ADMINISTRATION & USAGE GUIDE

SHORETEL MULTI-SUPER GROUP

ShoreTel Professional Services

Introduction

Welcome to the ShoreTel Professional Services Multi-Super Group Administration and Usage Guide. This document describes the installation and configuration of the application and how to use it.

The Multi-Super Group is a custom telephony application developed by ShoreTel Professional Services. The application provides a simultaneous ring capability to a group of stations. While ShoreTel's built in Workgroups and Huntgroups support a simultaneous ring feature, they are limited to 16 members. This application overcomes that limitation and supports multiple groups.

The application is packaged as a Windows Service installed on the customers ShoreTel Headquarters server or DVS/Application server. The service is normally running all of the time. In addition to the service there is a separately installed admin program used to configure the service settings. This is a "fat" client that must be run on the same server where the service is running. Changes made by the client require that the service be restarted before they are used by the service.

Each super group is associated with a ShoreTel Route Point. A Route Point is a special extension type used by applications programs to interact with callers. Calls are routed to the route point's extension by normal ShoreTel call routing. This could be via DID or DNIS routing, a direct internal call, a selection of auto attendant menu and various other ways. When a call presents to the application the application calls all of the members of the group who aren't busy and the first member to answer gets the call. The group also has a no answer forward setting that can forward a call if it isn't answered or if none of the stations are free to a voice mail box or extension.

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Installation and Usage

Overview

There are several steps to installing the ShoreTel Multi-Super Group.

1. Install the application's license with the Pro- Services Licensing admin.
2. Install the ShoreTel Multi-Super Group Service.
3. Create Route Points for each group using ShoreTel Director.

These steps are explained below.

Install the License

Along with the software, you may also have received a license for the Multi-Super Group application. Before you install and configure the service you'll want to first install the license using the ShoreTel Professional Services License server's web admin. If the professional services license server and associated web admin have not yet been installed then you must first install the License server and admin. The license server software can be downloaded along with installation and usage information by ShoreTel partners from:

http://partners.shoretel.com/support/products/applications/licensing_server.html

If you have not yet received your permanent license or you are testing the application on a trial basis then you can use the temporary license good for 45 days.

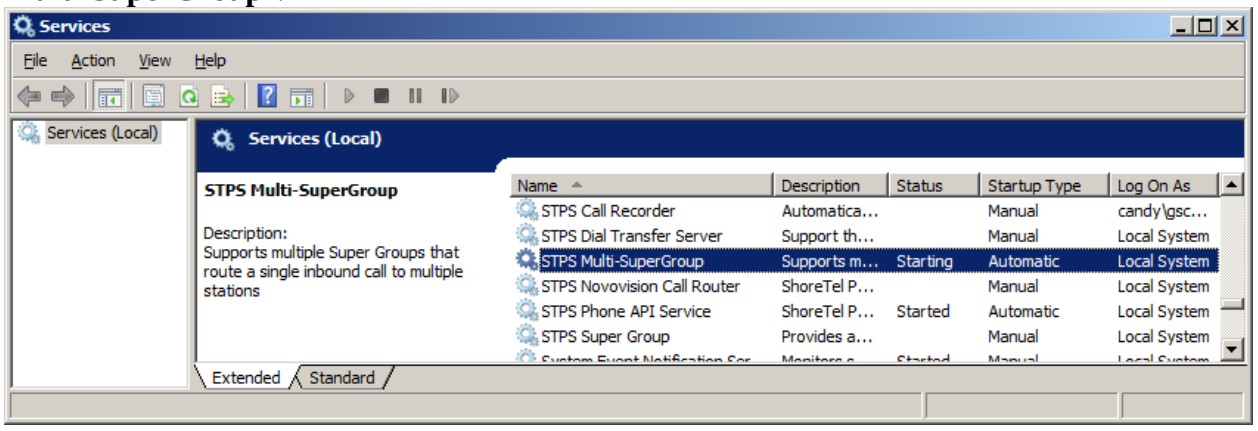
This is the trial license key that you can copy and paste into the ShoreTel Professional Service license application's web admin. Make sure you copy from the word "Multi-Super" through the two equal signs at the end of the license string:

```
Multi-Super Group|1|Trial License| |0|6/28/2011
19:02:30|6/28/2011|8/12/2011|
|2|1440|P3QCwpCd0Cu5pN1ECyAVHQ|1.0|C/b+FLnvZf1h0KhtGkV
x4tLftz9K0MjQouQZrSs+pk6jzvAzG3UjIw==
```

Install the ShoreTel Multi-Super Group Service

Typically it will be installed on the customer's ShoreTel Headquarters server but it can be installed on a separate DVS Server:

- You should have received a zip file names STPSMultiSuperGroupx.y.z.zip where the x.y.z will be the version number of the software.
- Unzip this file into a folder.
- From the folder run the STPSMultiSuperGroup.exe.
- If you have not already installed the Microsoft .NET 2.0 runtime on the server you will be prompted to do so. If so, follow the prompts which should automatically download and install .NET from the Internet. Once this completes, continue with the install.
- Follow the install prompts.
- Once the service is installed it should be automatically started as well as having a start type of automatic. This should make it run automatically whenever the server PC is restarted. You can verify that the service is installed and started by running the Windows Services application. Look for the service named "**STPS Multi-SuperGroup**":

