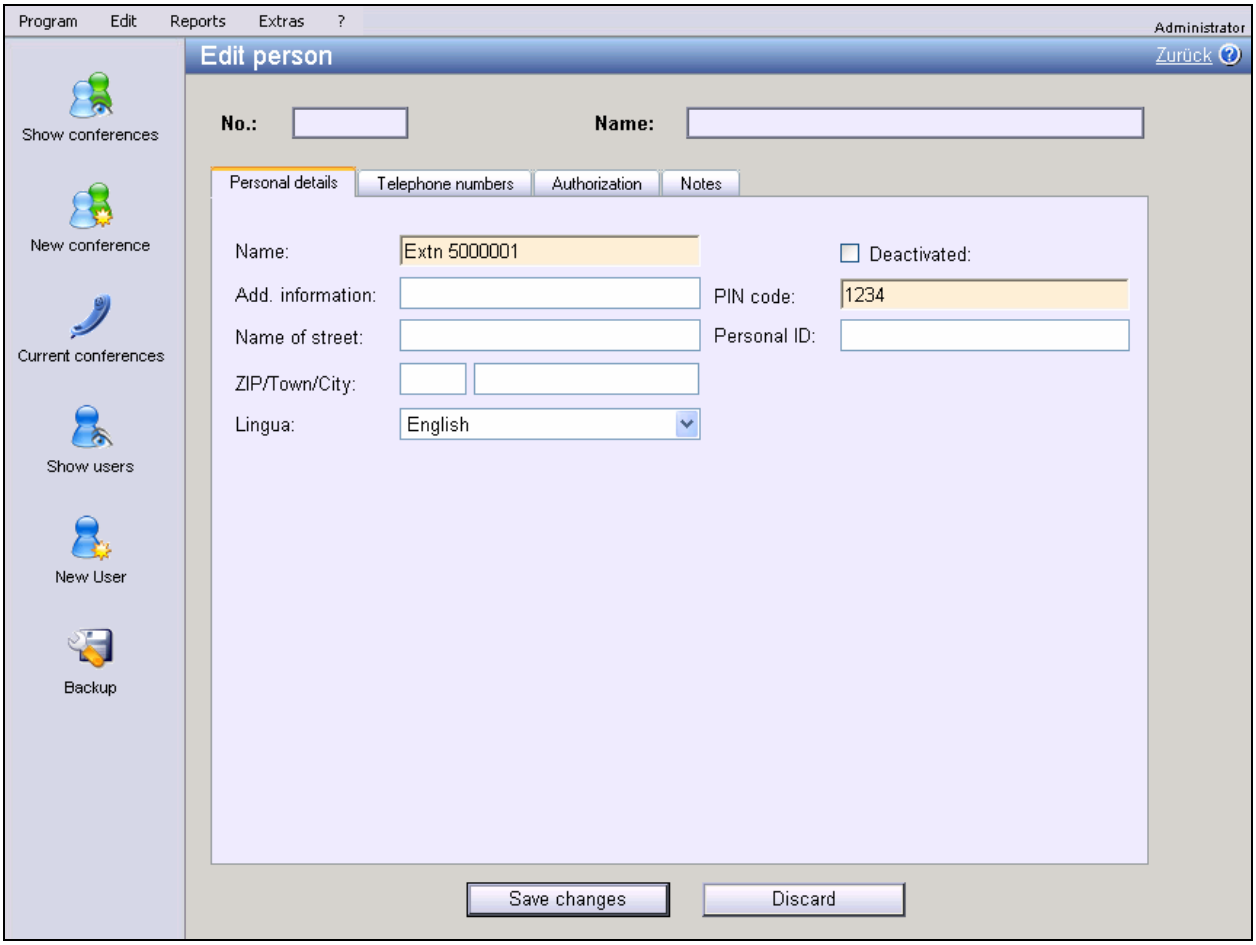

Figure 18: NovaLink NovaConf Edit Personal Details Screen

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Select the “Telephone numbers” tab to enter the telephone number to be assigned to the user. For testing purposes, it is sufficient to configure one telephone extension, which can be entered into the “Office 1” field. Click the “Save changes” button to save the user’s configuration and return to the “Person definitions” screen.

