Introduction

The ShoreTel Call Recorder Application is composed of several separately installed software components. They are:

- The Call Recorder Service
- The Call Recorder Administration Utility
- The Call Recorder Client
- The Call Recorder Web Player

The Call Recorder Service (aka the record server) is a Microsoft Windows service. Record server instances run on the customer's ShoreTel headquarters (HQ) and/or application (DVS) servers and through the configuration of "Record Profiles", can automatically record calls and then place copies of the resulting recordings in potentially multiple file system locations and/or inject recordings into one or more ShoreTel voice mail boxes.

The Call Recorder Administration (aka the admin) is provided to allow you to configure the record server(s). It can be installed on the same PC as a record server and/or on any Windows PC that can access the record server(s) via a local area network. The settings that can be configured include those which control the overall operation of a given record server as well as the settings for each of the record profiles configured for each record server.

The ShoreTel Recorder Client (aka the client), new in version 1.2.0, allows users to control the decision as to which calls' recordings are saved when calls disconnect using a small Windows application that runs from the user's tray. Use of the client is optional.

The web based ShoreTel Call Recorder Player (aka the player), new in version 2.0.0, allows users to locate, listen to, download and delete their recordings. The player can play back audio via a user's sound card or via their phone. Use of the player is optional. If the primary goal of using the record server is to create seldomly accessed recording archives then customers may not want to install the player.
Optional Player

The Call Recorder Web Player referenced in this document is an optional component. Depending on your needs you may or may not have received it. If you did not receive the player and after reviewing this document you decide you would be interested in using the Player then please send an email to ShoreTel Professional Services at proserv@shoretel.com requesting a copy of the player setup files.
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Features

The ShoreTel Call Recorder supports many powerful and flexible features including:

- The ability to record a single call for multiple purposes and then save the recording to multiple file system locations and/or inject the recording into multiple ShoreTel voice mail boxes.
- Easy configuration via a rich client allowing the user to create and modify the record profiles that determine which calls are recorded and when.
- Record Profiles include a list of stations to be considered for recording.
- Which calls are actually selected for recording is based on the record profile’s record filter. A record filter can base the decision on one or more of the following:
  - The connected ID (the caller or called number)
  - A specific ShoreTel Call property set to a specific value or to ‘any’ value
  - For inbound calls, the DNIS ID associated with the call
  - For inbound calls, the group extension that transferred the call to the station
- Record profiles support optional weekly schedules that control when recording is active.
- Record profiles support a percentage of calls to record setting that allow a subset of calls to actually be recorded.
- Record profiles support a save filter which is consulted when a recording completes. If enabled then the recording is saved or discarded based on the specific value of a ShoreTel call property or a setting to check a flag set by users of the associated ShoreTel Record Client. Using the save filter and ShoreTel recorder client allows agents to indicate which call recordings should be saved up to the time when a call disconnects.
- Record profiles can save recordings in a specific folder and file name in the file system. Various pieces of information associated with the call can be used to construct the folder hierarchy and file name, essentially allowing for a classification/cataloguing system to be set up in advance (thus facilitating later identification and retrieval of recordings.)
- When recordings are saved to the file system, the optional player can be used to allow users and administrators to find, listen to, download and, if enabled, delete recordings.
- Record servers can also optionally save recordings to one or more designated ShoreTel voice mail boxes. Various pieces of information associated with a call can be used to construct the “From” and "Subject" texts for voice mails.
- No matter how many record profiles cause a call to be recorded, a given record server only makes one recording of a call. All decisions about where to copy the resulting file or insert the recording into voice mail box(s) are performed when the recording completes.
- If desired, the client can be deployed to allow users to request that recordings of a specific call should not be retained when the call completes.
Limitations and Capacity

External Calls Only
Record servers can only record external calls. Internal calls (station to station) cannot be recorded.

Record Server Route Point Capacity
A record server can theoretically handle all the stations for which calls should be automatically recorded. However, a given route point may not have the capacity to simultaneously record all stations at the same time. Microsoft Windows has a hard limit of around 250 active media streams per server but typically the actual number available for use is less due to processor loading and other factors. Specifically, all uses of media such as auto attendant, Workgroup queue messaging, voice mail, and others will consume a media stream. Therefore, if the Call Recorder is run on, for example, a ShoreTel Headquarters server, the maximum number of calls that could be recorded would be less than 250.

Interoperation with ad hoc user based (Communicator) Recording
This server records calls by invoking the built in call recording capability of the ShoreTel phone system. This interface only allows one application to be recording a specific call at any given time. ShoreTel will fail application requests to record a call if another application is already recording the call. This means that a call recorded by this application cannot be recorded at the same time by a user of the ShoreTel Communicator software. Because this application usually starts recording a call as soon as it connects it will generally respond faster than a person. The one case where this might not be true would be for outbound external calls where the server has been configured to wait for the far end to connect before starting to record. Because Communicator allows recording as soon as the call has connected to the trunk, it is possible that a Communicator user could beat the Call Recorder with the result that the Call Recorder would fail trying to record the call. Another manifestation of this issue is if multiple record servers are deployed and they are configured to record the same call(s). If this is the case then one will succeed and the other will fail. In general, administrators should take care when configuring call profiles on multiple record servers that they don’t end up having two servers target the same call for recording.

ShoreTel Voice Mail Box Limitations
Depending on how a record server's call profiles are configured, the server may inject one or more copies of a given recording into various ShoreTel voice mail boxes. Voice mail boxes are limited with respect to the maximum number of voice mail messages that they can store. This limit is configurable in ShoreTel Director based on the *Incoming Max. Messages (0-500)* setting for a user's user group-based voice mail permissions class of service. As a result, the maximum size mailbox that can be configured is 500 messages.
Software Requirements

Each instance of the Call Recorder must be installed on the ShoreTel headquarters (HQ) or a ShoreTel application server (DVS).

The Call Recorder requires ShoreTel Version 7.5 or later. If users wish to be able to insert recordings into ShoreTel voice mail boxes then they must be running ShoreTel version 8.1 or later. If they plan to save recordings to voice mail boxes but the server that the Recorder is running on is earlier than ShoreTel 8.1 then these attempts will fail and the only indication of the failure will be in the application's log file.

The admin can be installed on any Microsoft Windows machine with network access to the Record Server(s) that it will manage.

If the player is installed, it must be installed on a ShoreTel server, either the Headquarters server or an application server (DVS). Note that unlike the Call Recorder, customers will only install one instance of the player. The player can be installed on a server where a record server is also installed but can also be installed on a separate ShoreTel server.

If the client is installed it requires access to the ShoreTel phone interface. This interface is installed as part of installing the ShoreTel Communicator application (any version.)

The user installing the applications must have administrative rights to the machine and must install the record server, admin, player and/or clients as an administrator.

The record server, admin, player and client applications all require the Microsoft .NET 2.0 framework. If this software has not been previously installed, the ShoreTel-provided installation programs will prompt the user to install it from the Microsoft web site.
Deployment Strategies

In order to both distribute media resource loading and decrease the WAN streaming load imposed by having all calls recorded on a single ShoreTel server, multiple copies of the record server can be installed. Record servers can be distributed one per ShoreTel application server/DVS and one on the ShoreTel Headquarters server such that each handles recordings for local users. Each record server uses a dedicated ShoreTel route point configured for its use. While a call is being recorded, data will stream from the trunk used to connect a caller to this route point which will be hosted on the same machine where the Record Server is running.

Single Headquarters Server Deployment

A simple deployment would involve installation of one instance of the record server on the customer’s ShoreTel Headquarters server. The admin could be installed on the same server and/or administrators’ work stations. If the player is to be used then it can also be installed on the customer’s Headquarters server. If the client is to be used then it would be installed on each user’s workstation that needs it.

Single Application/DVM Server Deployment

A variation of the Headquarters Server deployment is to instead install the record server and optionally the player on a separately configured ShoreTel Application/DVS Server. The options are the same, the only difference being that the DVS server is devoted to running the record server and won’t load down the customer’s Headquarters server or compete with other ShoreTel applications for route point wave devices (see the “Limitations and Capacity” section above.)

Multiple Record Servers Deployment

This deployment installs multiple record servers each on its own ShoreTel server (one of which could be the Headquarters server) and the player either on one of the servers hosting record servers or on its own server. One or more copies of the admin can be installed as needed to allow administrators to configure the various record servers.
Installation Prerequisites

Before you install any of the ShoreTel Call Recorder components you will need some preparation.

Create a Login Account for the Record Server and Player

The record server must run under a user domain account having administrator access on all of the servers where it will be installed. This account should be configured with a password which does not expire. You will be prompted for this account when you install the record server. If you install the player you will also need to configure the player web site to impersonate this special account.

Create a Route Point for each Record Server

Each record server will need a ShoreTel route point created and configured in ShoreTel Director. You will want to create these before starting any record server installations as the record server’s setup program will prompt for the route point extension. The settings will be essentially the same for each Record Server service. This shows the route point configuration screen from Director with the important settings shown:
The key fields to set are:

**Name:** This is the name assigned to the route point. To keep track of the use of the route point it is suggested that the name reflect that the route point is to be used by the Call Recorder.

**Extension:** This is the extension assigned to the route point. You'll need to set this as appropriate for each record server.

**User Group:** This is the user group associated with the record server.

**RP Server:** This is the server that will host the route point. It should be set to the server where the associated record server will be installed.