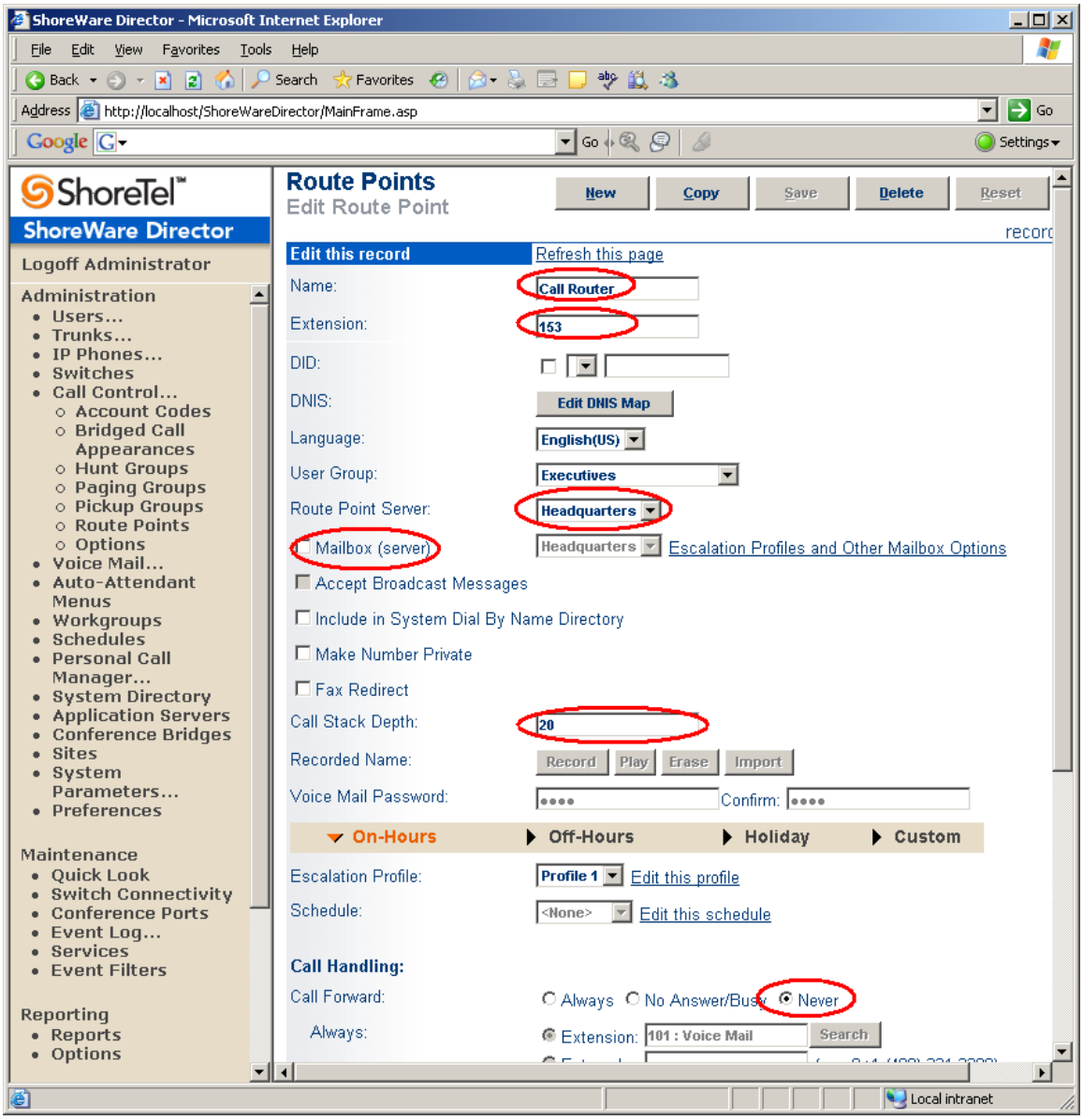


- You can also confirm the overall health of the server as well as diagnose problems by examining the log file created by the server. See the section on configuration regarding the log settings for details.

Create the Route Points

The application needs one or more route points created in the ShoreTel Director. A Route Point is a special kind of extension which is used by the service to handle the inbound calls, place the consulting calls to the group members and transfer the calls. In order to be able to handle calls, inbound trunks must be configured to present calls to the Route Point. This is not discussed in this document and is left to the customer and partner to configure.