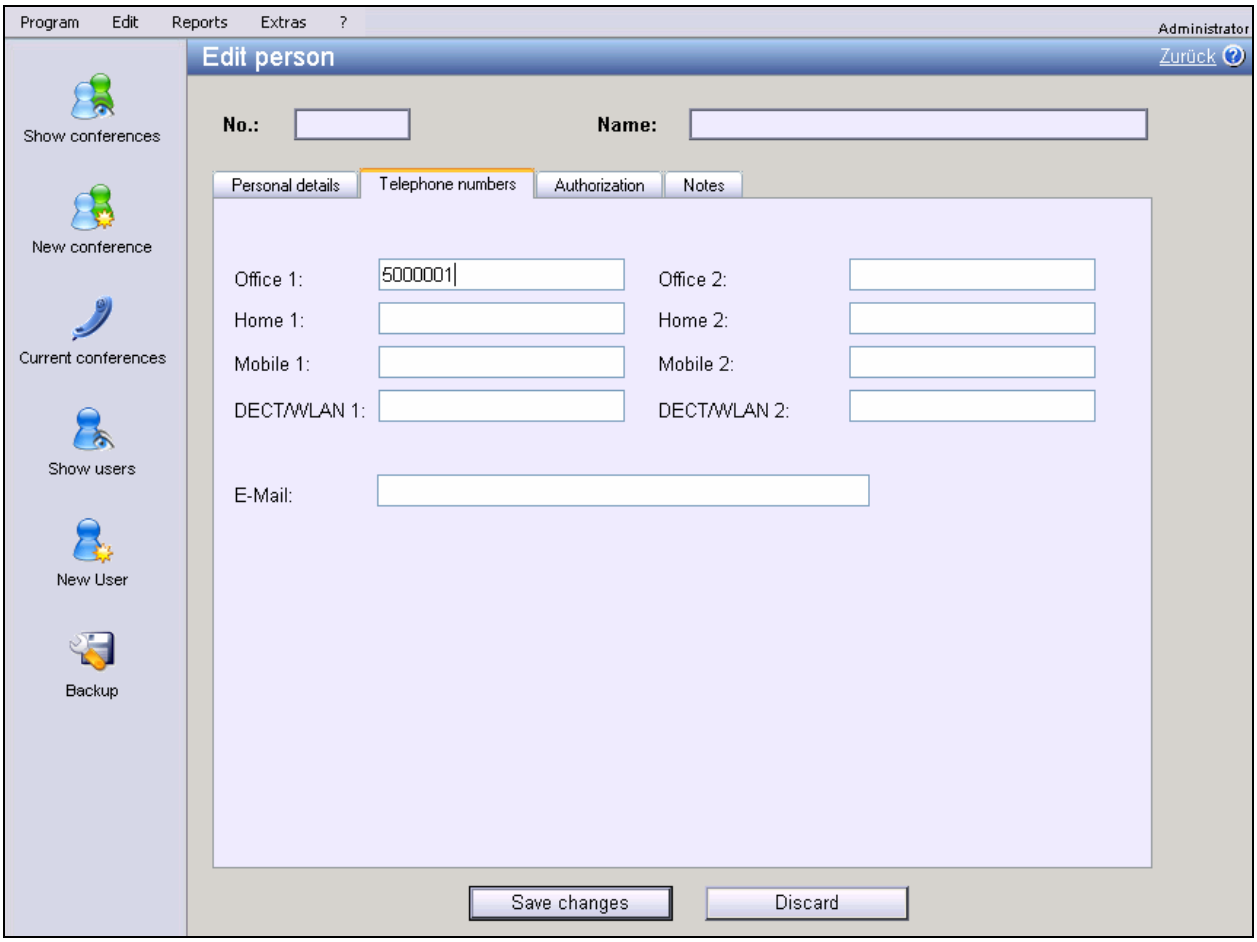

Figure 19: NovaLink NovaConf Edit User Telephone Numbers Screen

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Repeat the preceding user allocation steps for each of the extensions in Error! Reference source not found.. The newly configured users are now listed in the “Person definitions” screen, as show below. Click the “Show conference” icon to continue.

