Best Practices 35361

Provisioning with the Master Configuration File

This document provides you with detailed information on provisioning your Polycom phones and, specifically, shows you two ways to use Polycom Unified Communications (UC) Software master configuration file, named *000000000000.cfg.* The UC Software files are very flexible and are designed to accommodate a wide array of deployment environments. The master configuration template file, included in the UC Software files you download from the Polycom Voice Support Web site, is particularly important in large-scale phone deployments and integral to the central provisioning method. The explanations and illustrations in this document are intended to familiarize you with how the master configuration file works.

This document explains two commonly used central configuration methods. Because deployment environments and particular deployment scenarios vary, Polycom cannot recommend a specific configuration strategy. For this reason, Polycom recommends that you read this document carefully to help you understand how the configuration files work and to help you decide on a configuration strategy.

> This best practices guide applies to all Polycom phone models as of Polycom UC Software 3.3.0 and has been updated for Polycom UC Software version 4.0.1.

This technical bulletin contains the following sections:

- Understanding the Master Configuration File

- Using the Master Configuration File

- Configuring Legacy Phones

Understanding the Master Configuration File

The master configuration file, named *000000000000.cfg*, is required to configure your Polycom phones and this document shows you two ways you can use the master configuration file. In addition, system administrators can use the master configuration file in any of the following scenarios:

- To configure your phones with a registration and default phone feature settings.

- When new products are introduced on a more recent software version, you can use the master configuration file to configure a sample of new phones on the new software without upgrading all the phones.

- To configure legacy phones. Legacy phones are phones that are no longer supported by new UC Software releases. The master configuration file includes software application and configuration files for legacy phones.

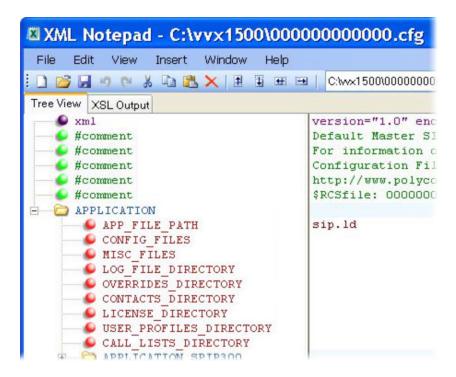> **Note: Not All UCS 3.3.0 Enhancements are Backwards Compatible**
>
> Polycom UC Software 3.3.0 introduced simplified configuration for all SoundPoint IP, SoundStation IP, and VVX 1500 phones. Several of these enhancements are not backwards compatible with configuration files from earlier releases. To find out which enhancements are or are not backwards compatible, refer to *Technical Bulletin 60519: Simplified Configuration Parameters in Polycom UC Software 3.3.0*

The master configuration file is key to provisioning Polycom phones with the default features, and adding and modifying phone feature settings. Before configuring your phones, take a moment to familiarize yourself with the XML attributes available in the master configuration file:

- `APP_FILE_PATH`   By default, this field contains the software executable file named *sip.ld*.

- `CONFIG_FILES`   Enter the configuration files for your phones in this field as a comma-separated list. This field is blank by default. Note that files entered to this field are read from left to right.

- `MISC_FILES`   You can use this field to enter a comma-separated list of other configuration files. This field is blank by default.

- `LOG_FILE_DIRECTORY`   You can use this field as an alternative directory for log files. This field is blank by default.

- `CONTACTS_DIRECTORY`   You can use this field to hold files for an alternative contact directory. This field is blank by default.

- `OVERRIDES_DIRECTORY`   You can use this field to hold configuration override files. This field is blank by default.

- `LICENSE_DIRECTORY`   You can use this field to hold license files. This field is blank by default.

- `USER_PROFILES_DIRECTORY` You can use this as an alternative directory for the <user>.cfg files.

- `CALL_LISTS_DIRECTORY` You can use this field as an alternative directory for user call lists if required. You can also specify a URL. This is blank by default.