To create the route points, run Director and from the menu select *Administration* | *Call Control...* | *Route Points*. Then click *Add New* and set the values as appropriate. This screen shot shows Director screen with the important fields circled:

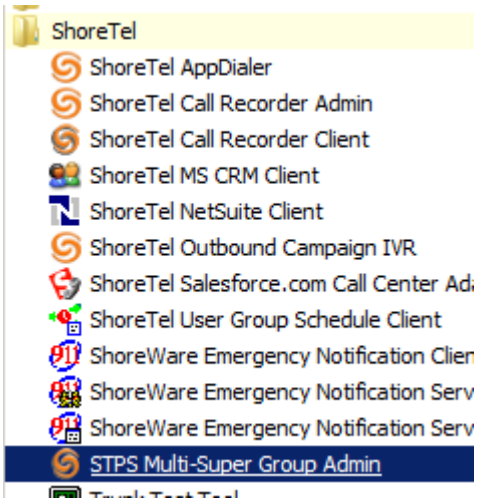


- The **Name** is used as the caller ID when the system makes the consulting calls.
- The **Extension** assigned to the route point. You will need to enter this when installing or manually reconfiguring the server. Inbound calls should be routed to this extension.
- The **Route Point Server** location should be set to the server where the Service is installed. This would typically be the customer's Headquarters' server.
- Unless you want to use the Route Point's mailbox then clear the **Mailbox (server)** checkbox.
- Set the **Call Stack Depth** to the number of phones to be rung plus the maximum expected inbound calls which will presents. For example, if 50 phones can be run and you want to support up to 5 inbound calls at the same time then you would enter 55.

- The **Call Forwarding** is usually set to *Never* as the service will only answer a given call once it can make the consulting calls on its behalf.

Configuring the ShoreTel Multi-Super Group Settings

The service can be configured using the separately installed ShoreTel Professional Services Multi-Super Group admin program. After running the application's install program you should have two shortcuts to the admin program installed, one on your desktop and one in your Program Files | ShoreTel folder:



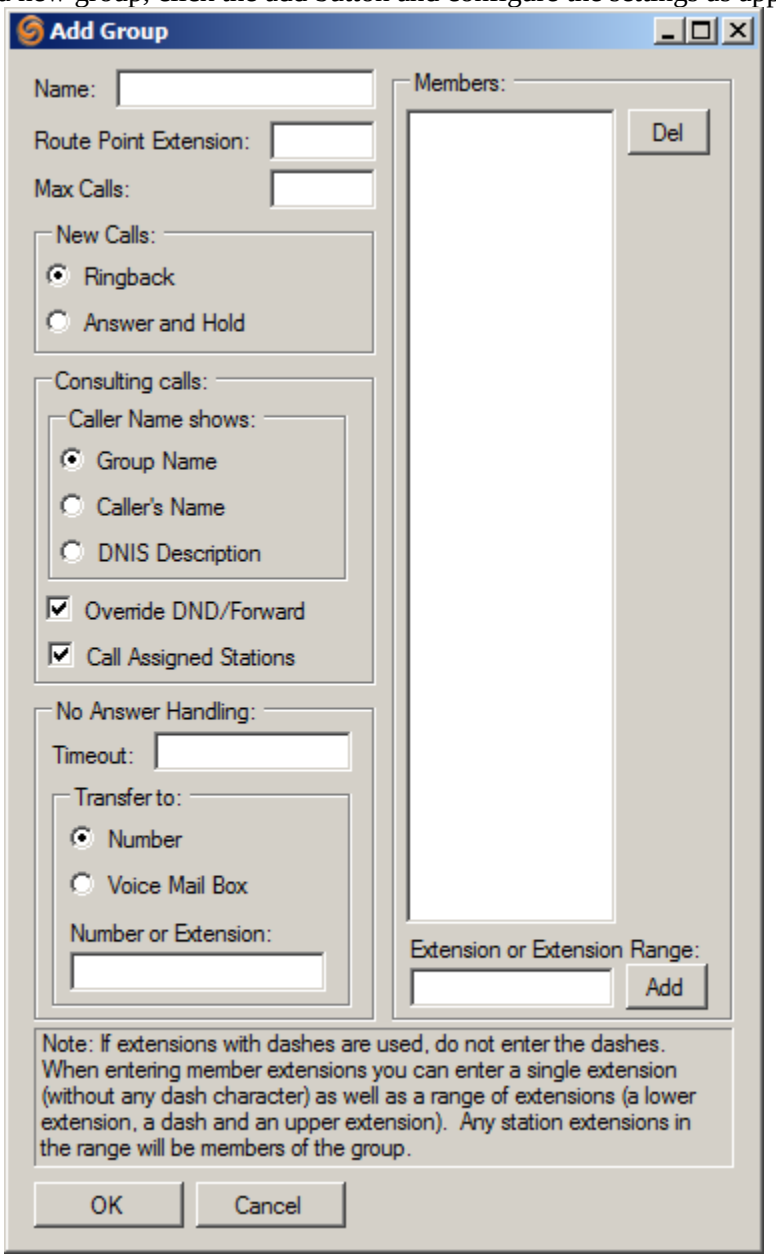
When you run the admin it will open on the admin's main window:

The top pane shows the status of the actual service and the button next to the status allows stopping or starting the service.

Under the service status pane is a list of all of the currently configured groups and below the list are three buttons to Add, Delete and Edit the groups.

