



Interoperability Guide

Configuring Mobile Phone Failover for NetVanta BCS

This interoperability guide describes a solution for NetVanta Business Communication Systems (BCS) that allows incoming public switched telephone network (PSTN) calls to be forwarded to NetVanta BCS users' mobile phones if the NetVanta 7100 fails. This guide includes the description of the solution and its operation, individual device configurations for the Total Access 900(e) series and the NetVanta UC Server, and operation verification steps for the solution.

This guide consists of the following sections:

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Solution Description

The NetVanta BCS provides private branch exchange (PBX) functionality using the NetVanta 7000 Series PBXs in conjunction with the NetVanta Unified Communications (UC) Server system providing unified communications services. Some NetVanta BCS deployments have a network of NetVanta 7000 Series and share PSTN access with a Total Access 900(e) Series gateway.

This solution allows NetVanta BCS deployments using this topology to extend calls to NetVanta 7100 users' mobile phones in the event that the NetVanta 7100 is not available to receive calls. The solution routes all calls from the Total Access 900 gateway to NetVanta UC Server which then directs the call to the NetVanta 7100. In the case that the NetVanta 7100 is not available the call is forwarded by NetVanta UC Server to the user's mobile phone.

Solution Operation

In the solution, incoming calls for a NetVanta 7100 user are received by the Total Access 900(e) Series with a specific direct inward dialing (DID). The Total Access 900(e) Series uses dialed number identification service (DNIS) substitution to add a prefix to the DID extension number (for example, DID 3030 is changed to 993030) and forwards the call to the NetVanta UC Server. A hunt group with an identity matching the substituted DID number (993030) receives the call on the NetVanta UC Server. The hunt group contains two members: the NetVanta 7100 user extension number and the user's mobile phone number. The hunt group first attempts to call the user's extension on the NetVanta 7100. If the user cannot be reached, the hunt group will attempt to reach the user at the user's mobile phone number. *Figure 1* below shows the network topology used for mobile phone failover for the NetVanta 7100 in the NetVanta BCS system.

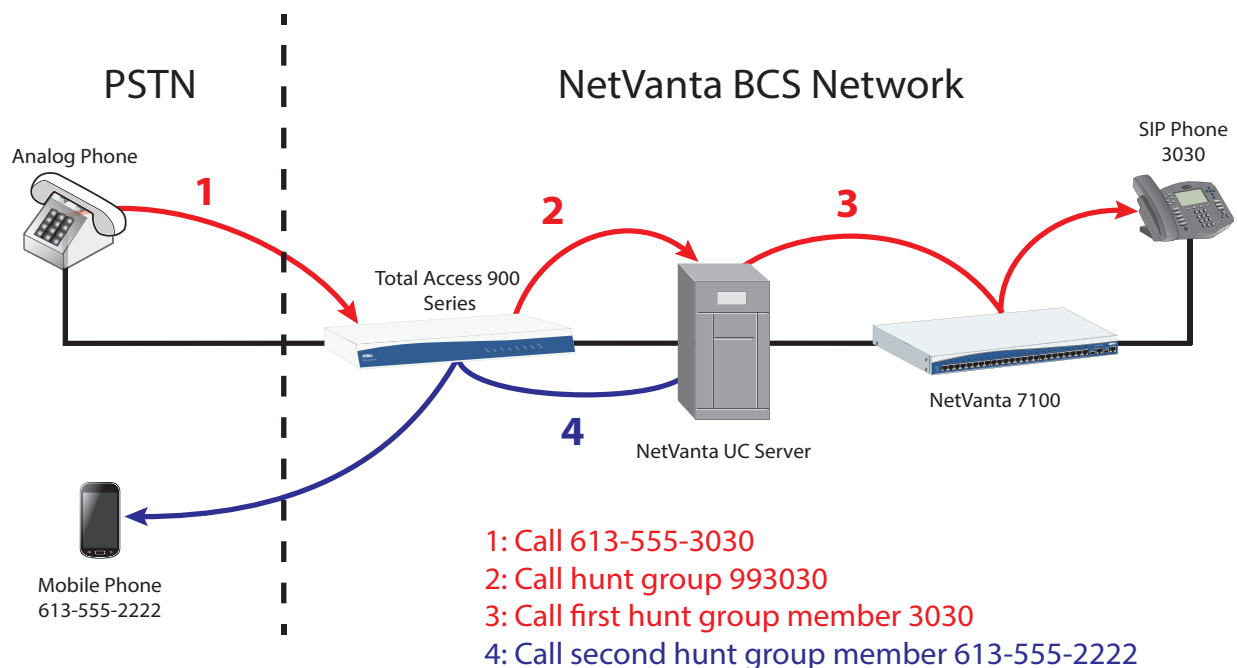


Figure 1. NetVanta BCS Mobile Phone Failover Network Topology

Hardware and Software Requirements and Limitations

The following table outlines the equipment and firmware versions used in verification testing.