**Call Stack:** This controls the maximum number of calls that the route point can handle. For the record servers this should be set to the maximum number of simultaneous calls that can be recorded.

**Call Forward:** This should be set to ‘Never’ as calls should never need to be forwarded.

**Create a Surrogate Extension for each Record Server**

In addition to a route point, each record server will also require a separate user extension to be created in ShoreTel Director to be used by a record server to request recording. This extension is referred to as the “surrogate extension”. This shows the typical settings associated with a surrogate extension:
The key fields to set are:

**Name:** This is the name assigned to the extension.

**Number:** This is the extension of the surrogate extension. You’ll need this when you use the admin program to configure each record server’s settings.
License Type: This can be set to Extension-Only as you’ll never use this extension for actual users.

User Group: This is user group associated with the surrogate extension. See the next section that describes the configuration required for this user group. Specifically the user group must be configured to be able to request recording of all other stations.

Site: This should be set to the site where the record server route point is configured and where the record server that will use this surrogate extension will be installed.

Port: This should be set to the SoftSwitch. You don’t need to assign a hard phone to this extension.

Configuration of the Surrogate Extension Telephony Class of Service

In order for the surrogate extension to be able to record station calls, it needs to belong to a user group that has a class of service that allows it to initiate recording of other’s calls. This shows the required setting:

Create the Player Route Point

As for the record server(s), if you want to install the player you’ll need to create a route point for it to use. The player needs to be configured with a route point assuming you want to allow users to listen to recordings via their phones. If users will not be using their phones to listen to recordings using the player then you don’t need to create a route point for the player to use.

The player route point is configured in a similar fashion to the record server route points. Most of the settings previously described for the record server route points apply here.

The name assigned to the player’s route point will show up as the connected party on users’ phone displays when they use the player to listen to recordings via their phones.
The route point’s call stack should be set to the maximum number of users who will connect and listen to calls using the player via their phones at the same time.

Create the Player IIS Application Pool

You only need to perform this step if you intend to install the player. This step has to be performed before the Player installation.

In order to prevent Internet Information Server (IIS) from shutting down the player when users aren’t active and also to allow easy recycling of the player web site, the player should be installed in its own application pool. Therefore, before the player is installed you’ll have to create and configure an application pool for the player.

Create ShoreTel Call Recorder Player IIS Application Pool for Windows server 2003 32 bit
(Note: ShoreTel server software, ShoreWare Main Server or Distributed Server, is not tested and certified on Windows Server 2003 64 bit platform.)

1. Run the Windows INETMGR: on the PC where the Player is to be installed, enter INETMGR at Windows Start | Run… to open the Internet Information Services (IIS) Manager dialog.

2. Add the new ShoreTel Call Recorder Player Application Pool: right click on Application Pool | New | Application Pool… to open the Add New Application Pool dialog. Enter the new Application Pool ID and click to use default settings for the new application pool.
The ASP.net framework revision can be configured by right click at (local computer)\Web Sites\Default Web Site and select Properties. Select ASP.NET tab at the Default Web Site Properties dialog:

3. Set the domain account for the ShoreTel Call Recorder Server and Player: once the ShoreTel Call Recorder Player Application Pool is listed in the application pools, right click it and select Properties to open the new application pool Properties dialog. You can either click Configurable to specify Player user in ‘domain\account’ format and Password or you can click Predefined to include all ShoreTel users to allow them access to the Player web site with their account access:

4. Disable the web recycling of Call Recorder Player web site: this is to prevent the Call Recorder Player web site from being unloaded when it isn’t being used. Select Recycling tab at the Call Recorder Player Application Pool Properties dialog, and uncheck Recycle worker processes (in minutes):
5. Disable the shutdown of Call Recorder Player web site: this is to prevent the Call Recorder Player web site from being shut down. Select Performance tab at the Call Recorder Player Application Pool Properties dialog, and uncheck Shutdown worker processes being idle for (time in minutes):

Create ShoreTel Call Recorder Player IIS Application Pool for Windows server 2008 32 bit and 64 bit

Run the Windows INETMGR utility to configure the IIS server on the PC where the player is to be installed.

Right Click the Application Pools node and select “Add Application Pool”. In the “Add Application Pool” dialog, enter a name for the pool:
Once the new pool shows up in the list of application pools, right click it and select “Advanced Settings”: 
### Advanced Settings

#### General
- **.NET Framework Version**: v2.0
- **Enable 32 Bit Applications**: True
- **Managed Pipeline Mode**: Integrated
- **Queue Length**: 1000
- **Start Automatically**: True

#### CPU
- **Limit**: 0
- **Limit Action**: NoAction
- **Limit Interval (minutes)**: 5
- **Processor Affinity Enabled**: False
- **Processor Affinity Mask**: 429-067295

#### Process Model
- **Identity**: CANDY\GSchenk
- **Idle Time-out (minutes)**: 20
- **Load User Profile**: False
- **Maximum Worker Processes**: 1
- **Ping Enabled**: True
- **Ping Maximum Response Time (seconds)**: 90
- **Ping Period (seconds)**: 30
- **Shutdown Time Limit (seconds)**: 90
- **Startup Time Limit (seconds)**: 90

#### Process Orphaning
- **Enabled**: False
- **Executable**:
- **Executable Parameters**:

#### Rapid-Fail Protection
- **"Service Unavailable" Response Type**: HttpLevel
- **Enabled**: True
- **Failure Interval (minutes)**: 5
- **Maximum Failures**: 5
- **Shutdown Executable**:
- **Shutdown Executable Parameters**:

#### Recycling
- **Disable Overlapped Recycle**: False
- **Disable Recycling for Configuration Changes**: False
- **Generate Recycle Event Log Entry**:
- **Private Memory Limit (KB)**: 0
- **Regular Time Interval (minutes)**: 0
- **Request Limit**: 0
- **Specific Times**: TimeSpan[] Array
- **Virtual Memory Limit (KB)**: 0

---

**Name**

[name] The application pool name is the unique identifier for the application pool.
The key fields to set are:

**Enable 32-Bit Applications**: Set this to true (otherwise the player will fail to function.) The player uses a 32 bit COM object internally and this requires 32 bit support be enabled in the player’s application pool.

**Identity**: Set this to the domain account that you created for the record server and player.

**Regular Time Interval**: Set this to 0 to prevent the web site from being unloaded when it isn’t being used.

### Configure Stations to Allow Recording

In order for stations’ calls to be recordable by the record server a key requirement is that the stations must belong to a user group with a Telephony class of service that allows either all stations or the Record Server surrogate extension to record their calls. This shows the required setting:

![ShoreTel configuration interface](image)

As shown, under “Record Other’s Calls, Accept” you need to select either “All” or “Only From” the surrogate extension.

### Recording Storage Folders and Shares

In order for record servers and the player (if installed) to be able to access recordings, the recording storage file paths configured for the record servers via the admin must be accessible using the same paths by the player. If only one record server is installed and the player is installed on the same server then the paths can contain drive references known to the Windows Server. However, if multiple record servers are installed or the player is installed on a different server than the record server then all record profiles must refer to the storage locations using UNC paths.

As an example of the problem, assume two ShoreTel Servers, HQ and DVS1 with a plan to install a record server on HQ and the player on DVS1. If the record profile for the record server on HQ references recordings via a non-UNC path such as “C:\Recordings” then when the player tries to access a recording it will attempt to find the recording on its own hard drive and this will fail. However, if the record profile references the recordings using a UNC path such as “\HQ\Recordings” then this will succeed. Note that this assumes that the shared folder (“Recordings” in this example) allows the domain account that the record server is running under access and that the player is impersonating the same account and therefore has the same access.
Regardless of whether UNC or non-UNC paths are configured for saving recordings, the security settings for the folder must allow full access to the record server/player domain account.
Call Recorder Installation

The Call Recorder Service is installed on a ShoreTel Server. For small phone systems this will probably be the customer's headquarters server. However, for large systems, a separate ShoreTel Voice Mail server or Application Server/DVS may be deployed specifically to install this application on. In addition, depending on the number of sites and WAN streaming concerns between those sites there are scenarios where deploying multiple copies of the server may make sense.

The first step is to unzip the record server zip file contents, perhaps to a folder in the desktop.

Then run the STPSRecordServerSetup.exe program. This is required if .NET runtime has not yet been installed. Directly executing the .MSI file will not install the .NET runtime.

The only setting which can be entered at the time of the installation is the TCP Port on which the Call Recorder service expects the administrative clients and the player to connect. By default this parameter is set to 37722. This parameter should only be changed if it conflicts with another application using the same port number. The graphic below shows the installer dialog setting:

Once the TCP Port is verified and possibly changed, the user can click Next several more times. The last information that the service setup will prompt for are the account login details:
You’ll want to specify the domain account that you created for the record servers at Identity tab in Properties dialog of Windows 2003 server, or in Advanced Settings of Windows 2008 server to use in the form ‘domain\account’ along with the appropriate password.

Note that while the record server is configured to run as soon as it is installed, it will not function until the admin program is used to configure the server settings and create at least one record profile.
Admin Installation

Installing the administration application is similar to the record server installation process except that there are no specific application settings beyond the install location.

The administration application can be installed on the machine where the record server was installed and/or on any computers that have local network access to the machine(s) on which the Record Server(s) is/are installed. Note that you are free to install the admin on more then one PC.

The first step is to unzip the file contents, perhaps to a folder on the desktop.