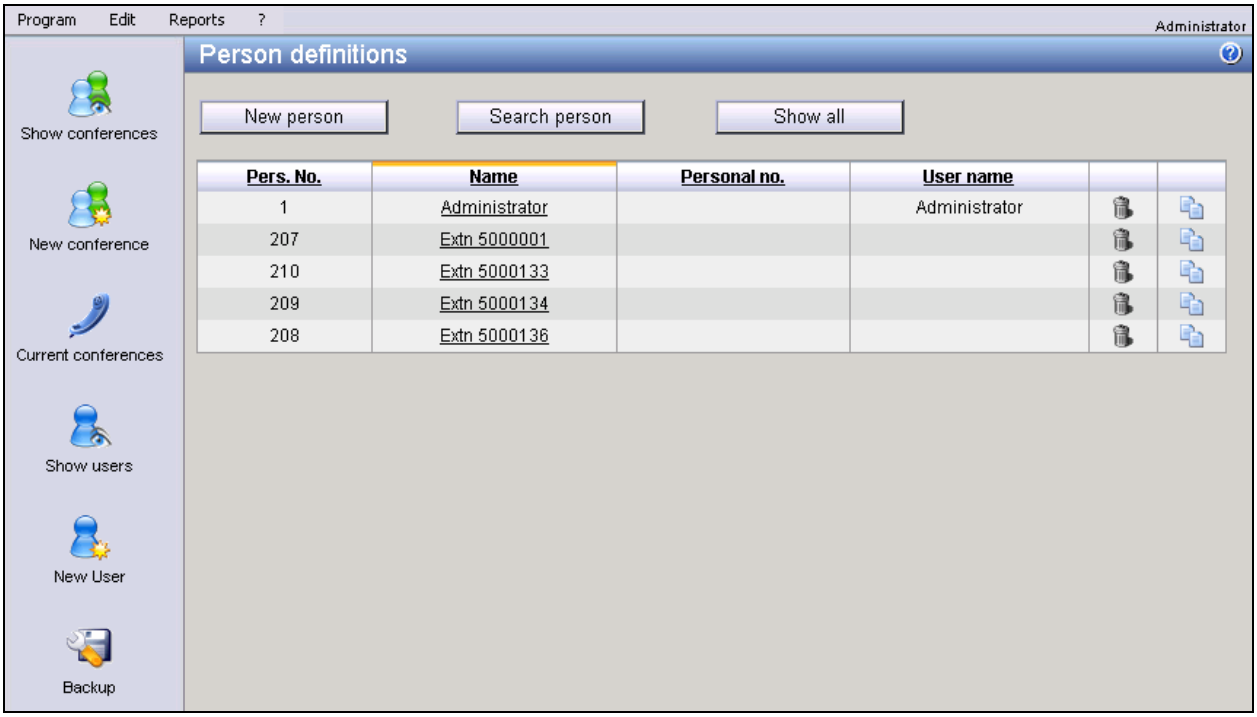

Figure 20: NovaLink NovaConf Personal User Display Screen

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4.2.2. Configure Conferences

From the “Predefined Conferences” screen, click the “New Conference” button to create a new conference. This operation is performed once for each of the three conference types used by the tests described in these Application Notes: incoming conference, outgoing conference, and ad-hoc conference.