Add a New Group

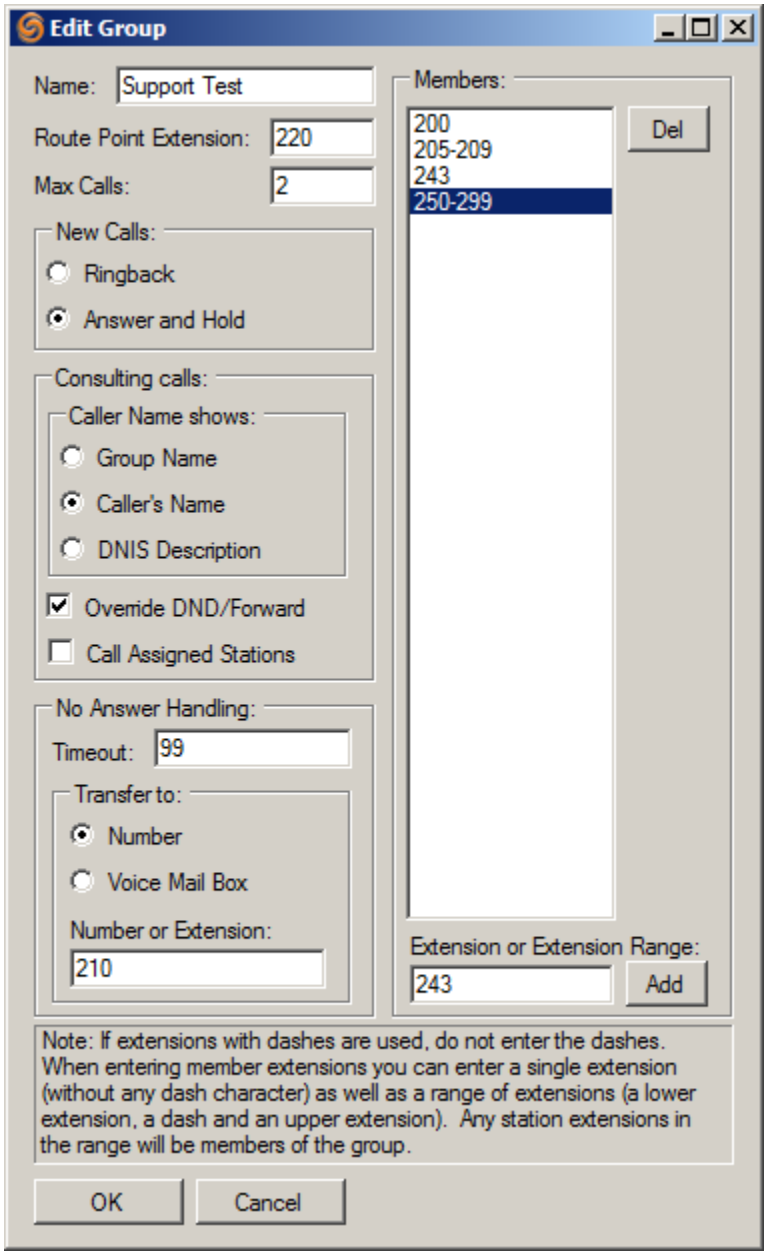
To add a new group, click the add button and configure the settings as appropriate:



You must enter a unique **Name** for the group and the **Route Point Extension** of a route point to be used by the group. If **Max Calls** is set then the group will allow up to that

number of calls to being processed for the group, waiting to be processed or calls connected on group member stations including calls routed by this application. When **New Calls** first present, the application can play **Ringback** to the caller or can **Answer and Hold** the call resulting in the caller hearing music on hold. When the system places **Consulting calls** to the group members, you can configure if the **Caller Name shows** the **Group Name** called, the inbound call's **Caller's Name** or the inbound call's **DNIS Description**. If you want the call's to the group members to igrnore any do-not-disturb or forward settings check the **Override DND/Forward** checkbox. If you don't want to call assigned stations then uncheck the **Call Assigned** checkbox. Specifically this will cause server to bypass calling members who are externally assigned or are assigned to the softswitch. You must specify a **No Answer Handling** | **Timeout** and **Transfer to** | **Number or Extension** and select either **Transfer to** | **Number** or **Transfer to** | **Voice Mail Box** as appropriate.

You are not required to enter any members for the group. It will transfer callers to the No Answer destination until at least one valid member is defined. To define the **Members** you can enter individual **Extensions or Extension Range**s. Extension ranges are preferred as you won't need to update the group if you add a new station extension as long as the extension falls into an existing member range. For example, this shows a group with a number of member entries:

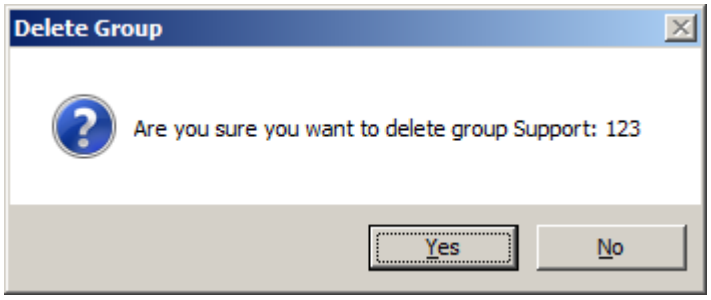


If stations 200, 205, 207, 250, 252, 259, 280 and 291 are all actual station extensions on the system then they would all be called in response to an inbound call to the group's route point (in this example, x123.)

To delete a member or member range from the list, select it and click the Del button.