Then run the STPSRecorderAdminSetup.exe program. This is required if .NET runtime has not yet been installed. Directly executing the .MSI file will not install the .NET runtime.

When the installation completes, a shortcut icon to run the administration program will appear on the Windows desktop:

There will also be a shortcut added to the Program | ShoreTel group accessed from the Windows Start menu.
**Player Installation**

The player web site can be installed on the same server machine as the record server itself or it can be installed on a separate server.

The first step is to unzip the player zip file contents, perhaps to a folder on the desktop.

Then run the STPSRecorderPlayerSetup.exe program. This is required if .NET runtime has not yet been installed. Directly executing the .MSI file will not install the .NET runtime.

The install program will prompt web site installation information:

![Select Installation Address](image)

You can leave the Site and Virtual directory as set by the setup. However, you’ll want to set the Application Pool to the pool you created as part of the player’s prerequisites.

Click Next on the screens that follow and then Close when the installation completes.

When the installation completes a new web site should be added to the customer’s IIS Server. You can test that the web site has been installed by attempting to navigate from a web browser to the log in screen. Assuming the web site is installed to the default virtual directory (STPSCallRecorderPlayer) then the URL on server would be:

http://localhost/stpscallrecorderplayer

To verify that the site was installed correctly, when you navigate to the site you should see this login screen:
ShoreTel Call Recorder Player Login - Windows Internet Explorer

User ID: 
Password: 

Remember Me? 
Login

ShoreTel, Inc.
Version 2.0.0
ShoreTel Call Recorder Player
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This program is protected by US and international copyright laws.
CANDY\GSchenck
Configure the Player IIS Settings

Once the player web site has been installed you’ll need to run the INETMGR utility to configure the player settings. The player will not function fully until these settings are made.

(A) Configure the Player IIS Settings for Windows server 2003 32 bit

Run INETMGR and locate the STPSCallRecorderPlayer site located under the Web Sites node. Double click to open the STPSCallRecorderPlayer site and locate web.config file. Right click on the web.config file and select Edit with Notepad++:

![Image of INETMGR interface showing STPSCallRecorderPlayer site]

The key fields to set are:
**RoutePoint:**
Set this to the extension of the route point that you created earlier for the player to use. If users will not use the phone to listen to recordings then this can be left empty.

**RecordServers:**
This sets the names and possibly the ports used by the player to access the record servers. By default it will be set to “localhost” which is appropriate if the player is installed on the same PC as the record server and only one record server is being installed. If the record server is installed on a different server than the player then this would need to be changed as appropriate. You would specify the machine name or IP address of the server. If multiple record servers are installed then you will want to list each record server separated by semicolons (";”). Finally, if a record server was configured to use a different port then the default of 3722 then you can specify the port following the server name or IP address separated by a colon (":”). So, for example, if two record servers were installed, one on the server named HQ and the other on the server named DVS1 and the server on DVS1 was installed to use the non-default port of 35555 than the RecordServers application setting would look like this: `HQ;DVS1:35555`

**LogCTI:**
The player has two types of log files it can write to. One is the overall application log and is discussed in the next section of this document. The other is the lower level logging associated with the CTI (Computer Telephony Interface) object used by the player. Typically partners and customers will only enable this lower level logging if requested by ShoreTel Professional Services. The value is set to either “True” or “False”.

```xml
<appSettings>
    <add key="RoutePoint" value="5703" />
    <add key="RecordServers" value="localhost;" />
    <add key="LogCTI" value="False" />
</appSettings>
```
(B) Configure the Player IIS Settings for Windows server 2008 32 bit and 64 bit

Run INETMGR and locate the STPSCallRecorderPlayer site located under the Sites node:
From the IIS Manager, with the site selected, open the Application Settings:

The key fields to set are:

**RoutePoint:** Set this to the extension of the route point that you created earlier for the player to use. If users will not use the phone to listen to recordings then this can be left empty.

**RecordServers:** This sets the names and possibly the ports used by the player to access the record servers. By default it will be set to “localhost” which is appropriate if the player is installed on the same PC as the record server and only one record server is being installed. If the record server is installed on a different server than the player then this would need to be changed as appropriate. You would specify the machine name or IP address of the server. If multiple record servers are installed then you will want to list each record server separated by semicolons (‘;’). Finally, if a record server was configured to use a different port then the default of 3722 then you can specify the port following the server name or IP address separated by a colon (‘:’). So, for example, if two record servers were installed, one on the server named HQ and the other on the server named DVS1 and the server on DVS1 was installed to use the non-default port of 35555 than the RecordServers application setting would look like this:

```
HQ;DVS1:35555
```

**LogCTI:** The player has two types of log files it can write to. One is the overall application log and is discussed in the next section of this document. The other is the lower level logging associated with the CTI (Computer Telephony Interface) object used by the player. Typically partners and customers will only enable this lower level logging if
Now you are ready to log in to ShoreTel Call Recorder Player web site at http://localhost/stpscallrecorderplayer, and the initial ShoreTel Call Recorder Player web page is as below:

![ShoreTel Call Recorder Player - Windows Internet Explorer](image)

### Player Logging

By default, the player writes log files to the Logs subdirectory of its installation directory. The current log file is named STPSCallRecorderWebSite.log with up to 10 previous logs maintained and named with a .1, .2, .3, etc. suffix. The log contains details of startup, shutdown, queries from users and interaction with the phone system when handling phone based playback. If the player web site doesn't appear to be functioning correctly, this log can be examined to determine if any problems have occurred. Assuming that the service was installed by the user in the default location, the log file path will be:

C:\inetpub\wwwroot\STPSCallRecorderPlayer\Logs\STPSCallRecorderWebSite.log

The logging supports a number of levels of logging from ‘none’ through a full debug trace. The log level for the player web site is changed by directly editing the file named log4net.config located in the player web site’s directory. To change the level, edit the log4net.config using a text editor like Notepad and change the level value from INFO to DEBUG as shown here:
As discussed in the previous section, there is also a separate, lower level Computer Telephony Integration (CTI) log. This log should only be enabled if requested by ShoreTel Professional Services, typically when a problem occurs in the field for which more detailed information is required to diagnose.
Client Installation

The client is installed on individual user desktop (client) machines. A client machine is one where the required prerequisite of the ShoreTel Communicator application has already been installed. The Recorder client requires the telephony driver installed by the ShoreTel Communicator client.

The first step is to unzip the file contents, perhaps to a folder on the desktop.

Then run the STPSRecorderClientSetup.exe program. This is required if .NET runtime has not yet been installed. Directly executing the .MSI file will not install the .NET runtime.

When the installation completes, a shortcut icon to run the client program will appear on the Windows desktop:

There will also be a shortcut added to the Program | ShoreTel group accessed from the Windows Start menu.
Record Server Configuration

Once the Record Server installation completes, the user can monitor as well as control the service by using the Windows Services application.

Locate the service named: **STPS Call Recorder**.

By default, the service is automatically started following installation. The service is also configured to automatically run whenever the computer is restarted.

Using the Windows Services application, the user can start and stop the service as well as change the service's Startup type to disable the service from running automatically when Windows is started.

If later the user upgrades the ShoreTel software on the server PC, the best course of action is to stop the service and disable it from running automatically. Then, when the ShoreTel software upgrade is fully completed and any system restarts have been performed, start the service and set the Startup type back to Automatic.

Server Logging

By default, the Call Recorder server writes a log file to the Logs subdirectory of its installation directory. The current log file is named STPSCallRecorder.log with up to 10 previous logs maintained and named with a .1, .2, .3, etc. suffix. The log contains details of service startup and shutdown events as well as any errors encountered. If the service is running but does not appear to be functioning correctly, this log can be examined to determine if any problems have occurred. Assuming that the service was installed by the user in the default location, the log file path will be:

C:\Program Files\ShoreTel\ShoreTel Call Recorder\Logs\STPSCallRecorder.log

The logging supports a number of levels of logging from ‘none’ through a full debug trace. The level of the log can be controlled using the separate administration application. See the configuration section for details of the log settings.
There is also a separate, lower level Computer Telephony Integration (CTI) log. This log should only be enabled if requested by ShoreTel Professional Services, typically when a problem occurs in the field for which more detailed information is required to diagnose. This can also be enabled from the administrative application.

**Record Server Configuration**

As an alternative to using the administration application explained below, the user can directly modify a Record Server's settings in the Windows registry of the computer on which it is installed and then restart the server. This is not as easy as changing the settings via the administration application. All of the configuration changes require the user to directly modify registry entries using the Microsoft supplied regedt32 utility. Following any changes, the Record Server must be restarted for the changes to take effect.

The service's settings are located in the registry at:

HKEY_LOCAL_MACHINE\SOFTWARE\ShoreTel\STPSCallRecorder as shown in the graphic below:

The only setting that a user must change directly in the registry is the AdminPort value. Because the server only listens on this port for the administration application to connect, the administration application itself does
not allow this server setting to be changed. Alternatively, the Record Server can be uninstalled and then reinstalled in order to update the TCP Port used by the server for the administrative application to connect. Administration Application
**Administration Application**

The administration application (admin) is used to initially configure one or more record servers’ settings including settings related to the server and settings for each of the record profiles configured for the server.

The administration application caches various settings when it first connects to a Record Server so if a second administrative user changes the settings, the first user will be unaware of the changes. If the first user then changes any settings, these newest settings will replace the just changed settings. The rule is that the last one to change the settings wins. The refresh button (described below) is provided to force the admin client to re-synchronize with any server connections.