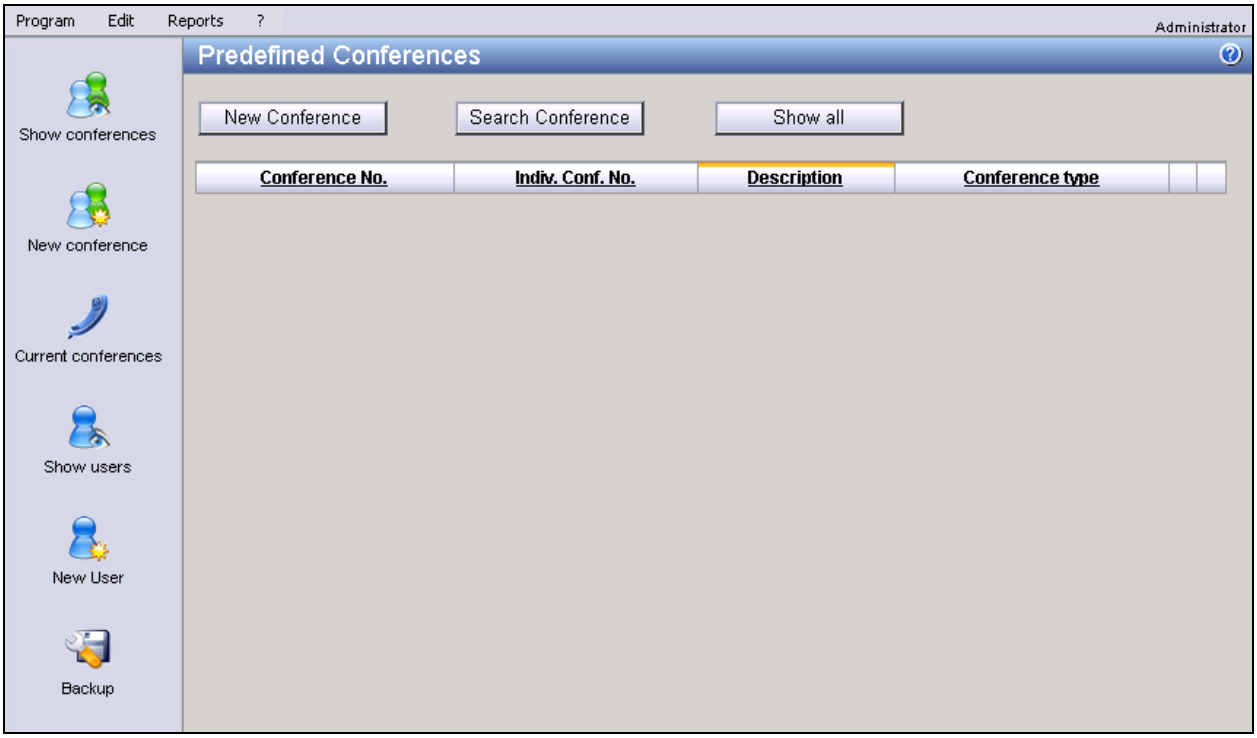

Figure 21: Predefined Conference List Screen

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The “Common” tab of the “Edit conference” screen allows the creation of various conference types. Enter the parameters for the conference to be configured as shown in the table below. The example below illustrates the creation of an ad-hoc conference.

Parameter	Usage
Description	Assign a descriptive name to the conference.
Individual No.	No value is required for this example, as Ad-Hoc Conferences do not have an “Individual No” value.
Conference-Type	Select “Outgoing Conference”, “Incoming Conference”, or “Ad-hoc Conference” from this drop-down box, dependent on the type of conference which it to be created. For this example, “Ad-Hoc Conference” is selected. This is a one-time, non-recurring conference.
Message	Select an existing message from the list of files contained within this drop-down box, or click the button to the right to record a new message.