These attributes and the default **sip.ld** are shown next in XML Notepad 2007:

Using the Master Configuration File

This section explains two commonly used methods you can use to configure the phones in your deployment. Because deployment environments and particular deployment scenarios vary, Polycom cannot recommend a specific configuration strategy. The UC Software files are flexible and designed to accommodate a wide array of deployment scenarios. For this reason, Polycom recommends that you read this section carefully to help you understand how the configuration files work and to help you decide on a configuration strategy.

Method One: Defining a Per-Phone *MACaddress*.cfg File

Using the first method, you will create a *MACaddress*.cfg file for each phone. You create this file from the master configuration file template named 000000000000.cfg in the Polycom UC Software version you download from the Polycom Voice Support Web site.

To define a per-phone MAC address configuration files:

1 Create a *MACaddress.*cfg file for each phone, replacing *000000000000* with the unique MAC address of each phone you are configuring, for example *0004f2123456*.cfg.

   You'll find the MAC address of your phone on a label on back of the phone.

2 In addition to a *MACaddress*.cfg file, create a file for each phone that contains information unique to each phone in your deployment, for example, registration information. You can use the template files in the UC Software download, or you can create your own configuration file using parameters from the UC Software template files. Give your files a name that indicates the file contents or purpose. For example, you might use parameters from the **reg-basic.cfg** template file to create a registration file named **reg-basic_john_doe.cfg**.

3 Enter the name of the file you created in step two in the CONFIG_FILES field of the *MACaddress*.cfg file you created in step one for each phone.

The advantage of using this method is that you can add configuration files to the phones in your deployment by adding new files to the CONFIG_FILES field of each phone's *MACaddress.*cfg file. This gives you a high degree of control over each phone. If you want to modify or add settings, go to the configuration files for that phone and make your changes. If all of the phones in your deployment use the same settings, you can create a single configuration file for each phone.

This method can require some file management work as you will need to create and edit at least two unique files for each phone in your deployment, namely, a *MACaddress*.cfg file and one or more configuration files unique to each phone. Again, you can use the template files or you can create your own files from parameters in the template files. If you do not want to create a new file, you can add new parameters to any configuration file that is in the CONFIG_FILES field of a phone's *MACaddress*.cfg file.

Method One -- Example Configuration:

In the following example, you will apply common settings to all the phones, and specify a group of phones that use a corporate directory and display in the French language.

For this example, create and name a *MACaddress*.cfg file for each phone. To apply the phone settings, you can create a file named *phonefeatures.cfg* that contains parameters for the Call Park/Retrieve, Call Recording, and Busy Lamp Field that will apply to all of the phones, and a *group_1.cfg* file for phones that use a corporate directory and display in the French language. Enter the *phonefeatures.cfg* into the CONFIG_FILES field of each phone's *MACaddress*.cfg file, and enter the *group_1.cfg* file into the CONFIG_FILES field of the *MACaddress*.cfg file of each phone that will use a corporate directory and display in the French language.

You have 3 phones with the following MAC addresses:

- Phone 1: 0004f2000001
- Phone 2: 0004f2000002
- Phone 3: 0004f2000003

In the following example, we will apply the Call Park/Retrieve, Call Recording, and Busy Lamp Field features to all the phones, and a corporate directory and French language parameters to phones 2 and 3.

Create a unique file for each phone that contains information unique to each phone in your deployment, for example, registration information:

- *reg-basic_1.cfg*

- *reg-basic_2.cfg*

- *reg-basic_3.cfg*

Create a *phonefeatures.cfg* file with configurations common to all phones, and a *group_1.cfg* configuration file for phone 2 and phone 3. Phone 1 will use English—the default language—and phones 2 and 3 will use a corporate directory and display in French. In this example, you will need:

- A *phonefeatures.cfg* file that contains the Call Park/Retrieve, Call Recording, and Busy Lamp Field features.

- A *group_1.cfg* that contains corporate directory and French language parameters for phones 2 and 3.

Once you have created the *phonefeatures.cfg* and *group_1.cfg* files:

- In the CONFIG_FILES field of the 0004f2000001.cfg file, enter:
  reg-basic_1.cfg, *phonefeatures.cfg*

- In the CONFIG_FILES field of the 0004f2000002.cfg file, enter:
  reg-basic_2.cfg, *phonefeatures.cfg*, *group_1.cfg*

- In the CONFIG_FILES field of the 0004f2000003.cfg file, enter:
  reg-basic_3.cfg, *phonefeatures.cfg*, *group_1.cfg*

In this example, each phone will read its *MACaddress*.cfg file and use the configuration files you entered in the CONFIG_FILES field.