**Initial Configuration**

When the Record Server is first installed, it is running and functional but until it is configured will not record any calls.

The minimum settings that must be configured using the administration application for any calls to be recorded include:

- Licensing
- The Route Point
- The Recorder Extension
- At least one Recording Profile

To configure one or more servers, run the administration application and create a connection to the Record Server(s) you wish to administer.

**Admin Main Window**

To run the administration application, you can double click the desktop shortcut or select the item in the Program | ShoreTel group. When the administration application starts it will display its main window as below. When first run, it will be initially empty but as the user adds connections to servers they will be remembered from run to run.

The above graphic shows the administration application already configured to connect to the Record Server running on the same machine (localhost) on which it is running.
The Status will show *Connected* in green when the administration application is connected to the server. If the administration application is unable to connect, the status will display error text in red. Once the issue that prevents the administration application from connecting is resolved, the user will need to manually force the administration application to try to re-connect to any unconnected servers by pressing the Refresh button.

The main window displays several columns of data. Starting from the left hand side they are:

**Name/IP Address:** The Name or IP Address of the server.

**Port:** The TCP Port on which the Record Server was configured to expect the administration application to connect.

**Status:** The current status of the administration application's connection to the server. This will either be a green background when the status is Connected or a red background with details of the problem.

If the admin can't connect to a record server, typical reasons include:

- The record server is not running.
- The computer where the admin is running has no network connection to the computer on which the record server is running.
- The record server address is incorrect.
- The record server was installed to listen on a different port than the port used to connect from the admin.
- The computer on which the record server is installed has a firewall enabled that is preventing access to the port.
- The record server has crashed or is internally hung. The user should try restarting the service. Whether or not this action clears the problem, the user is requested to please contact ShoreTel Professional Services to determine the root cause of the issue.

The buttons in the main window have the following functions:

**Add...**

To create a new connection to a record server, click the Add... button. This will display the Add Record Server dialog:

![Add Record Server Connection](image)

Enter the Name or IP Address of the Windows machine on which the record server has been installed. If the administration application is installed on the same machine where the record server has been installed you can specify "localhost" as the Name or IP Address. For the TCP Port, unless server was installed to listen on a
non-default port then this should be left set to the default value, 37722. If the server was configured to listen on a different port then this setting should match that value.

When the user clicks “Add…”, the service should be added to the record servers List. The administration application should then automatically connect to the record server and, if successful, display the server's current settings in the other columns.

Edit...

If the user wishes to change the location of an existing record server, he should click Edit with the server selected. The dialog will be the same as the Add Record Server dialog but entitled Edit Record Server.

The user can also double click an unconnected record server to display the Edit… dialog.

Delete...To delete a record server from the list of configured record servers, select it in the record servers list and click Delete. The user should click Yes when asked to confirm the deletion:

Settings...

To actually configure the record server's settings, click the Settings... button. A record server must be selected in the list of record servers and the administration application must be currently connected to the record server otherwise the user will receive the below message:

The user can also double click a connected record server to open its Settings… dialog. See the next section on the server settings for more details describing the record server configuration.

Refresh

Because the administration application can be installed and run on multiple desktops simultaneously, the refresh button is provided to force the admin client to synchronize itself with any changes made to the settings of any record servers.

If a record server disconnects from the administration application (perhaps because it has been restarted,) pressing the Refresh button will cause the application to attempt to reconnect to the record server.
Admin Server Dialog

When the record server settings are opened the server dialog is displayed as below:

As shown at the top of the dialog, there are two tabs associated with a record server:
- Server Settings which control the overall behavior of the record server
- Record Profiles which control the specific rules that determine when calls are recorded and where these recordings are saved.

Server Settings Tab

The dialog initially shows the server Record Profiles tab which lists the Record Profiles configured on this record server. In this case (because the record server was just installed) the list is empty. The server settings are accessed by clicking the Server Settings tab at the top of the dialog. The below graphic shows the Server Settings tab:
The Route Point and Record Extension settings must both be set for the Record Server to be able function.

**Licenses**

The Record Server is a licensed product. It requires that the ShoreTel Professional Services Application License Server be installed on the customer's ShoreTel Headquarters server and that a license for the ShoreTel Call Recorder has been added to the Application License Server via its web based interface. One license is consumed per simultaneous call being recorded. For example, if the maximum number of simultaneous calls to be recorded was 25 then at least 25 licenses would need to be purchased.

If multiple record servers will be installed and used then the total number of licenses requested by all of the record servers must be less than or equal to the total available licenses configured on the ShoreTel Application License Server.

The record server must have a connection to the Application License server when it starts. The Application License server runs on the customer's ShoreTel Headquarters server. If a record server is successful contacting to the license server at start up and retrieves its license but subsequently loses its connection the customer will have three days to correct the problem. If, after three days the connection has still not been restored or some other problem exists with the licensing software, then the previously retrieved license count will be reset and recording of new calls will cease. Once the license server is restarted or the connection...
restored the call recorder should automatically detect the change and synchronize its license with the result that recording should resume for new calls.

Extension Length
The extension length is normally left blank unless the customer’s ShoreTel phone system is configured to use On Net Dialing (i.e., numbers with dashes.) If On Net Dialing is enabled then the number of digits in the extension portions of the number must be selected here. For example, if internal numbers look like this:

321-7654

Then the extension length must be set to 4 (i.e., the length of the “7654”.)

Note that anywhere internal numbers are entered such as the Route Point, Record Extension and stations extensions, these MUST be entered without the dash character!

Route Point
The record server relies upon a ShoreTel route point for directing the recording calls it creates based on access to an external call's media stream. A route point in ShoreTel is a special type of extension that is used by applications like this one. To create the route point, the user should invoke ShoreTel Director and select "Call Control", "Route Points" and then "Add new". The main setting to be concerned with is the Call Stack Depth. The user should set this parameter to the maximum number of simultaneous calls this Record Server is expected to handle at any one time. Specifically this should probably be set to a value equal or greater than the number of licenses configured for this record server. If the record server attempts to record more calls than the call stack allows, the additional record requests will fail and no recordings will result. If this happens the only external indication would be the absence of the recording beep assuming the beep is enabled. The server will write an error message to its log similar to this:

[04/15/11 08:48:26.646] ERROR: ST 211: Call 66692: Unable to record call. 5 licenses available but currently recording 5 calls

Record Extension (aka the Surrogate Extension)
The Record Server needs a second extension to actually submit the record request to the ShoreTel phone system. This can be a user station extension, including a user assigned to the soft switch or a phone which is not connected. The key point is that this user must belong to a "User Group" which has as part of its "COS - Telephony" the "Allow Initiation" checked under the "Record Others Calls" section.

As recommended in the prerequisites section it may be easiest to create a special user unassigned to any physical phone expressly for the purpose of providing the surrogate record extension for use by this application.

Wait for far end to answer on outbound calls
Normally, if an outbound call is going to be recorded, the recording will start as soon as the call reports a connected call state. This will typically result in some ringback being recorded before the called party answers and the conversation starts. However, if the customer is using trunk types like PRI that report the ‘Far End Answered’ call state after the connected call state then checking this setting will cause the Record Server to wait to start recording until the Far End Answered call state. Of course, if the trunks do not provide this event then no outbound calls will be recorded.

Silent recording default
Normally, the ShoreTel system plays a periodic beep tone whenever a call is being recorded. Enabling this option sets the default value for record profiles that have their equivalent setting set to “Default” (see the section below which covers the record profile settings.) Calls recorded with this option enabled will not hear the periodic recording beep. In addition, if this option is enabled, internal users running ShoreTel Communicator will not see indications showing that their call is being recorded. It is up to the customer to ensure compliance with applicable laws related to notification of call recording. Note that this setting sets the default. Individual call profiles can explicitly select silent or non-silent recordings although if any profile which causes a given call to be recorded doesn’t request silent recording then the recording is not silent.

**Customer stop record key default**

If desired, record profiles can be configured with a stop recording key. This server setting sets the default value that is used by recording profiles which select the “Default” choice for the stop recording key. This is the key that the external party on the call can use to stop the recording. Typically external parties would be told that this option was available to them as part of an inbound or outbound IVR before they are connected to a station and potentially recorded. Like the silent recording option, this sets the default value but individual record profiles can override it. Note that if multiple record profiles request different stop recording keys then the last profiles stop recording key processed when the recording starts will be used.

**Root file storage path for new record profiles**

When a new record profile is created, the file storage settings for the profile will use this root value as the base path location for storing recordings. A record profile has additional settings that allow a custom sub-folder tree and file name to be constructed. In addition, while this is provided as the root path for new record profiles, an administrator is free to alter the location to specify a completely different location. For a new record server, this path defaults to the Recordings subdirectory of the server’s installation location.

**Min recording length (seconds)**

If a recording is shorter than this time in seconds then it is automatically discarded. The default setting is two seconds. That is, if the recording is two seconds or less it is discarded.

**Max recording length (seconds)**

Any recording which lasts longer than this time is automatically stopped. The call is allowed to continue but the recording is completed and saved based on the Record Profile(s) settings. The default is 3600 seconds or one hour. There is effectively no upper limit on recording size.