Table 11: NovaLink NovaConf Conference Common Configuration Parameters

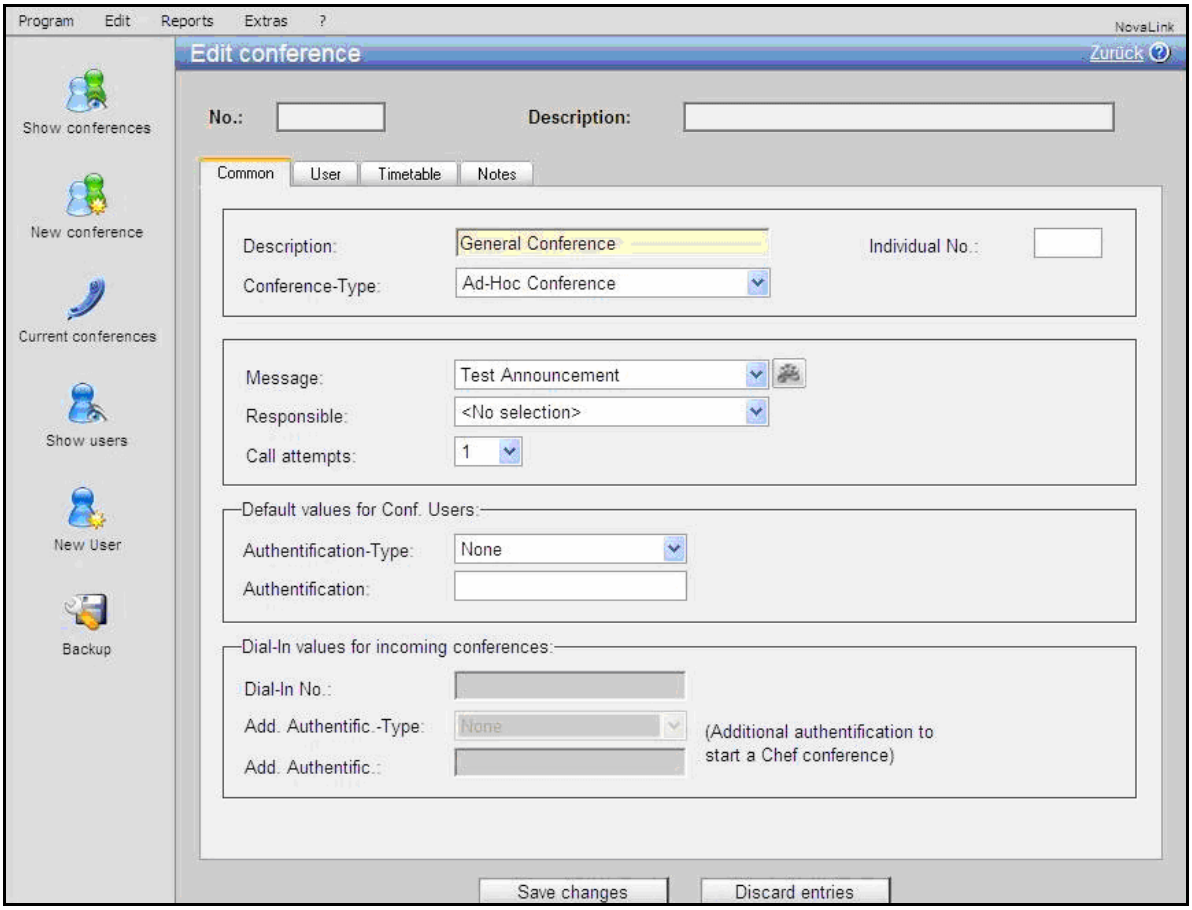

Figure 22: NovaLink NovaConf Edit Conference Screen

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Select the “User” tab and allocate users to the conference using “drag and drop” operations, as shown below.