Method Two: Using a Variable Substitution

This method enables you to configure all phones using a single 000000000000.cfg file instead of configuring a *MACaddress*.cfg file for each phone. This method follows from the phones' provisioning behavior: if a phone cannot find a file containing its own MAC address, it will use the *000000000000.cfg* master configuration file.

To configure using a variable substitution:

1 Create a configuration file containing information unique to each phone in your deployment, for example, registration information. The name of this file must contain the phone's unique MAC address, for example, *reg-basic_0004f2000001.cfg*. Each of these phone-specific configuration files must be named identically, varying only in the MAC address of each phone.

2 Enter the name you gave to your phone-specific files in step one to the CONFIG_FILES field of the *000000000000.cfg* master configuration file. In place of the MAC address, enter the variable [PHONE_MAC_ADDRESS] to the file name, including the square brackets. Enter the variable in the same place you entered the phone's MAC address in the phone-specific file. The file name you enter in the CONFIG_FILES field must be identical to the name of your phone-specific files and you need only enter the name once to the CONFIG_FILES field. For example, if your phone-specific files are named *reg-basic_0004f2000001.cfg*, *reg-basic_0004f2000002.cfg*, *reg-basic_0004f2000003.cfg*, enter *reg-basic_[PHONE_MAC_ADDRESS].cfg* in the CONFIG_FILES field of the master configuration file *000000000000.cfg*.

	Admin Tip: Understanding Variable Substitution
	This naming scheme is called a variable substitution and works as follows. A phone's provisioning behavior is to look for its own MAC address first, and then 000000000000.cfg. Using this method, when the phone does not find a file with its own MAC address, it will read the 000000000000.cfg file. Each phone will substitute its own MAC address for the [PHONE_MAC_ADDRESS] variable you specified in the CONFIG_FILES field of the 000000000000.cfg file, and look for a file with its own MAC address.

The chief advantage of using this method is that you do not need to create a *MACaddress*.cfg file for each phone. This method can also be advantageous if you need to maintain or change common settings across all of the phones in your deployment. To apply a common configuration to all phones, you need only create one new configuration file and add it to the CONFIG_FILES field of the *000000000000.cfg* master file that all the phones will read. And if you want to add a new phone to your deployment, you need only create one new file using the same naming scheme, in this example, the file named *reg-basic_0004f2000004.cfg*.

Method two differs from method one in the way you manage phone feature settings. In the following example configuration, all phones will use the Call Park/Retrieve, Call Recording, and Busy Lamp Field features, and you will specify a group of phones that use a corporate directory and display in the French language.

Method Two -- Example Configuration:

In the following example, you will apply common settings to all the phones, and specify a group of phones that use a corporate directory and display in the French language.

To apply settings to all phones in your deployment, create one or more configuration files with a common set of parameters for features that you want to apply to all your phones, in this case, for the Call Park/Retrieve, Call Recording, and Busy Lamp Field features. Give the file a name, for example, *phonefeatures.cfg*, and enter that file name in the CONFIG_FILES field of the *000000000000.cfg* master file. All of the phones will use that configuration file. Next, to specify a group of phones that use a corporate directory and display in the French language, add the parameters you want from the software

template files to each phone-specific file, in this example, *reg-basic_0004f2000002.cfg* and *reg-basic_0004f2000003.cfg*.

In more complex deployments, this method can limit your control over each phone. If you want to specify settings for one phone or a group of phones in your deployment, you will need to enter the parameters into the configuration file specific to each phone, for example, the *reg-basic_0004f2000001.cfg*, even if that configuration is the same for all the phones of a group. If you need to make only minor modifications to a few individual phones in your deployment, method two can be an efficient way to manage your phone files.