Table 1. Verification Test Equipment and Firmware Versions

Product	Firmware/Software Version
ADTRAN NetVanta UC Server	5.4.2.8205
ADTRAN NetVanta 7100	R10.11.0.HA.E

Configuring the Total Access 900(e) Series

In order to direct calls to a hunt group on the NetVanta UC Server, a SIP trunk to the NetVanta UC Server and DNIS substitution must be configured on the Total Access 900(e) Series. Instructions for configuring the Total Access 900(e) Series are provided in the following sections:

- [Creating a SIP Trunk to the NetVanta UC Server on page 3](#)
- [Configuring DNIS Substitution on page 3](#)

Creating a SIP Trunk to the NetVanta UC Server

In order for SIP traffic to travel between the Total Access 900(e) Series and the NetVanta UC Server, a SIP trunk must be created. For more information on creating a SIP trunk, refer to the [Total Access 900/900e SIP Trunk Quick Configuration Guide](#), available from <https://supportforums.adtran.com>.

Configuring DNIS Substitution

After creating a SIP trunk to the NetVanta UC Server, a DNIS substitution entry that matches and attaches a prefix to all DID numbers present on the NetVanta 7100 should be added to the Total Access 900(e) Series SIP trunk connected to the NetVanta UC Server. This will be used to forward calls to the DID numbers to a hunt group on the NetVanta UC Server. To configure the DNIS substitution entry, follow these steps:

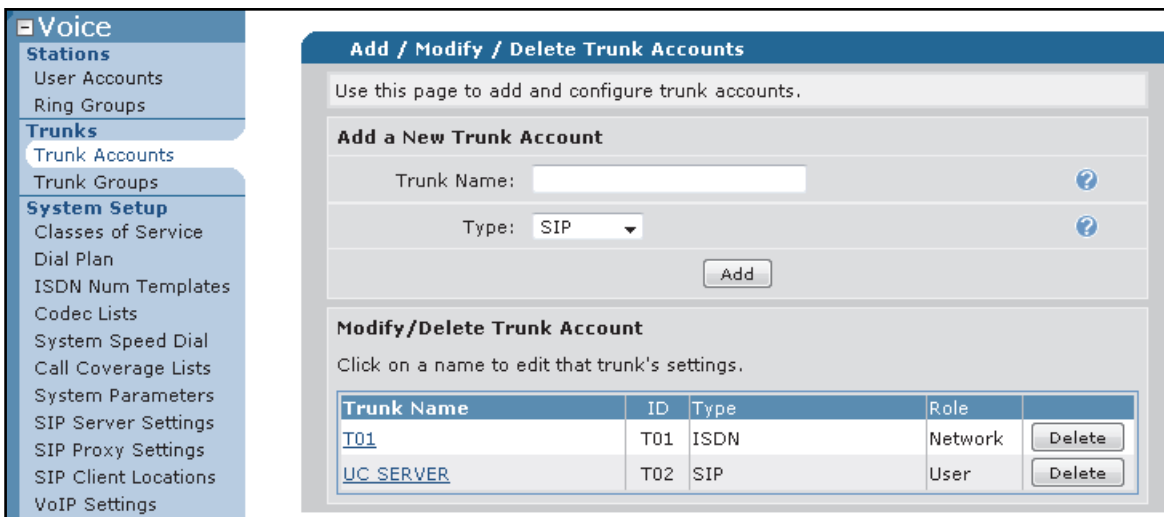
1. Log in to the Total Access 900(e) Series as an administrator.
 - a. Open a new web page in your Internet browser.
 - b. Enter your AOS product's IP address in the Internet browser's address field in the form **http://<ip address>/admin**, for example:
http://10.10.10.1/admin

- c. At the prompt, enter your user name and password and select **OK**.



NOTE *The default user name is **admin** and the default password is **password**.*

- 2. In the Total Access 900(e) Series graphic user interface (GUI), use the navigation bar on the left side of the page to navigate to **Voice > Trunk > Trunk Accounts**. In the **Add/Modify/Delete Trunk Accounts** menu, select the name of the SIP trunk connected to the NetVanta UC Server. The **Edit SIP Trunk** menu will appear.