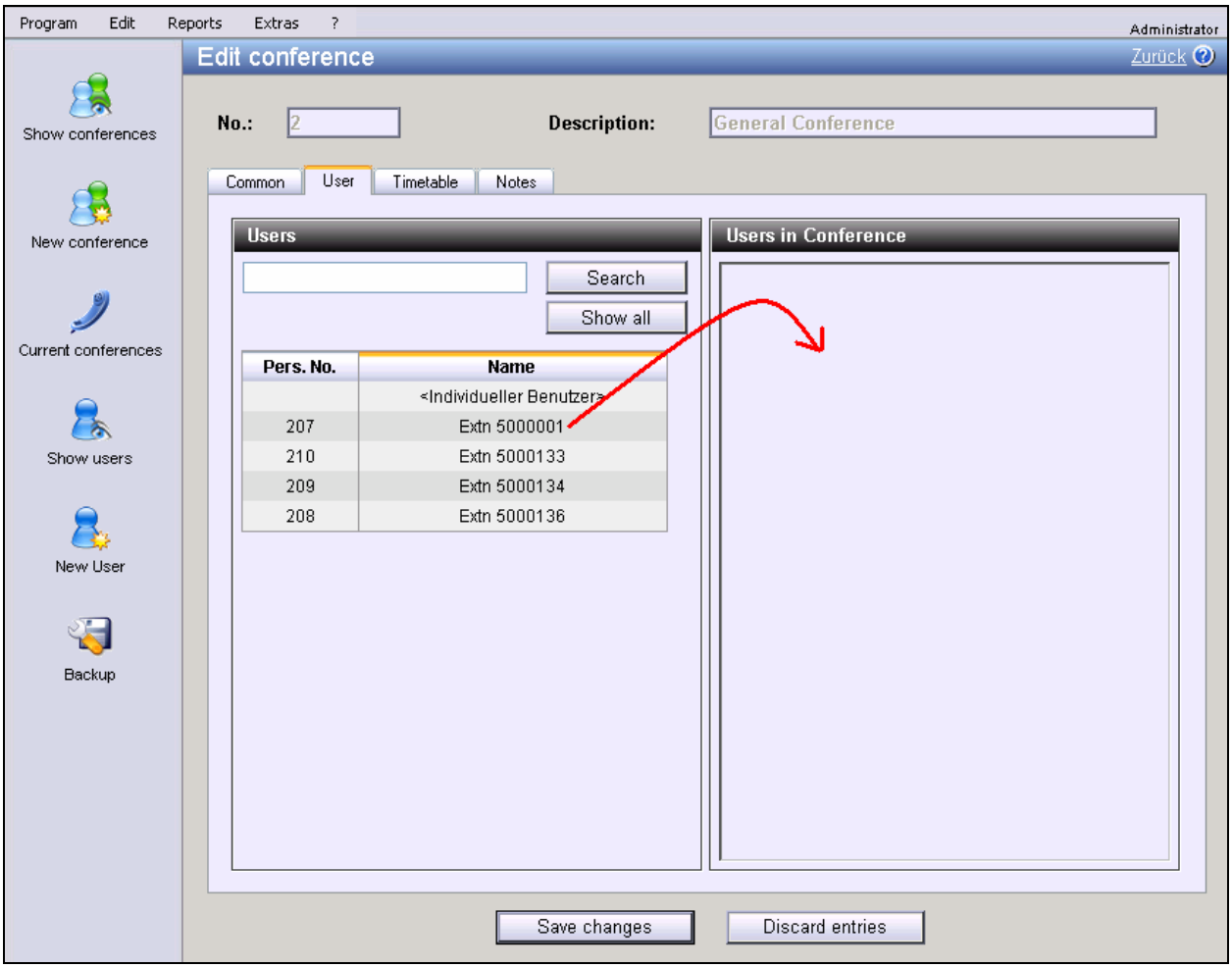

Figure 23: NovaLink NovaConf User Allocation via Drag and Drop

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A newly selected conference participant is removed from the list of “Users” and added to the list of “Users in Conference”. Repeat this operation for all users who are to participate in the conference.