**Trunk & LD Code**

In order to be able to compare the connected (caller or called) ID of a call, the Record Server needs to be able to remove the trunk and long distance access codes from the front of the number. These settings should be set to the customer’s trunk access code and long distance code. Typically the trunk access code would be 9 or 8 and the long distance code would be 1 for North American dialing plan customers.

**Application Log Level**

This controls the level of detail included in events written to the record server’s log. See the section above on Server Logging. Levels range from Off (no logging) through DEBUG (full logging.)

**Log low level telephony messages**

If this option is checked, a separate lower level log file is also written to the Logs directory of the application's installation directory. This setting should only be enabled if requested by ShoreTel during the course of troubleshooting issues.
Recording Profiles Tab

The primary tab of the Server Dialog lists the currently configured record profiles. The graphic below shows an example with several record profiles:

From this tab the user can add, copy, edit and delete record profiles.

Delete...

Pressing the Delete… button with a record profile selected in the list will display this dialog:

Click Yes to proceed with immediately removal of the Recording Profile or No to cancel.

Add, Copy, and Edit

These all open the Recording Profile edit dialog titled as appropriate to the action. See the next section on the Recording Profile dialog. The user can also edit a Recording Profile by double clicking it.
Recording Profile Dialog

If the user edits an existing Recording Profile or adds or copies a new one he will use the Recording Profile dialog to configure it. The graphic below shows the dialog:

The layout of the dialog reflects the order that the record server will use the data as part of potentially recording a call on behalf of a given Record Profile.

Name

The name is provided mainly so administrators can refer to a specific Record Profile in a way that makes sense based on the reason for the profile. It will also show up in the log when the server carries out actions...
based on the profile and so can be helpful for understanding the operation of the server as well as perhaps tracking down bugs or issues.

**Enabled**

If this setting is not checked then the record profile is ignored by the server. Enabled record profiles are shown in the recording profiles tab as bolded red text. Disabled record profiles are shown as light gray.

**Users and User Ranges to Record**

This setting lists the extension ranges and/or specific extensions that this record profile will monitor for possible call recording. To have a record profile apply to all stations in the system, one could use an extension range from the lowest possible station extension to the highest. Note: Where possible, using ranges rather than individual extensions will simplify administration. This is because if a new user is added to the system, as long as his extension falls into the range(s) of existing record profiles his calls will be evaluated for recording. In contrast, if individual extensions are used, an administrator would need to go in and explicitly add the new user to the appropriate record profiles.

**Delete**

To delete extensions and ranges, the user should select them in the list (one can select multiple entries with Ctrl and Shift + click) and then click this button.

**Stations...**

To pick individual stations from a list rather than explicitly enter them, the user can click this button. Stations included by virtue of their extension falling into a range that is part of the Recording Profile will not be shown as checked. This dialog only handles displaying the individual extensions. The graphic below shows the dialog on a small system:
Note that the user can sort by name or extension in ascending or descending order by clicking the corresponding column header.

**Extension or Range**

Here the user can enter a new extension or range of extensions. Examples of valid inputs are: "213" or "192" or "100-299" or "100-999". These would be appropriate on a system with three digit dialing. On systems with more digits, the user would of course enter more digits for the extensions and ranges.

**Add**

Click this to actually add the entered extension or range to the list. The user can also press the enter key while typing in the *Extension or Range* entry field.

**Record Filter...**

Click this to open the *Record Filter* Dialog. This dialog allows configuring specific details of the calls that this Record Profile should record. By default, new profiles are set to record all inbound and outbound calls. See the section below on the *Record Filter* Dialog.

**Schedule Enabled**

Click this to enable a weekly schedule to control when the recording profile is active. If this isn’t checked then calls will be recorded regardless of the day of the week or the time of day. If schedule based recording is desired then in addition to checking Schedule Enabled, you will also want to click the Schedule… button to configure the days and times when calls should be recorded. By default, new profiles do not have schedule based recording enabled.
Schedule...

Click this to open the Schedule Dialog. This dialog allows configuring the days of the week and times for each day when recording should be enabled and when it should be disabled. By default, new profiles do not have schedule based recording enabled. The default schedule has no items and therefore all calls will be recorded until some schedule is configured. See the section below on the Schedule Dialog.

Percentage of calls to record

New record profiles are set to record all of the calls (100%) that match the Record Filter. If users wish to record fewer calls, they should set this percentage value as appropriate. For example, to record only half of the calls, this value would be set to 50.

Save Filter...

Click this to open the Save Filter Dialog. This dialog allows a post-recording decision as to if the recording should actually be saved. By default, new Record Profiles are set to not filter at save time. See the section below on the Save Filter Dialog.

Storage Settings

This collection of controls determines where recordings made by this profile will actually be saved. A Recording Profile can store the result to a wave file or insert it as a voice mail message into the ShoreTel voicemail system or both. In order to save the changes to a profile, the user must select one of the two storage options.

Save as file

If checked, the recording will be saved as a wave file into a location in the file system. The actual location including possibly a folder structure based on the call data and a file name incorporating call data is controlled by the File Settings Dialog.

File Settings...

Click this to open the File Settings Dialog. This dialog supports the configuration of the root directory location where recordings will be stored. It also allows the configuration of a dynamic sub-folder hierarchy and file name generation both potentially based on specific call data. See the section below on the File Settings Dialog.

Player Settings...

Click this to open the Player Settings Dialog. This dialog controls whether users can view and listen to recordings made on their behalves and also possibly delete recordings. In addition it supports the creation of administrative users who are also allowed to view and listen to the recordings and optionally delete the recordings. See the section below on the Player Settings Dialog.

Save as voice mail

If this setting is checked, the recording will be inserted into a ShoreTel voicemail box. The mailbox to insert the recording into along with the "From" and "Subject" fields of the resulting voice mail can be set using the Voice Mail Settings Dialog.
Voice Mail Settings...

Click this to open the Voice Mail Settings Dialog. This dialog allows for configuration of the mailbox where recordings will be stored. It also allows the configuration of dynamic "From" and "Subject" fields based on specific call data. See the section below on the Voice Mail Settings Dialog.

Save and Close

Click to update the record server with the changes to the settings and close this dialog.

Save

Click to update the record server with the changes to the settings.

Close

Click to close the dialog. If there are unsaved settings, the user will be prompted to accept losing changes or cancel and return to save changes.

Record Filter Dialog

Clicking on the Record Filter... button in the Recording Profiles edit dialog brings up the Record Filter Dialog:
This dialog is used to control which calls will actually be recorded. Usually a call profile will not enable more than one filter at the same time but if such is configured, the filters all apply and the result is presumably a more restrictive Recording Profile.

**Call Direction**

Here the user selects which direction calls should be recorded, inbound or outbound or both. Note that calls transferred to a ShoreTel user are considered inbound even if they were placed as outbound calls by the transferring party. The user can further filter the calls based on the Connected ID and Call Property but can only filter by the transferring Group or the DNIS ID for profiles which only handle inbound calls.

**Record Inbound Calls**

Check to have the profile record inbound calls.
Record Outbound Calls
Check to have the profile record outbound calls.

Filter by Connected ID
Check this to determine which calls should be recorded based on the connected ID. Connected ID is the caller ID (ANI) for inbound calls and is the Called number for outbound calls. The number should be entered without a trunk or long distance code. Generally, in North American dialing plan areas this would mean an exact match would need a 10 digit number. This filter also supports matching based on just a prefix. This allows the entry for example of just an area code to record calls from that area code. Note that the Record Server settings for Trunk and LD Code must be set correctly for this filter to work correctly.

The list displays the current connected IDs, if any, configured to be matched. In this example, the filter is set up to record 911 calls and so is set to match on a connected ID of 911.

Delete
To delete connected IDs and prefixes, the user should select them in the list (one can select multiple entries with Ctrl and Shift + click) and then click this button.

Number or Number Prefix
Here the user enters a connected ID to match or a prefix to match. For example, "203 261-1234" or "504" or "(800) 555-1212". Note that non-numeric characters are ignored.

Add
Click this to actually add the entered number or number prefix to the list. The user can also press the enter key while typing in the Number or Number Prefix entry field.

Record callers who are NOT in the list
Check this to have the list act in reverse, that is as an opt-out list rather than the more typical opt-in list. Checking this will result in a Record Profile that records all calls except calls that are to/from numbers or prefixes in the connected ID list. Note that other filtering could limit the actual calls recorded even more.

Record calls with empty connected IDs
Check this to record callers that present with an empty caller ID. This condition would be typically caused by trunk not transmitting the information or a blocked or out of area caller. Note that if a Connected ID filter is active that calls without a connected ID will only be recorded if this option is enabled.

Filter by Call Property
Check this if in order to filter which calls are recorded based on the existence of a ShoreTel call property set to any value or set to a specific value. A ShoreTel call property is a special feature of the ShoreTel phone system. Some applications automatically set certain call properties to certain values. In addition, it is possible for developers using the ShoreTel SDK or ShoreTel Professional Services to develop custom applications such as IVRs or client programs that can also set call properties to trigger call recording. The graphic below shows an example of a call property filter to record all calls that the ShoreTel Salesforce.com Adapter tagged at the time the call was made or before it was answered:
Call Property Name
This parameter contains the name of the ShoreTel call property. Because original versions of the ShoreTel software only supported properties with names that started with _ST, this convention is still generally used.

Call Property Value
This parameter contains the call property value. If this is empty then any non-empty value for the named call property will be considered a match and the call will be recorded subject to other filter settings. Otherwise, the call will only be considered a match if the call property value matches this specific value.