3. Configure a DNIS substitution entry that adds a prefix to all DID numbers.
 - a. In the **Edit SIP Trunk** menu, select the **DNIS Substitution** tab to access the **Add New DNIS Substitution** submenu.

Edit SIP Trunk

Use this screen to modify the SIP Trunk configuration.

Trunk Account Information

Trunk ID: T02

Type: SIP

Trunk Name: UC SERVER

Reject External:

Max Number Calls: 100

Emergency Caller ID Override: Use Match-Substitution:

Inbound Caller ID Override:

Inbound Caller ID Override Method: Always

SIP Settings | ANI Substitution | **DNIS Substitution** | DNIS:ANI Replacement

Add New DNIS Substitution

Match Number: 30XX

Substitution Number: 9930XX

Substitution Name:

Add Substitution

Current DNIS Substitution Entries

Below is a list of the current DNIS substitutions. **NOTE:** Order is important as the list is processed from the top down. When a match is found, no other entries will be processed to see if it is a valid match.

Match Number	Substitution Number	Substitution Name
There are no DNIS substitution in this account.		

Cancel **Apply**

- b. In the **Match Number** field, enter a match template that will match all DID numbers of the NetVanta BCS mobile phone failover users on the NetVanta 7100. For example, if the DID numbers are in the range 3000 to 3099, the match template used will be **30XX**.



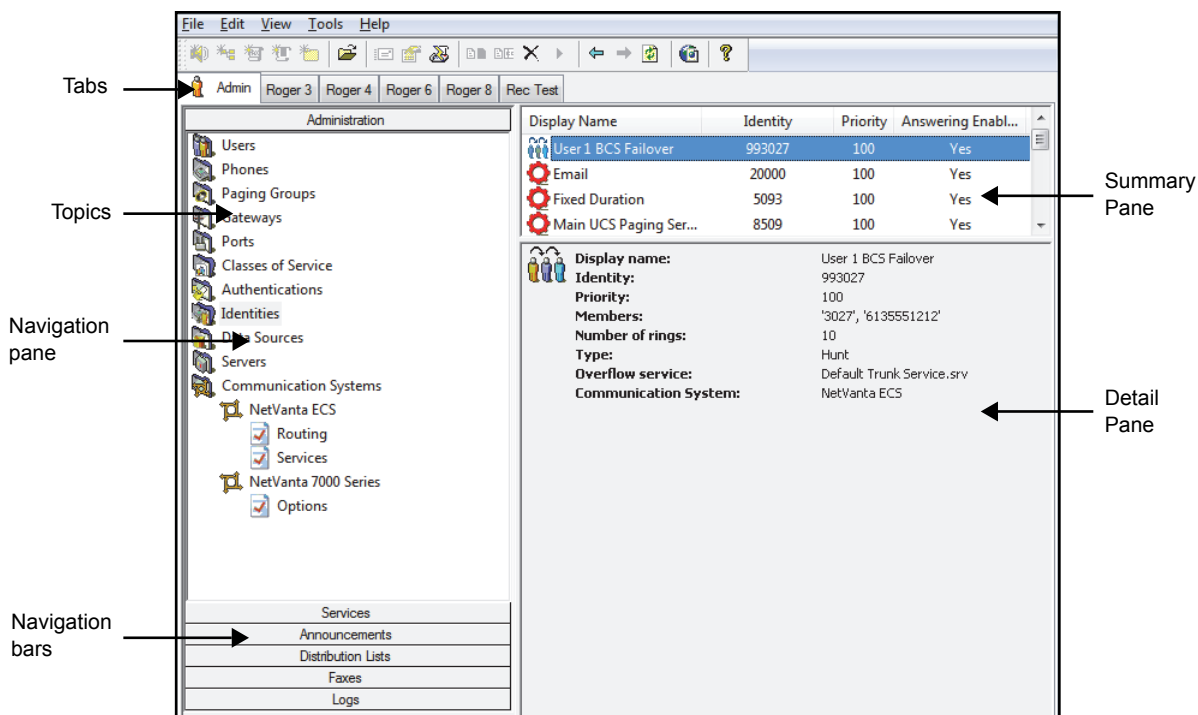
NetVanta 7100 users not participating in mobile phone failover should be assigned extensions outside the range covered by the match template.

- c. In the **Substitution Number** field, enter the match template with the desired prefix. For example, if the **Match Number** is **30XX**, enter **9930XX**. A prefix other than **99** can be used; however, the resulting substitution numbers must be unique on the NetVanta 7100 and NetVanta UC Server systems.
 - d. Select the **Add Substitution** button to add the substitution entry. Then, select **Apply**.