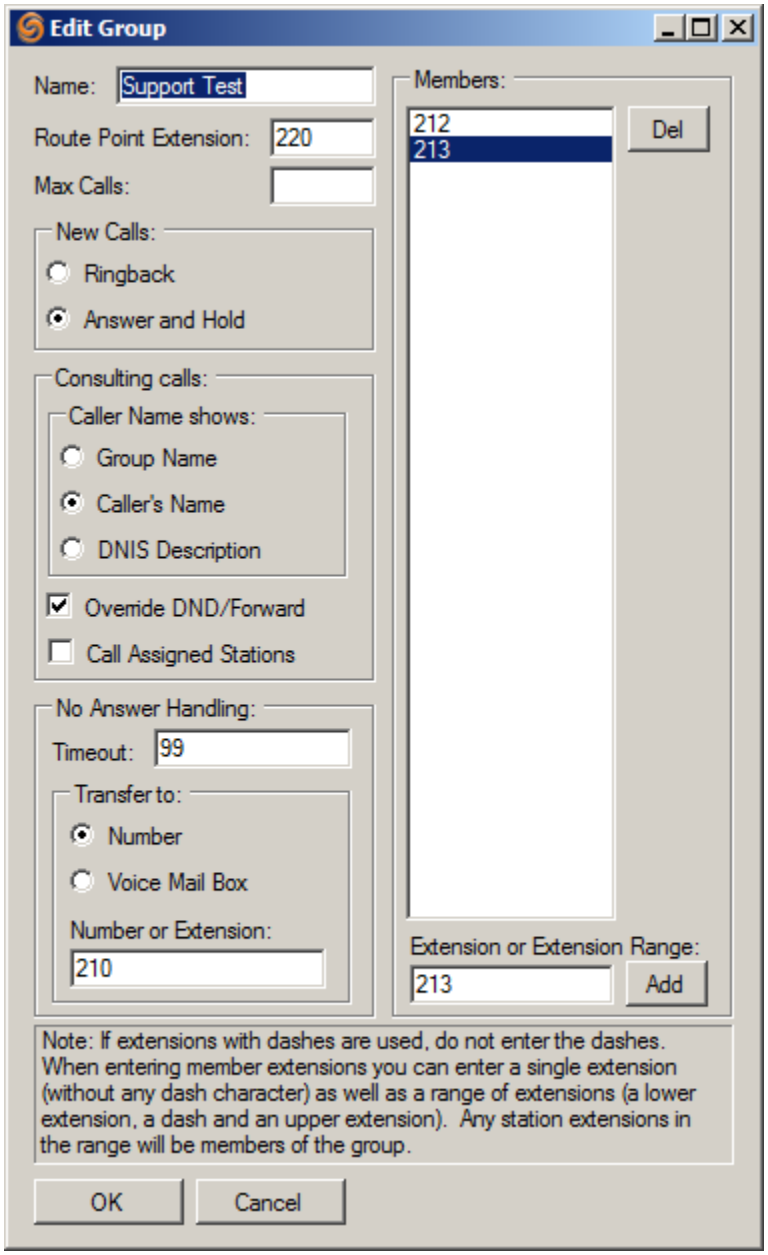
Delete a Group

To delete a group, select it from the main screen and click the Del button. In response you see this confirmationS dialog and if you click Yes the group will be deleted:



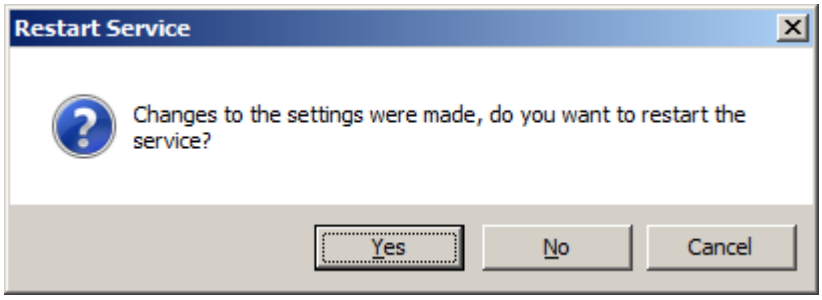
Edit a Group

To edit a group select it and click the Edit button or simply double click a group from the list. In response the same dialog you saw above for adding a new group will be displayed:



Server Restart

Changes to the server's settings are not seen by the server until it is restarted. The admin utility will remember when you have made changes and when you are done and exit you will be prompted to restart the service:



Normally you should restart the service unless you are concerned about disrupting inbound calls. The alternative is that you don't restart the service at the time you exit the admin utility but do so later via the Windows Service program.

Operation

When a call presents to a group's route point the application performs the following steps:

- Answers the call and plays a ringback tone to the caller so that they continue to perceive that they are ringing.
- Retrieves the inbound call's caller ID if provided.
- Makes a consulting call to the member station extensions of the group.
- What shows in the caller name is controlled by the Consulting calls, Caller Name shows setting. It can be the group's name, the inbound call's caller name or the inbound call's DNIS description.
- The calls to the member stations are made in such a way as to ignore any do-not-disturb or forward settings that may be enabled if the Override DND/Forward setting is checked.
- If group isn't configured to call assigned stations and a given member is externally assigned or assigned to the softswitch then they are skipped.
- Waits for a party at a station to answer one of the calls and when the first one connects, consult transfers the inbound call to the party who answered the consulting call. At the same time, disconnect any other consulting calls.
- After the call is transferred to a station it continues to be tracked so the length of the call and the ultimate disposition (hung up or transferred and if transferred, who to) can be determined.
- Every call that is handled by the application has its details logged into a special comma separated value formatted (CSV) log file (not to be confused with the application's log.)
- If a consulting call isn't answered at a station within the configured no answer timeout period then the system will disconnect all of the consulting calls and transfer the inbound call to either a voicemail mailbox or to the specified transfer extension depending on the configuration of the group.
- Similarly, if for any reason the system is unable to call any stations then the inbound call will be transferred to either a voicemail mailbox or to the specified transfer extension.