You have 3 phones with the following MAC addresses:

- Phone 1: 0004f2000001
- Phone 2: 0004f2000002
- Phone 3: 0004f2000003

In the following example, we will apply the Call Park/Retrieve, Call Recording, and Busy Lamp Field features to all the phones, and corporate directory and French language parameters to phones 2 and 3.

Create a phone-specific file containing configuration information unique to each phone such as registration information. The file name must contain the phone's unique MAC address, for example:

- *reg-basic_0004f2000001.cfg*
- *reg-basic_0004f2000002.cfg*
- *reg-basic_0004f2000003.cfg*

Create a *phonefeatures.cfg* file containing the Call Park/Retrieve, Call Recording, and Busy Lamp Field parameters. Phone 1 will use English—the default language—and phones 2 and 3 will use a corporate directory and display in French. In this example, you will need:

- A *phonefeatures.cfg* file that contains parameters for the Call Park/Retrieve, Call Recording, and Busy Lamp Field features.
- The parameters for the corporate directory and the French language which you will enter into each phone-specific file, in this case, *reg-basic-0004f2000002.cfg* and *reg-basic-0004f2000003.cfg*.

Next, enter the following configuration files where indicated:

- In the CONFIG_FILES field of *000000000000.cfg*, enter: *phonefeatures.cfg*, *reg-basic-[PHONE_MAC_ADDRESS].cfg*
- In *reg-basic_0004f2000002.cfg*, enter the parameters for the corporate directory and the French language.
- In *reg-basic_0004f2000003.cfg*, enter the parameters for the corporate directory and the French language.

Each phone will look for a file with its own MAC address. When the phone does not find its MAC address, the phone will read the *000000000000.cfg* file. Each phone will substitute its own MAC address

for the [PHONE_MAC_ADDRESS] variable you specified in *000000000000.cfg* and look for a file with its own MAC address.

This configuration method will result in the following distribution of phone features:

- The *reg-basic_0004f2000001.cfg* phone will use the configurations you defined in *phonefeatures.cfg*.

- The *reg-basic_0004f2000002.cfg* phone will use *phonefeatures.cfg*, and the corporate directory and French parameters you added.

The *reg-basic_0004f2000003.cfg* phone will use *phonefeatures.cfg*, and the corporate directory and French parameters you added.

More on Variable Substitution

The two configuration methods outlined here, though commonly used, are shown for illustrative purposes. Because deployment scenarios can vary, the UC Software template files are designed to be as flexible as possible. Besides the [PHONE_MAC_ADDRESS] variable, Polycom provides two other variables you can use to configure individual phones or phone sub-groups. In total, there are three variables you can use:

- [PHONE_MAC_ADDRESS]
- [PHONE_PART_NUMBER]
- [PHONE_MODEL]

In addition to a phone's unique MAC address, you can create a variable that refers to either the product part number or phone model. Add the variable to the file name in the CONFIG_FILES field and name each of your phone-specific configuration files with the respective Phone Model Code or Phone Part Number shown in the following table.

Table 1: Using Variable Substitutions

Phone Model	Phone Model	Phone Part Number
SoundPoint IP 300	SPIP300	2345-11300-001
SoundPoint IP 301	SPIP301	2345-11300-001
SoundPoint IP 320	SPIP320	2345-12200-002, 2345-12200-005
SoundPoint IP 321	SPIP321	2345-13600-001
SoundPoint IP 330	SPIP330	2345-12200-001, 2345-12200-004
SoundPoint IP 331	SPIP331	2345-12365-001
SoundPoint IP 335	SPIP335	2345-12375-001

Phone Model	Phone Model	Phone Part Number
SoundPoint IP 430	SPIP430	2345-11402-001
SoundPoint IP 450	SPIP450	2345-12450-001
SoundPoint IP 500	SPIP500	2345-11500-001 2345-11500-010 2345-11500-020
SoundPoint IP 501	SPIP501	2345-11500-030 2345-11500-040
SoundPoint IP 550	SPIP550	2345-12500-001
SoundPoint IP 560	SPIP560	2345-12560-001
SoundPoint IP 600	SPIP600	2345-11600-001
SoundPoint IP 650	SPIP650	2345-12600-001
SoundPoint IP 670	SPIP670	2345-12670-001
SoundStation IP 4000	SSIP4000	3111-30900-001
SoundStation IP 5000	SSIP5000	3111-30900-001
SoundStation IP 6000	SSIP6000	3111-15600-001
SoundStation IP 7000	SSIP7000	3111-40000-001
SoundStation Duo	SSDuo	3111-19000-001
Polycom VVX 1500	VVX1500	2345-17960-001
SpectraLink 8400 Series	SL8440 SL8450	3111-36150-001 3111-36152-001