Filter by Group (Inbound calls only)
Check this setting to filter which calls are recorded based on where the call was forwarded from. Typically the “forward from” extension would be a group but the user can also use station extensions or other extension types within the system to record based on the forwarding extension. The graphic below shows an example of a group filter that records calls to the specific groups shown:

Delete...
To delete group extensions and ranges, select them in the list (the user can select multiple entries with Ctrl and Shift + click) and then click this button.

ECC/RPs...
Click this button to pick individual ShoreTel Contact Center groups (aka ShoreTel Route Points) from a list rather than enter them. A dialog similar to the dialog used to select the station to record for the profile will be displayed showing the Route Points in the system.
Work...

Click this button to pick individual ShoreTel Workgroup Extensions from a list rather than enter them. A dialog similar to the dialog used to select the station to record for the profile will be displayed showing the Workgroups in the system.

Hunt...

Click this button to pick individual ShoreTel Hunt Group Extensions from a list rather than enter them. A dialog similar to the dialog used to select the station to record for the profile will be displayed showing the Hunt Groups in the system.

Extension or Range

Here the user can enter a new forwarding extension or range of extensions. Examples of valid inputs are: "158" or "187" or "300-399" or "400-409". These would be appropriate on a system with three digit dialing. On systems with more digits the user would of course enter more digits for the extensions and ranges.

Add

Click this button to actually add the entered extension or range to the list. The user can also press the enter key while typing in the Extension or Range entry field.

Filter by DNIS ID (Inbound calls only)

Check this box to filter which calls are recorded based on DNIS ID. The DNIS ID stands for the Dialed Number Identification Service and represents the number dialed by the calling party. In many cases, for example, 800 numbers will be configured as the DNIS ID to present with a call. Note that (unlike the connected ID filter,) the DNIS ID filter is an exact match including any formatting. There is no automatic cleanup of the number or removal of a trunk or long distance code. The graphic below shows an example of a DNIS ID filter:
Delete...
To delete DNIS IDs, select them in the list (users can select multiple entries with Ctrl and Shift + click) and then click this button.

DNIS ID
Here the user can enter a new DNIS IDs.

Add
Click this button to actually add the DNIS IDs to the list. The user can also press the enter key while typing in the DNIS ID entry field.

OK
Press OK to accept changes and close the dialog. Note that the changes are not updated at the server unless and until the Recording Profile is saved.

Cancel
Press Cancel to discard changes and close the dialog.

Schedule Dialog
Enabling the Schedule check box also enabled the Schedule… button. Clicking the Schedule… button opens the Schedule Dialog:

The schedule dialog allows the configuration of a weekly schedule to control when the schedule will be active. By default, record profiles are active 24 hours a day, seven days a week but enabling and configuring the
record schedule allows this period to be restricted. For example, the above screen shot shows a schedule that would record calls from 8 AM to 5 PM, Monday to Friday.

The Schedule dialog has the following fields and controls:

**Schedule**

This list shows the currently configured schedule. If more items are shown then can fit, scroll bars are automatically added. Users can either scroll the view to see the desired schedule items or they can expand the size of the window as needed. Schedule items that enable recording (Active status) are shown in green where schedule items that disable recording (Inactive status) are shown in red. You will generally want to add schedule items in pairs with the first item enabling recording at the start of a period and a second item disabling recording at the end of the period.

Note that you can rapidly add repeating schedule items for consecutive days by entering the first items and then updating just the Day field and clicking Add again. For example, to quickly add the above items you could enter the Active item at 8:00 AM Monday and then change the Day to Tuesday, click Add, and so on through Friday. Similarly you could add the Inactive items by adding the first item at 5:00 PM Monday and then change the Day to Tuesday, click Add, and so on through Friday.

**Day**

Select the day of the week (Monday to Sunday) on which this schedule item will begin.

**Time**

Select the time when this schedule item will start.

**Active**

Check the Active checkbox if this schedule item enables recording at the specified day and time. Uncheck if this schedule item disables recording at the specified day and time.

**Add**

Click the Add button to add a new schedule item at the specified day, time and type (active or inactive.) If a schedule item matches the day and time of an existing item then this will just change the status assuming the added item has a different status then the existing item.

**Delete**

Select one or more items in the Schedule list using Ctrl + Click and/or Shift + Click and click the Delete button to remove them.

**Save Filter Dialog**

Clicking on the *Save Filter...* button in the *Recording Profiles* edit dialog brings up the *Save Filter* Dialog:
This dialog is used to control which call recording will actually be saved. This allows a Recording Profile to proceed with recording calls but to then determine at the time the call disconnects whether or not to save the recording.

**Filter by Call Property**

Check this box to filter which call recordings are saved based on the existence of a ShoreTel call property either set to any value or set to a specific value. The above graphic shows an example of a call property filter to record all calls that the ShoreTel Salesforce.com connector tagged at some point before the call disconnected.

**Call Property Name**

This field contains the name of the ShoreTel call property.

**Call Property Value**

This field contains the call property value. If this field is empty, any non-empty value for the named call property will be considered a match and the call will be recorded subject to other filter settings. Otherwise, the call will be considered a match only if the call property value matches this specific value.

**Allow Record Client users to control saving**

Check this box to enable the ShoreTel Recorder Client application to allow the user to toggle the saving of the call's recording while connected on the call. If this option is not checked then the recording will always be saved (assuming the Save Filter's Filter by Call Property option is not enabled) for this profile. Even if other profiles that have this option enabled this won’t affect the decision to save this record profile’s recordings.

**File Settings Dialog**

Clicking on the File Settings... button in the Recording Profiles edit dialog’s Storage Settings pane brings up the File Storage Settings Dialog:
This dialog is used to control three aspects of how the recording is saved by the Recording Profile:
- The root file storage path
- The folder template
- The file template

The three parts together are used to determine the ultimate storage full file path and file name. The folder and file template can be used to cause the Record Server to dynamically generate a storage location for the recordings as well as a file names using data that is part of the actual calls. This will allow record profiles to store files based on aspects such as the workgroup that forwarded the call, the DNIS ID of the call, the
connected ID of the call, or the internal user extension and name from the call as well as a number of other values. In addition, the "Property" template variable supports the ability to insert the contents of a specific ShoreTel call property as part of the generated folders or file names. Similarly the "Text" template variable supports the insertion of a fixed text string.

**Unique File Names**

In order to avoid collisions with file names the Call Recorder will automatically generate a serial number suffix for the file name if the generated file name matches an existing file in the storage folder. For example, if a recording was named using the UserExtensionName template and this resulted in a file name of:

2129(Nancy Agent).wav

And then a second call was recorded for the same agent then this call would be named:

2129(Nancy Agent).1.wav

If another recording was saved for the agent it would be named:

2129(Nancy Agent).2.wav

And so on.

**File Storage Path**

This parameter specifies the root path under which all files will be stored. This path is relative to the record server itself, and not to where the administration application is being run. It defaults to the value in the record server's *Root file storage path for new record profiles* server setting. This in turn defaults to the Recordings subdirectory of the application's installation directory.

**Folder Template**

This is used to construct zero or more subfolders to contain the actual recording file. The actual template is defined by the order and contents of the values in the right hand list. The available variables are on the left. Each variable results in a corresponding subfolder. The graphic below shows an example of a Folder Template constructed to store the recording in a folder based on the user's extension and name and then under that, based on the call direction (In or Out):

![Folder Template Example]

**Add >>**

Click to add a variable selected on the left to the current template list on the right. Except for the Property and Text variables, the variable is also removed from the list of available variables from the list on the left. Adding
the Property variable causes the dialog depicted below to appear, prompting for the name of the ShoreTel call property whose values should be used to replace the corresponding variable if/when a recording is saved:

![Add Call Property](image)

Enter the name of a property and click OK or press Cancel to not add the property variable. Similarly, adding the Text variable causes the below dialog to appear, prompting for the text to use as the folder name:

![Add Text](image)

Double clicking a variable in the left hand list is the same as clicking Add >> with the variable selected.

**<< Remove**

Click to remove a value selected in the current template list on the right and possibly to restore it to the list of available variables on the left. Double clicking a variable in the right hand list is the same as clicking << Remove with the value selected.

**Up**

Click this to move a value selected in the right hand list up relative to other values in the list. The order of values in the right hand template list determines the order of folders generated as needed when the recording is stored.

**Down**

Click this button to move a value selected in the right hand list down relative to other values in the list.

**Example**

The graphic below shows the template for the folder that would be constructed to save the recording file in a more user-friendly view. This reflects the order and contents of the values in the right hand list. The example shown in the above folder template shows an example of the folders that would be created given the values in the right hand list:

Example: `\UserExtensionName\Direction\`
**File Template**

This dialog is used to construct a file name to be assigned to a stored recording. The file name can be assembled from the same variables as used to define the folder layout. The actual file name template is defined by the order and contents of the values in the right hand list. The available variables are on the left. Each variable results in a corresponding name part. Name parts are separated by spaces unless they resolve to an empty string in which case no space is inserted. The below graphic shows an example of a file name template that constructs the file name from a Text variable, a Property variable and a GUID variable. Note that Text variables are shown as quoted strings in the value list on the right:

![File Template Diagram](image)

**Add >>**

Click to add a variable selected on the left to the current template list on the right. Except for the Property and Text variables, the selected variable is removed from the list of available variables from the list on the left. Like the folder template, the Property and Text variables prompt for the respective property name or text. Double clicking a variable in the left hand list is the same as clicking Add >> with the variable selected.