- The system will handle one inbound call at a time per group. If subsequent calls present to a group's route point while the system in currently handling a call these calls will be queued pending completion of the current call. Note that the no answer timer for a given call will only start once all consulting calls for a given call have been made. If the group is configured to answer and hold new calls it will do so as soon as the call presents, even if it is currently handling another call

Call Log CSV File

Whenever the application handles a call into a group it writes an entry to a comma separated value (CSV) format file. It writes the following fields:

1. Group Name
2. Route Point Extension
3. The date and time that the call presented (calls that disconnected or were transferred to a no answer extension) or was connected at a station (calls that were transferred through to a station.)
4. Call's DNIS if available.
5. Call's DNIS Description if available.
6. Call's Caller ID if available.
7. Call's unique ID (GUID). This can be used to correlate with the ShoreTel CDR database.
8. Result of the handling call. This is a text string with one of the following values:

- **Disconnected**
  Indicates the caller hung up before being transferred to a station or to the no answer destination. Note that callers who are hung up while waiting in queue are not logged.
- **SentToNoAnswerHandler**
  Indicates that the caller was sent to the group's no answer handler. Depending on configuration this could either be an extension or a voice mail box.
- **SentToUser**
  Indicates the call was transferred to a user and subsequently disconnected.
- **SentToUserAndForwarded**
  Indicates the call was transferred to a user who then transferred the caller elsewhere.
- **Failed**
  Indicates that we failed trying to send a call to the group's no answer destination. This is likely due to an invalid extension or voicemail box. The application's log file can be examined to determine what caused this result.

9. Pending Length containing the length of time from when the agents were rung on behalf of the calls through the time the call was transferred to an agent or transferred to the no answer handler or disconnected in the format HH:MM:SS.
10. Station Extension where the call was transferred. **This is only set if the Result is SentToUser or SentToUserAndForwarded**.
11. Station Name where the call was transferred. **This is only set if the Result is SentToUser or SentToUserAndForwarded**.

12. Call Length containing the length of time the call was connected on the station in the format HH:MM:SS. **This is only set if the Result is SentToUser or SentToUserAndForwarded**.
13. Forwarded Extension containing the extension was forwarded to by the station user. **This is only set if the Result is SentToUserAndForwarded**.

This shows an example log file entry:

```
Sales, 200, 6/27/2011 4:06:42 PM, , 2032615212,
{00020000-0009-4D36-FD11-001049005070}, SentToUser,
00:00:12, 210, Joe Smith, 00:04:32,
```

Note that fields are separated by a comma and a space. Blank fields are left out like the DNIS in this example. Note that because this call was not forwarded by the user who received the call the last field which would contain the Forwarded Extension is also blank. This shows the same call if it had been subsequently transferred by the station that the service transferred the caller to:

```
Sales, 200, 6/27/2011 4:06:42 PM, , 2032615212,
{00020000-0009-4D36-FD11-001049005070},
SentToUserAndForwarded, 00:00:12, 210, Joe Smith,
00:04:32, 271
```

The log file is written to the **Call Logs** folder of the applications install directory. A new log is written every calendar day starting at Midnight. The log file name is STPSMultiSuperGroup with a date suffix separated by an under bar and an extension of ".csv". For example:

STPSMultiSuperGroup_6-27-2011.csv

You may want to occasionally remove older log files although being simple text files they should be relatively small.

Application Log Files

The application also has two other logging capabilities. These are mainly of use when verifying operation, troubleshooting configuration issues and tracking down potential program bugs. The main log records the server activity at an operational level where the other log records the lower level interface between the application and the Computer Telephony Integration (CTI) features of the ShoreTel phone system.

High Level Application Log

The server automatically writes a log file to the STPSMultiSuperGroup.log file located in the Logs folder of the applications install folder. For example, if the application is installed to the default location:

C:\Program Files (x86)\ShoreTel\STPS Multi-SuperGroup

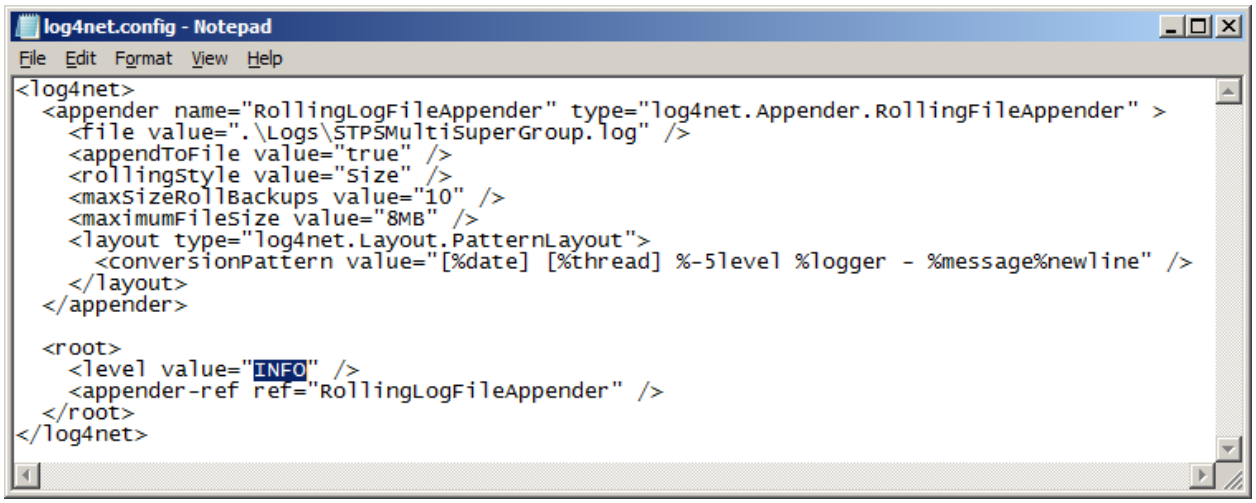
Then the log file path would be:

C:\Program Files (x86)\ShoreTel\ STPS Multi-SuperGroup \Logs\STPSMultiSuperGroup.log

In addition, as the log grows it is automatically renamed with a serial number suffix and a new log file opened.

You can view the log file using any text editor capable of reading standard text documents. For example the built in Windows notepad application can be used to view the contents of the log files.

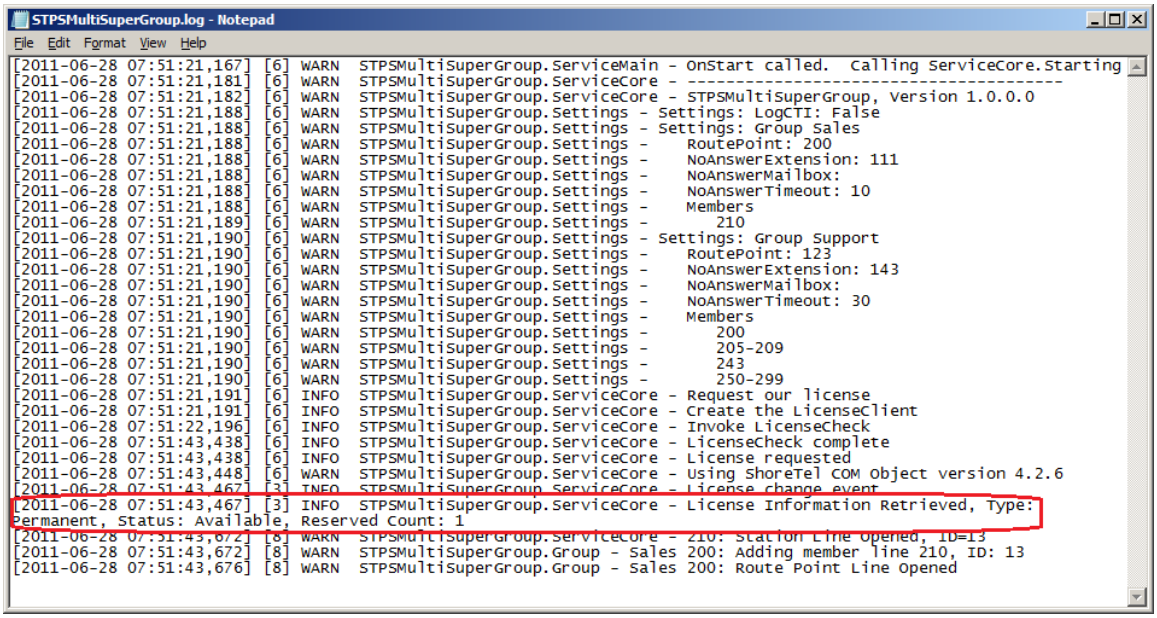
The XML file which controls the logging is located in the application's folder and is named **log4net.config**. If you edit the file with (for example) notepad.exe, this shows the contents of the file:



To change the level of detail logged, you would want to change the "level value" in the root section and save the changes. Changes to the log level do NOT require a service restart. The above screen shot shows the value. The valid values in order of increasingly detailed logging (each level includes lower levels) are as follows:

- FATAL Only fatal errors are logged.
- ERROR Errors are logged.
- WARN Warnings are logged.
- INFO Informational events are logged including logging of each call handled.
- DEBUG All logging is enabled.

This shows an example log file:



A key thing to note in the server log if you are having trouble is that the server was able to retrieve its license. If you don't see a message like the above then you may have a problem with the license.

