ADTRAN ®

NetVanta Unified Communications Technical Note

Customizing SIP Telephone Configuration Files

Introduction

It is a common practice for SIP telephone manufacturers to provide a standard set of functionality when a telephone is delivered to an end user. Often, manufacturers will also provide many different optional customizations to allow for more flexibility for the end user's experience. In a similar fashion, NetVanta delivers a standard set of files when the UC server is installed: configuration files supplied by the SIP telephone manufacturers along with templates from which some of the configuration files for telephones are created. Although these files and templates provide all of the basic requirements for day-to-day telephone use it is possible that administrators may want to deviate from these defaults and customize the telephones to better suit their users' needs.

This document describes the different kinds of configuration files, how the UC server manages these configuration files (from a high level perspective), and how administrators can safely customize these files without interfering with the automatic telephone configuration process.

SIP Telephone Configuration Files

There are four basic categories of files in a typical SIP telephone configuration scenario:

- Firmware
- System Configuration
- Per-Phone Configuration
- Miscellaneous

Firmware

Firmware is software that is embedded in the SIP telephone's internal memory. Most SIP telephones support automatic upgrading of firmware by the same mechanism used for telephone provisioning (for example, FTP, TFTP). ADTRAN currently distributes the firmware for the following SIP telephone manufacturers:

- Polycom
- Aastra
- snom

The most recently certified interoperable firmware for the above manufacturers is included with an installation (or subsequent upgrade) of the UC server.

System Configuration

A system configuration file contains common settings that are applied to all telephones in the network. The types of settings found in this kind of configuration file include the date/time server, language, telephone images/branding, and codec preferences.

Per-Telephone Configuration

A per-telephone configuration file contains specific settings for a particular telephone in the network. The types of settings found in this kind of configuration file include a user's display name, identity address, and SIP authentication/password.

Miscellaneous

Other files that could be included as part of a SIP telephone configuration include bitmap files for custom telephone displays, language files (for multi-language support), and proprietary files whose presence is required by a telephone but cannot be modified.

Configuration File Templates

When ADTRAN Research and Development adds support for a particular manufacturer's line of SIP telephones (also known as a telephone family), a set of template files are created based on the default system and per-phone configuration files provided by the manufacturer. ADTRAN inserts special tags into these templates that are substituted with real site-specific values at run-time. The tags represent values such as:

- SIP registrar IP address and port, typically found in a system configuration file.
- "Un-configured" user information, typically found in a system configuration file.
- Per-user identity address and authentication information, typically found in a per-telephone configuration file.

The UC server performs tag substitution when:

- Support for a telephone is enabled via NetVanta's Server Configuration Wizard
- Changes are made to a telephone in the network using UC Client, for example, adding or removing an identity.

When either of the above conditions are satisfied, the UC server copies the template file(s), substitutes the tags with site-specific values and then places the modified file(s) in the appropriate provisioning server. For a complete list of system and per-telephone configuration files for each telephone family, examine the *definition.xml* file located in the corresponding sub-folder under \UC Server\Data\System\PhoneTypes (henceforth known as the PhoneTypes directory). System configuration files are itemized with the element <systemFile>, and per-telephone files are itemized with the element <perPhoneFile>. If either of these elements have the attribute "substitutions" set to 1, then the UC server will search and replace tags

in the corresponding file before copying it to the provisioning server. Otherwise, the files are simply copied to the provisioning server without modification.

Modifying Configuration Files

Should the site administrator wish to customize some configuration files, it does not suffice to directly edit the files located in the provisioning server. This is because the UC server periodically propagates all telephone configuration files from the PhoneTypes directories to the provisioning servers for the enabled telephone families. This means that any manual changes to the files in the provisioning server are over-written, negating the changes made previously.

If customization is necessary, then all modifications should be made to the configuration files in the telephone families' subfolder (under "PhoneTypes"). All configuration, firmware, and miscellaneous files itemized in the family definition.xml file are continually monitored for changes by the UC server (unless otherwise indicated). If the UC server detects that one of these files has changed, it ensures that it is propagated to the provisioning server, performing tag substitution if necessary.

The following sections describe what an administrator can expect when editing these files, and when the changes are realized by the corresponding telephones.

Firmware

Firmware upgrades that are part of a regular UC server upgrade are automatically propagated to the appropriate provisioning server. Should a firmware upgrade – that is not part of a regular UC server upgrade – be necessary for a supported and enabled telephone family, it does not suffice to simply copy the new firmware to the provisioning server. The firmware must be copied to the corresponding PhoneTypes subfolder, and the UC server must be restarted. Refer to the *Limitations* section for more details.

System Files

Modifying (and saving) a system configuration file causes the UC server to immediately propagate the file to the corresponding provisioning server. Every telephone in the same family uses a common set of system configuration files, and any changes to these files are automatically detected and assimilated by the phones on a daily basis. If a telephone requires a reboot in order to complete the process, it does so at 3 a.m.

Per-Telephone Files

Making changes to the per-telephone template file does not have any immediate effect on previously configured telephones. This is because the per-telephone template file is only used when a telephone is configured using UC Client (either by removing or adding identities to a telephone). The UC server does not regenerate all existing per-telephone configuration files using the modified template. Any subsequent changes to telephones in the network using UC Client will contain the new changes made to the per-telephone configuration file.

NOTE: *If a required change applies to all telephones in the network, then it is recommended to make the corresponding change to the system configuration file instead.*

Miscellaneous Files

Similar to the system configuration file, the UC server automatically propagates the file to the corresponding provisioning server. The affected telephones assimilate the changes on a daily basis or when a telephone in that family is restarted, whichever occurs first.

Recommended File Editors

The UC server relies on notifications from the Windows® Operating System to detect when files have been modified. Since each file editor behaves differently with respect to file permissions when files are opened for editing, this can affect if Windows actually notifies the UC server about a change to a particular file. For this reason, the following file editors are known to behave correctly:

- Notepad
- WordPad
- XML Notepad

There are known issues with UltraEdit32, so avoid it for making manual changes:

Configuration File Parameters

Below are links to the manufacturers' websites where administration guides and information concerning the different configuration file parameters can be found:

Polycom

http://www.polycom.com/resource_center/1,1454,pw-26-482,00.html

Aastra

http://www.aastra.com/cps/rde/xchg/SID-3D8CCB6A-7E2D8FFC/04/hs.xsl/70.htm

snom

http://www.snom.com/wiki/index.php/Web_Interface/Settings

Limitations

The UC server may not propagate configuration file changes to the provisioning server if the files in the corresponding telephone families' PhoneTypes folder are copied over. In addition, if a file in this folder is copied over, any future modifications to the file may not be realized and automatically propagated to the provisioning server. In order to ensure that these changes are realized, the NetVanta UC Server Application Services service must be restarted.