**<< Remove**

Click to remove a value selected in the current template list on the right and possibly restore it to the list of available variables on the left. Double clicking a variable in the right hand list is the same as clicking << Remove with the value selected.

**Up**

Click this to move a value selected in the right hand list up relative to other values in the list. The order of values in the right hand template list determines the order of the information used when forming the file name when the recording is saved.

**Down**

Click this to move a value selected in the right hand list down relative to other values in the list.

**Example**

The graphic below shows the template for the folder that would be constructed to contain the recording file in a user friendly view. It reflects the order and contents of the values in the right hand list. The example shown in the above file template shows an example of the file name that would be created given the values in the right hand list. Note that ".wav" is automatically provided:
Full Path Example

The graphic below shows the full path where the File Storage Path is combined with the Folder Template and with the File Template. For example, given the settings above this is what the full path example would show:

Example: \SALESFORCE Property\ST_SF\LOG\WHO1GUID.wav

Show examples with sample data instead of variable names

Checking this box toggles the display in this and the Voice Mail storage dialogs to show sample data in the examples rather than the variable names. This allows a better appreciation of the kind of folders and file names that can be created. The below graphics shows the above examples with this option enabled:

Example: \2129\Nancy.Agent\In\SALESFORCE.Call.Property.Value.00020000-0001-49C7-9726-001049005070.wav

This just affects the file storage dialog's user interface. It does not affect the operation of the record server.

As an example of these specific storage values, the below graphic shows an actual call recording file made and recorded by this Record Profile. Note the location as well as the name of the file:
Player Settings Dialog

Clicking on the Player Settings... button in the Recording Profiles edit dialog’s Storage Settings pane brings up the Player Settings Dialog:

This dialog is used to control who can use the player application to review and possibly delete recordings made by this recording profile.
Users can view and listen to recordings

If this is checked then users can review and listen to recordings made on their behalves by this recording profile. If this is not checked then users will not be able to review and listen to their recordings unless they are configured explicitly as administrative users.

Restrict view to UserExtension or UserExtensionName folder and below

If this is checked then users can only see files in their extension based folder or below. Recordings made by this recording profile on behalf of other users will not be visible. This can only be checked if the choice to allow users to view and listen to their recordings is checked. In addition, this option only has value if the file storage folder hierarchy includes either the UserExtension or the UserExtensionName folder.

Users can delete files

If this is checked then users are allowed to delete any files they can see. This can only be checked if the choice to allow users to view and listen to their recordings is checked.

Administrative Users who can view and Delete

This allows the configuration of the users who can view, listen to, and delete files. Administrative users will have access to all of the files recorded by the recording profile. Even if the file storage hierarchy includes the UserExtension or UserExtensionName folder, administrative users will have access to all of the files. If an administrative user also happens to have their calls recorded by the recording profile then their administrative privileges take precedence over their normal user privileges.

Administrative Users who can only view

This allows configuration of a separate list of administrative users who can view all of the recordings but can’t delete them.

Voice Mail Settings Dialog

Clicking on the Voice Mail Settings... button in the Recording Profiles edit dialog’s Storage Settings pane brings up the Voice Mail Storage Filter Dialog:
This dialog is used to control three aspects of how the recording is inserted into the ShoreTel Voice Mail system by the Recording Profile:

- The mailbox into which to insert the recording
- The "From" text template
- The "Subject" text template

The *From* and *Subject* text templates are assembled in a very similar fashion to how the corresponding folder and file name templates are assembled in the *File Storage* Dialog described in the previous section. The difference is that the *From* and *Subject* templates are used to assemble the text that is passed along with the recording file to the voice mail system when the recording is inserted. The ShoreTel voice mail system will use
the two text strings as the corresponding fields when the voice mail is viewed, for example, from within ShoreTel Communicator.

Voice Mail Box
This group of settings controls in which voice mail box(es) recordings are stored.

Save voice mails in each user’s mailbox
If this choice is selected then recordings are stored in the mailbox associated with the user’s extension that the call was on when it was recorded.

Save voice mails in a specific mailbox
If this choice is selected then all of the recordings made by this Recording Profile will be stored in the same mailbox.

Mailbox
If the Save voice mails in a specific mailbox choice is selected then this parameter defines the extension of the mailbox into which the recordings should be inserted.

From Template (Note: Only the first 21 characters of the formed string are used)
This is used to construct the “From” text that is associated with the recording when it is inserted into the ShoreTel voice mail system. The actual template is defined by the order and contents of the values in the right hand list. The available variables are on the left. Each variable results in a corresponding text part. Text parts are separated by spaces unless they resolve to an empty string in which case no space is inserted. This shows an example of a From template that constructs the text from the call Direction and the ConnectedID and Name:

Add >>
Click to add a variable selected on the left to the current template list on the right. Except for the Property and Text variables, the variable is also removed from the list of available variables from the list on the left. The Property and Text variables prompt for the respective property name or text. Double clicking a variable in the left hand list is the same as clicking Add >> with the variable selected.
Remove
Click to remove a value selected in the current template list on the right and possibly restore it to the list of available variables on the left. Double clicking a variable in the right hand list is the same as clicking << Remove with the value selected.

Up
Click to move a value selected in the right hand list up relative to other values in the list. The order of values in the right hand template list determines the order of the information used when forming the From text when the recording is saved.

Down
Click to move a value selected in the right hand list down relative to other values in the list.

Example
The below graphic shows the template for the "From" text that would be constructed and used when the recording is inserted into the voice mail system. This reflects the order and contents of the values in the right hand list. The example shown in the above file template shows an example of the “From” text that would be created given the values in the right hand list:

Subject Template (Note: Only the first 100 characters of the formed string are used)
This is used to construct the “Subject” text that is associated with the recording when it is inserted into the ShoreTel voice mail system. The actual template is defined by the order and contents of the values in the right hand list. The available variables are on the left. Each variable results in a corresponding text part. Text parts are separated by spaces unless they resolve to an empty string in which case no space is inserted. The graphic below shows an example of a From template that constructs the text from a Text variable followed by the contents of a call property:

Add >>
Click to add a variable selected on the left to the current template list on the right. Except for the Property and Text variables, the variable is also removed from the list of available variables from the list on the left. The
Property and Text variables prompt for the respective property name or text. Double clicking a variable in the left hand list is the same as clicking Add >> with the variable selected.

<< Remove
Click to remove a value selected in the current template list on the right and possible restore it to the list of available variables on the left. Double clicking a variable in the right hand list is the same as clicking << Remove with the value selected.

Up
Click to move a value selected in the right hand list up relative to other values in the list. The order of values in the right hand template list determines the order of the information used when forming the From text when the recording is saved.

Down
Click to move a value selected in the right hand list down relative to other values in the list.

Example
This diagram below shows the template for the "From" text that would be constructed and used when the recording is inserted into the voice mail system and reflects the order and contents of the values in the right hand list. The example shown in the above file template shows an example of the From text that would be created given the values in the right hand list:

Show examples with sample data instead of variable names
Checking this box toggles the display in this and the File system storage dialogs to show sample data in the examples rather than the variable names, thus allowing a better appreciation of the kind of folders and file names that can be created. The below graphic shows the above examples with this option enabled:

<table>
<thead>
<tr>
<th>Example:</th>
<th>In 4083313000JOHN CUSTOMER!</th>
</tr>
</thead>
<tbody>
<tr>
<td>Example:</td>
<td>Salesforce: Call Property Value</td>
</tr>
</tbody>
</table>

This setting only affects the administrative user interface. It does not affect the operation of the Record Server or the Recording Profile being edited.

As an example of these specific storage values, the below graphic shows an actual call recording inserted into the ShoreTel voice mail system and the corresponding details as shown in ShoreTel Communicator:
Client Application

Overview

The client application is used to allow individual users to decide, at the time a call disconnects, if the recording should be saved. Users are only able to control the decision to save recordings for calls that are recorded by the ShoreTel Call Recorder and only if there is at least one recording profile recording the call that has the Record Profile’s Save Filter setting “Allow Record Client users to control saving” enabled.

The client normally runs from the user's system tray and when the user can control recording on the currently connected call then the icon will change to reflect the current save status. The user can toggle the status by left clicking the tray icon. If the status is correctly changed, the icon will immediately update to reflect the changed state. The user is free to toggle back and forth as many times as they want until the call disconnects. At that point, the last setting is the one used and the recording is either retained or discarded.

Note that only those record profiles that allow the user to control saving will discard a recording if requested by a user. Record profiles that don't give the user control will still save a copy of the recording.

Initial Configuration

If you are running the client on a ShoreTel server or in a Windows Terminal Services or Citrix environment rather than in the more typical client PC environment, there is one initial setting you'll need to make before the client will function correctly. Specifically you need to go to the client settings (right click the tray icon and select "Settings..." from the context menu) and change the Phone Extension to match your specific extension:
This setting is not needed and should not be made for normal client machines.

The Tray Icon

The tray icon displays several states based on the state of the user's phone and the current save setting when a call is connected and being recorded by the ShoreTel Record Server and when the user is allowed to control the save decision.