For example, if you want to define a specific audio configuration for your SoundStation 5000 conference phones, enter *[PHONE_MODEL]audio.cfg* in the CONFIG_FILES field of the master configuration file, and name your audio configuration file *SSIP1500.cfg*

Or, if you want to define a specific video configuration for your VVX 1500 phones, for example, enter *[PHONE_PART_NUMBER]video.cfg* in the CONFIG_FILES field of the master configuration file, and name your video configuration file *2345-17960-001.cfg*.

Configuring Legacy Phones

As of UCS 3.3.0, the master configuration file includes folders containing default configuration attributes and values for legacy phones, phones that are not supported by new UC Software releases.

	Note: Software Compatibility for Legacy Phones
	UC Software version 3.3.0 or later does not support the SoundPoint IP 300, 301, 430, 500, 501, 600, 601, or the SoundStation IP 4000.

The master configuration file contains attributes and values for the following legacy phones: SoundPoint IP 300, 500, 301, 501, 430, 600, 601, and SoundPoint IP 4000.

As of Polycom UC Software 3.3.0, the application file path is *sip.ld*. Locate and the folder with the name of the discontinued phone model to show the APP_FILE_PATH attribute and *sip.ld* value, and the CONFIG_FILES attribute and configuration file values. The default attributes and values for all legacy phones are shown next.

```
    CALL_LISTS_DIRECTORY
    APPLICATION_SPIP300
        APP_FILE_PATH_SPIP300      sip_213.ld
        CONFIG_FILES_SPIP300       phone1_213.cfg, sip_213.cfg
    APPLICATION_SPIP500
        APP_FILE_PATH_SPIP500      sip_213.ld
        CONFIG_FILES_SPIP500       phone1_213.cfg, sip_213.cfg
    APPLICATION_SPIP301
    APPLICATION_SPIP320
        APP_FILE_PATH_SPIP320      sip_330.ld
        CONFIG_FILES_SPIP320       phone1_330.cfg, sip_330.cfg
    APPLICATION_SPIP330
        APP_FILE_PATH_SPIP330      sip_330.ld
        CONFIG_FILES_SPIP330       phone1_330.cfg, sip_330.cfg
    APPLICATION_SPIP430
        APP_FILE_PATH_SPIP430      sip_323.ld
        CONFIG_FILES_SPIP430       phone1_323.cfg, sip_323.cfg
    APPLICATION_SPIP501
        APP_FILE_PATH_SPIP501      sip_316.ld
        CONFIG_FILES_SPIP501       phone1_316.cfg, sip_316.cfg
    APPLICATION_SPIP600
        APP_FILE_PATH_SPIP600      sip_316.ld
        CONFIG_FILES_SPIP600       phone1_316.cfg, sip_316.cfg
    APPLICATION_SPIP601
        APP_FILE_PATH_SPIP601      sip_316.ld
        CONFIG_FILES_SPIP601       phone1_316.cfg, sip_316.cfg
    APPLICATION_SSIP4000
        APP_FILE_PATH_SSIP4000     sip_316.ld
        CONFIG_FILES_SSIP4000      phone1_316.cfg, sip_316.cfg
```

These default configuration attributes and values will provision legacy phones with the default phone features.

Web Info: Configuring Legacy Phones

For more information on configuring legacy phones, refer to *Technical Bulletin 35311: Supporting Polycom Phones with Later Releases*.

This document has explained how the master configuration file works, and has shown you two methods you can use to configure the master configuration file for the phone in your deployment. In addition, this technical bulletin briefly explained how the master configuration file supports legacy phones. You can use each method alone or in combination, depending on the requirements of your deployment.

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