Low Level Computer Telephony Integration (CTI) Log

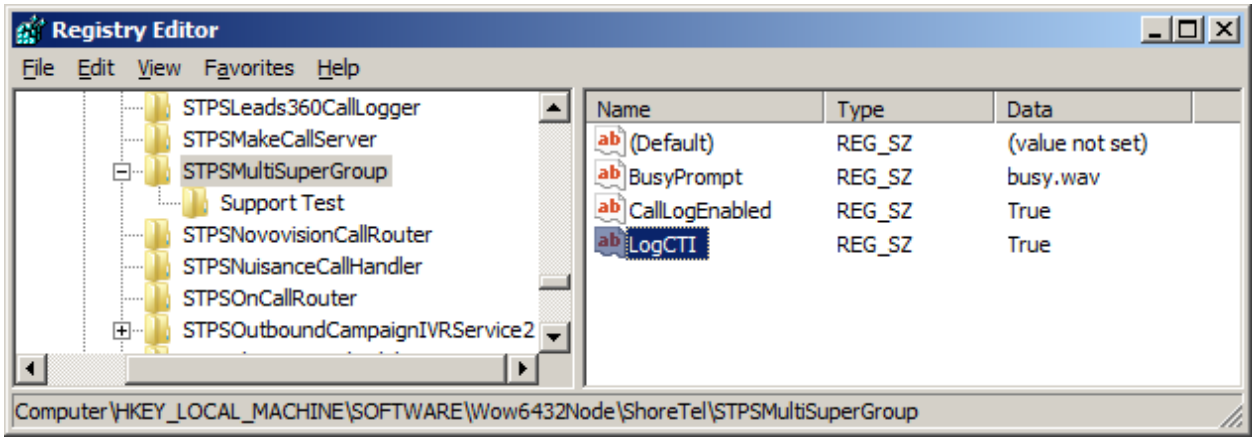
You will rarely if ever want to enable the low level CTI log. This log is normally only enabled if ShoreTel Professional Services believe that an issue may be related to the telephony interface.

To enable the low level log, you need to update a Windows Registry location and then restart the service.

The registry setting is located at:

HKEY_LOCAL_MACHINE\SOFTWARE\ShoreTel\STPSMultiSuperGroup
Note: If running on a 64 bit server then there is an additional folder "Wow6432Node" located between "SOFTWARE" and "ShoreTel".

This shows the registry editor open at the location with the setting selected:



To enable the CTI log, change the "LogCTI" string value to "True". To disable the CTI log change it back to "False". Remember to restart the service for the change to take effect.

Once the CTI log has been set to "True" and the service restarted you should see an additional file appear in the application's Logs folder named "STPS_CTI_<day of the week>.log". For example, "STPS_CTI_TUESDAY.log". Up to seven CTI log files will be created for each day of the week at which point earlier files will be overwritten.

Selecting European Busy Tone

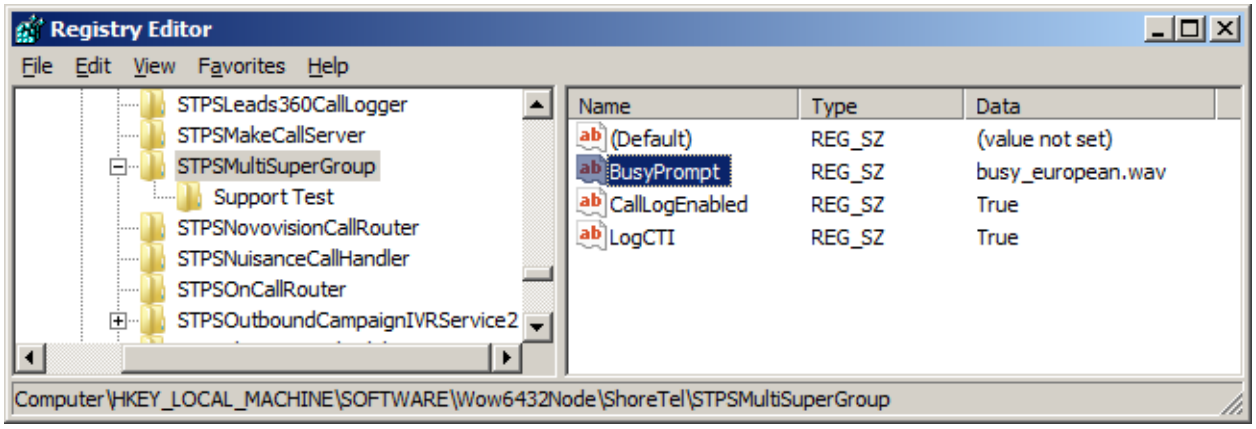
If a call presents to a group when the group already has the Max Calls active, the caller will hear an US style busy tone. This tone is a pre-recorded audio file located in the service's install folder named **busy.wav**. In addition, there is a second wave file that is also installed in the install folder named **busy_european.wav** which is the European style busy tone.

To select the European busy tone you need to update a Windows Registry location and then restart the service.

The registry setting is located at:

HKEY_LOCAL_MACHINE\SOFTWARE\ShoreTel\STPSMultiSuperGroup
Note: If running on a 64 bit server then there is an additional folder "Wow6432Node" located between "SOFTWARE" and "ShoreTel".

This shows the registry editor open at the location with the setting selected:



To enable the Busy Prompt, change the "BusyPrompt" string value to "busy_european.wav". To restore the us style busy prompt, change it back to "busy.wav". Remember to restart the service for the change to take effect.