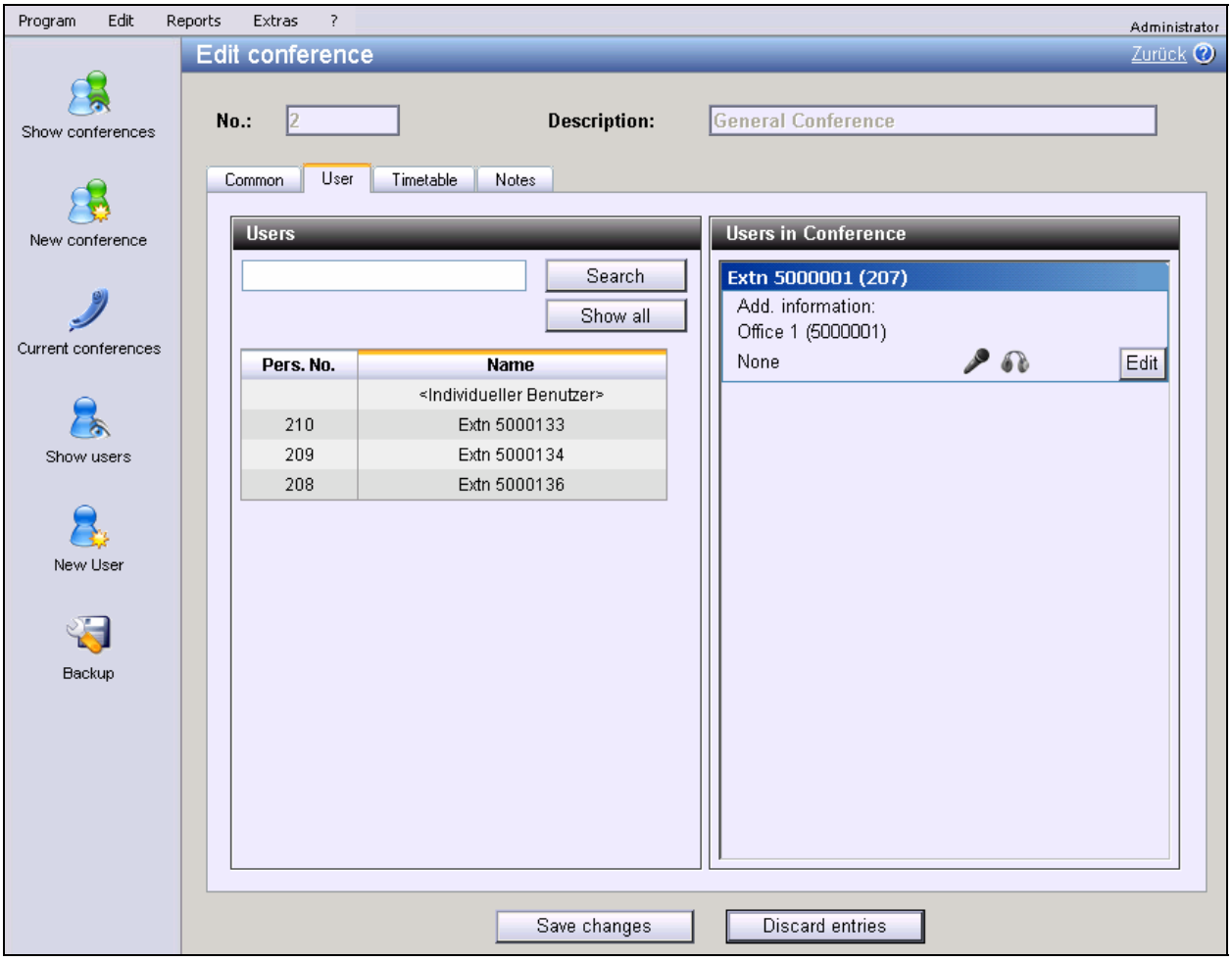

Figure 24: NovaLink NovaConf Conference After Allocation of First Participant

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5. Interoperability Compliance Testing

The interoperability compliance tests included feature and serviceability testing.