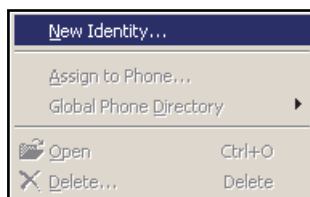
Configuring the NetVanta UC Server

After configuring DNIS substitution on the Total Access 900 SIP trunk connected to the NetVanta UC Server, a hunt group for each mobile phone failover user must be created. This hunt group will first attempt to ring the user’s NetVanta 7100 extension and, if the call is not picked up, will forward the call to the user’s mobile phone. To configure a hunt group on the NetVanta UC Server, follow these steps:

1. Navigate to **Start > All Programs > ADTRAN > NetVanta UC Server > NetVanta UC Client** to open NetVanta UC Client.
2. Log in to the NetVanta UC Client as an administrator.
3. In the **Admin** tab of the NetVanta UC Client, select the **Administration** navigation bar. Then, select the **Identities** topic from the navigation pane.



4. In the **Identities** summary pane, right-click and select **New Identity**. The **New Identity Wizard** will appear.



5. Select **Next** on the welcome menu.

6. In the **Select Identity Type** menu, perform the following steps:
 - a. Use the **Select a communication system** drop-down menu to select the **NetVanta ECS**.
 - b. Use the **Select a user profile** drop-down menu to select **Admin**. Alternatively, if the NetVanta UC Server is providing voicemail for the NetVanta 7100, then select the user's profile instead of **Admin**. This allows the call to be forwarded to the user's voicemail on the NetVanta UC Server if the call is not answered.
 - c. Select the **Hunt group** radio-button.
 - d. Select **Next**. The **Configure Hunt Group** menu will appear.

Select Identity Type

Determine the class of identity and a user that will manage its call answering behavior.

Select a communication system: NetVanta ECS

Select a user profile: Admin

Select the class of identity:

User
Creates a new identity typically associated with ucCompanion, a soft-phone or a hard-phone

Ring group
Distributes calls to all members of the group simultaneously

Attendant service
Creates a new identity that handles calls as an automated attendant or service (e.g. IVR, pre-screening, etc.)

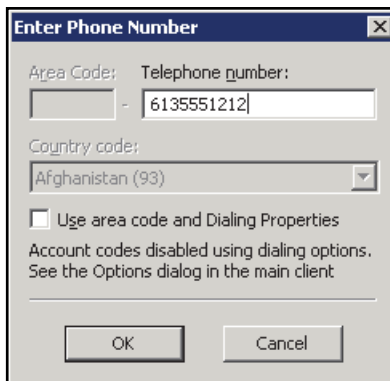
Hunt group
Distributes calls to members of the group sequentially based on availability

< Back Next > Cancel Help

7. In the **Configure Hunt Group** menu, perform the following steps:
 - a. In the **Name** field, enter a descriptive name to identify the hunt group.



- b. In the **Address** field, enter the DNIS substitution number corresponding to the user's extension on the NetVanta 7100. The number used should be the prefix configured for DNIS substitution on the Total Access 900(e) Series (refer to *Step 3 on page 5*) followed by the user's NetVanta 7100 extension. For example, if the user's NetVanta 7100 extension is **3030** and the DNIS substitution prefix selected was **99**, the address used should be **993030**.
- c. Use the **Add External** button to first add the user's NetVanta 7100 extension as a member of the hunt group. The **Enter Phone Number** menu will appear.
- d. In the **Enter Phone Number** menu, disable the **Use area code and Dialing Properties** check box. This will disable all fields except the **Telephone number** field. Enter the phone number in the **Telephone number** field. Then, select **OK**. The number will be added as a member to the hunt group.

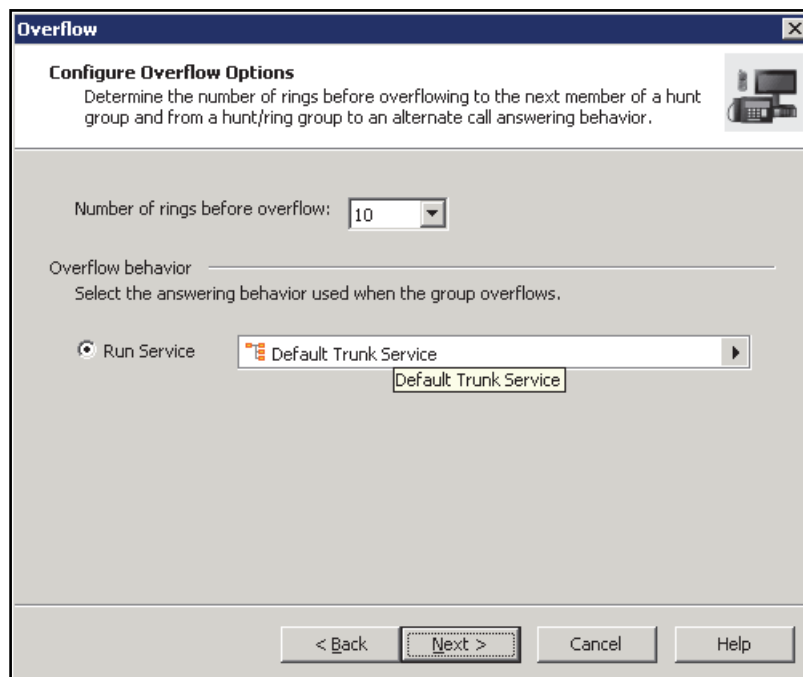
- e. Repeat steps **c** and **d** for the user's mobile phone number.



The 'Enter Phone Number' dialog box contains the following fields and options:

- Area Code:** An empty text input field.
- Telephone number:** A text input field containing '6135551212'.
- Country code:** A dropdown menu currently set to 'Afghanistan (93)'.
- Use area code and Dialing Properties**
- Account codes disabled using dialing options. See the Options dialog in the main client.
- OK** and **Cancel** buttons at the bottom.

- f. If necessary, use the  and  arrows to move the user's NetVanta 7100 extension above the mobile phone number.
- g. At the bottom of the **Configure Hunt Group** menu, select **Next**. The **Configure Overflow Options** menu will appear.
8. In the **Configure Overflow Options** menu, perform the following steps:
- a. Use the **Number of rings before overflow** drop-down menu to specify the number of rings required before the next member of the hunt group is called or, if no other member remains, before performing the specified overflow call answer behavior.



The 'Configure Overflow Options' dialog box contains the following settings:

- Number of rings before overflow:** A dropdown menu set to '10'.
- Overflow behavior:** A section with the instruction 'Select the answering behavior used when the group overflows.'
- Run Service** with a dropdown menu set to 'Default Trunk Service'.
- Buttons at the bottom: **< Back**, **Next >** (highlighted with a dashed border), **Cancel**, and **Help**.

- b. Use the **Run Service** menu to specify the service to run once all members of the hunt group have been called and cannot be reached.
- c. Select **Next**. Then, select **Finish** in the menu that appears.
9. After configuring the user hunt groups, ensure that normal call routing is in place on the NetVanta UC Server. Calls to the PSTN should be sent to the Total Access 900(e) Series, and calls to NetVanta 7100

extensions should be sent to the NetVanta 7100. For more information on routing calls on the NetVanta UC Server, refer to *NetVanta Enterprise Communications Server and Business Application Server Administrator Guide Version 5.4* available online at <https://supportforums.adtran.com>.

Configuring the NetVanta 7100

No special configuration is required for the NetVanta 7100. It should be configured for a default NetVanta BCS installation.



*NetVanta 7100 users not participating in mobile phone failover should be assigned extensions outside of the range covered by the match template configured on the Total Access 900 in *Configuring the Total Access 900(e) Series* on page 3.*

Operation Verification

After configuring mobile phone failover for NetVanta BCS, use the following guidelines to verify that incoming calls are handled properly:

1. Verify that when the NetVanta 7100 is available, calls are always routed to the NetVanta 7100 user's desk phone.
2. Verify that when the NetVanta 7100 is not available, calls are always routed to the user's mobile phone.
3. Verify that once the NetVanta 7100 is available again, calls are always routed to the NetVanta 7100 user's desk phone.

Additional Resources

There are additional resources available to aid in configuring the Total Access 900(e) Series unit and NetVanta UC Server. The documents listed in *Table 2* are available online at ADTRAN's Support Forum at <https://supportforums.adtran.com>.

Table 2. Additional ADTRAN Documentation

Component	Document Title
NetVanta UC Server	<i>NetVanta Enterprise Communications Server and Business Application Server Administrator Guide Version 5.4</i>
Configuring SIP Trunks on a Total Access 900 Series Using the GUI	<i>Total Access 900/900e SIP Trunk Quick Configuration Guide</i>