The feature testing focused on testing scenarios that involve interaction between the NovaLink NovaConf server and Avaya products, including various sequences involving the following:

- Verification of the ability to establish conferences initiated by various Avaya Telephones calling the NovaLink NovaConf server.
- Verification of the ability of the NovaLink NovaConf server to establish conferences by calling various Avaya Telephones.
- Verification of the ability of the NovaLink NovaConf server to establish conferences with parties that have activated call diversion. The conference should be established with the diverted-to station.
- Verification of the ability of NovaLink NovaConf to recognize DTMF tones.
- Verification of the ability of Avaya Telephones to correctly log unanswered conference calls.

The serviceability testing focused on verifying that the NovaLink NovaConf product components can recover from interruption to interface connections that can occur during routine maintenance activities. The NovaLink NovaConf server was also tested for recovery from unexpected power interruption.

5.1. General Test Approach

The test method employed can be described as follows:

- Correct interoperation between the NovaLink NovaConf server and Avaya IP Office was verified by confirming that the various telephony operations that can be invoked by conferencing activity all function properly.
- NovaLink NovaConf server robustness was tested by verifying its ability to recover from interruptions to its external connections via the LAN between the NovaLink NovaConf and the network.
- Verifying the ability to recover from power interruptions to the NovaLink NovaConf server further tested its robustness.

All testing was performed manually. The tests were all functional in nature, and no performance testing was done.

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5.2. Test Results

The following problems were encountered during testing:

- It is not possible for NovaLink NovaConf to detect that an Avaya 4600 Series IP Telephone is disconnected, as this status is not reported to the caller by Avaya IP Office.

This issue did not prohibit the solution from meeting Avaya compliance test requirements.

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6. Verification Steps

The following steps can be performed to verify the basic operation of the various system components:

- Verify that Avaya IP Office and the NovaLink NovaConf server can ping each other.
- Verify that the IP phones can call each other.
- Start the NovaLink NovaConf Monitor from the Windows "Start" control, and verify that the "Line Status" control is green to indicate that the interface to Avaya IP Office is operational.
- Verify that each of the Avaya Telephones can call the extension allocated to NovaLink NovaConf to participate in an incoming conference.
- Verify that it is possible for NovaLink NovaConf to call each of the Avaya IP Telephones to participate in an outgoing conference.
- Verify that it is possible to navigate the NovaLink NovaConf voice menu from each of the Avaya Telephones by calling the NovaLink NovaConf extension, and entering key sequences in response to prompting requests from NovaLink NovaConf.
- Verify the ability of Avaya Telephones to correctly log unanswered calls by initiating an unanswered conference call from NovaLink NovaConf to each of the Avaya Telephones, verifying the name and number in the log of the telephone, and subsequently dialing the caller from the telephone log.

7. Support

Technical support from NovaLink can be obtained through the following:

NovaLink GmbH
Businesstower
Zuercherstrasse 310
8500 Frauenfeld
Switzerland
helpdesk@novalink.ch
Phone: +41 52 762 66 77
Fax: +41 52 762 66 99

8. Conclusion

These Application Notes describe the configuration of the NovaLink NovaConf with Avaya IP Office. The various features of the NovaLink NovaConf which involve its telephone interface were tested. NovaLink NovaConf passed all of the tests performed, which included both functional and robustness tests.

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9. Additional References

[1] *IP Office 4.0 Installation Manual*, February 2007, Issue 1, Document Number 15-601047.
[2] "IP Office 4.0 Manager: 01. Using Manager", Issue 19k (22nd January 2007)
[3] "IP Office 4.0 Manager: 02. Configuration Settings", Issue 19k (22nd January 2007), Document Number 39DHB0002UKAB
[4] "IP Office 4.0 Manager: 03. Short Codes", Issue 19k (22nd January 2007), Document Number 39DHB0002UKAC
[5] "IP Office 4.0 Manager: 04. Telephony Features", Issue 19k (22nd January 2007), Document Number 39DHB0002UKAD
[6] *NovaConf 7.5 Manual*, May 2007

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