- **Client's phone is either disconnected or out of service.** This could be caused due to the phone being unplugged or perhaps a network problem.
- **Client is connected to the user's phone but there is not currently an ongoing call to control the recording status of.**
- **Client is being recorded and recording will be saved when the call disconnects.** The user can left click the tray icon to not save the recording.
- **Client is being recorded and recording will NOT be saved when the call disconnects.** The user can left click the tray icon to save the recording.
When a call is being recorded and the user can control the saving, hovering the mouse over the tray icon will display the current caller (if known) or called phone number along with the current state of the saving, for example:

203261211: Recording will be saved when call disconnects
203261211: Recording will NOT be saved when call disconnects

The Context Menu

Right clicking the tray icon will display the application’s context menu:

- Open...
- Settings...
- Exit

Open...

Selecting Open... will open the main window of the client. This primarily shows the application’s log and provides some control over the logging as well as access to the application settings. In addition, it includes a button to also change the save status of the currently recording call (if any):

![ShoreTel Call Recorder Client](image)

Not Recording, Save and Don’t Save

This button along with the tray icon, application icons and title will all change to reflect when a call is being recorded and whether it will be saved or not. This shows the four possible states of the user interface which correspond to the above four tray icon states:
When a call is being recorded and the current setting is to NOT save the recording when the call disconnects a user can click the Save button to toggle the setting.

When a call is being recorded and the current setting is to save the recording when the call disconnects a user can click the Don't Save button to toggle the setting.

**Log Level**
Sets the log level of the client from NONE to DEBUG. The default, INFO will log the recording setting for each call that is recorded and anytime a user changes the setting this will also be logged. DEBUG logging should be enabled if the application has problems or if we (ShoreTel Professional Services) need to work with you regarding a problem.

**Clear Log**
Clear Log clears the current log view. This can be used before a test to remove earlier logging.

**Settings...**
Opens the Settings dialog (see below.)

**Settings Dialog**
The application settings are accessed either by right clicking the tray icon and selecting Settings... or by pressing the Settings... button from the application's main window. This shows the application settings:
Default for new calls
These two settings, Save recordings of calls I receive and Save recordings of calls I make, allow a user to set the initial default for new calls. As shown, this user wants the client to assume they want to save all recordings of calls, both inbound and outbound. Note that this just sets the default. While connected to the caller, the user is free to toggle the setting using the client.

Don’t save recordings to or from these numbers
These settings allow you to enter phone numbers of calls for which the client should not save recordings. You can check the number for an inbound or outbound call by hovering the mouse over the tray icon while on a call. If known, the phone number will be displayed in the pop-up. To enter a new number, enter it in the field under the list and press enter or click the Add button. To delete a number from the list select it and click the Delete button.

Phone
This field was discussed in the section on Initial Configuration above.
Auto-start client when user logs into Windows
Checking this option will cause the client to be run automatically whenever this user logs into Windows.

Log Low level CTI activity
In addition to the regular application log shown in the client's main window, there is a second lower level log that logs details of the ShoreTel Computer Telephony interface used by this application. This logging should normally only be enabled when requested by ShoreTel Professional Services in relation to a suspected problem.

Exit
Selecting the Exit option from the context menu exits the application. This is the only way to shutdown the client. Closing the main Window just "hides" the application but the application continues to run and will remain in the user's Windows tray.
Call Recorder Player

The ShoreTel Call Recorder Player web application can be installed on the same server as the record server or it can be installed on a separate ShoreTel server.

The player allows users to view those recordings to which they have permission to listen and download. Depending on their privileges, users may also be allowed to delete recordings. In addition, depending on configuration, users can access recordings made on behalf of other users if they have administrative control as set using the server admin program.

Because the player communicates with the server to provide storage folder details it will only work correctly if the record server is running.

Login

To start the application, execute this URL substituting the machine name or IP address of the ShoreTel server for localhost. This example shows the server as “localhost” which would be appropriate if you are accessing the player web site directly from the server:

http://localhost/STPSCallRecorderPlayer

This shows the player login page:
To login, enter your ShoreTel Communicator user name and password. To stay logged in for a period of time even if you exit the browser, you can check the "Remember Me?" checkbox.

If there is a problem with the login an error message will be displayed and you can fix the problem and try again:
Main Screen

Assuming that your login is successful you should then see the main screen of the Call Recorder Player:

Top Controls

At the top of the screen moving from left to right the player supports the following controls:

- The application name.
- Details of the currently logged in user name and extension.
- The Logout link. Clicking this will log the user out of the player.
- The Play from Phone checkbox. If unchecked, the player will attempt to play back recordings using an embedded Windows media player through the user's sound card. If checked the player will provide a playback interface appropriate for playing back audio via the user's phone.
- The rows/page dropdown. This controls the number of rows of recordings that will be displayed by the player in the grid view. It also attempts to set the size of the folder tree view to match.

Filter

Next is the Filter. This area allows a user to enter any text that might be part of an existing file and when Enter is pressed or the Apply button is clicked the filter will be applied and only folders containing matching files names will be shown in the Folders tree view. Similarly, selecting a folder when a filter is active will only show matching files in the grid view. To remove a filter and restore the view to showing all folders and all recordings click the Clear button.
Media Player or Phone Player Controls
Under the filter and just above the folder tree and grid views are the File player controls. This area will contain either the Windows media player as shown in the above screen shot if the Play from Phone checkbox is unchecked or it will show the phone playback controls. This shows how the top of the screen looks when Play from Phone is checked:

![Player Controls Screenshot]

Just under the player controls is where the player will display any errors that may occur. These errors will be displayed for approximately four seconds and then will be removed. This shows an error (this was caused by a user trying to do a playback via their phone when they haven’t selected a file to play):

![Error Screenshot]

Folders View Pane
At the bottom left of the player screen is the Folders view pane. Assuming there isn’t a filter active then at the top level, the folders view will display all of the recording servers to which the player is configured to connect. Record servers are shown with a distinctive icon:

![Folder Icon]

If the player can’t connect to a configured record server then the icon will have a white cross on a red circular background over the server icon. Selecting the server node will display the error or exception that the player had when trying to access the server in the grid view on the right:
Under each configured server are one or more folders. Each first level folder directly under a server object is associated with a record profile on the server. For example, in the below screen shot the server localhost has two recording profiles in which this user is allowed to see calls, “Emergency 911” and “All Calls”:

If a record profile refers to an invalid or inaccessible file storage path then the folder icon will have a white cross on a red circular background over the folder icon. Selecting the folder node will display the error or exception that the player had when trying to access the file storage location in the grid view on the right:

If a record profile is storing files in subfolders then these are shown as additional folders under the record profile folder. For example, the below graphic shows a scenario where the All Calls record profile has stored recordings in 5 sub-folders:
When a folder is selected, the grid view pane on the right will either show a message “No recordings in this folder” or will show the files contained in the folder.

**Grid View Pane**

At the bottom right of the player screen is the grid view pane. The grid view shows all of the files contained in the currently selected folder in the folder pane whose file names contain the currently applied filter text (if any.) The currently selected folder is shown just above the grid view. This will be in the following format: 

<server><record profile name>\subfolder1\subfolder2…

**Grid View Data Columns**

The three rightmost columns show details about each recording:

- The date and time the recording was saved.
- The length of the recording in the format HH:MM:SS.
- The file name of the recording. This is the file name formed by the recording server.

The three data columns can be sorted by clicking on their respective column headers. Clicking a column header will sort the data based on the column in either ascending or descending order. Each time the column is sorted it will be sorted in the reverse order as previously sorted. The current sort column and sort direction is indicated by a small upwards or downwards facing arrow to the right of the header text.

<table>
<thead>
<tr>
<th>Date and Time Saved</th>
<th>Length</th>
<th>File Name</th>
</tr>
</thead>
<tbody>
<tr>
<td>2/4/2011 7:52:44 AM</td>
<td>00:00:32</td>
<td>00020000-0064-4D36-FCB9-001049005094</td>
</tr>
<tr>
<td>2/4/2011 7:52:44 AM</td>
<td>00:00:32</td>
<td>00020000-0064-4D36-FCB9-001049005093</td>
</tr>
</tbody>
</table>

**Grid View Control Columns**

The grid displays two or more columns which provide controls for playing, downloading and optionally deleting the associated file. The above screen shot shows the case where the user can only play or download a recording. If the user is also allowed to delete files then the delete column will also be included as shown here:
In order for a user to be able to delete files, the relevant record profile’s Player Settings (configured in the admin) must either have the “Users can delete files” option checked or the user must be a member of the “Administrative Users who can view and Delete” list:

The grid view controls have the following functions:

Play  
Clicking play will cause the software to attempt to play the selected file using either the sound card or the phone depending on the setting of the player’s “Play from Phone” setting. See the next section on controlling playback for additional details.

Download  
Clicking the download control should initiate a download of the selected recording. The user should be provided with a prompt like this:
The user can then select Open to download and start playing the file in the user’s default media player application or they can click Save to save the recording. To save a copy, click the Save button and provide an appropriate location and if desired, a different file name to store the file to:

Delete

The Delete control will be available only if the administer has allowed users to delete recordings via the record profile’s player settings. Clicking the Delete control will prompt the user if they want to delete the file:
If the user clicks OK the file will be deleted.

Grid View Navigation Controls

If there are more recordings than will fit on the current page then only the first page will show. Users can use the “Page n of m” dropdown to select a specific page or the navigation buttons to move forward or back a page at a time or to skip to the first or last page:

Controlling Playback

To select and start playing a recording, in the grid view, click the blue play control next to the entry to which you want to listen.

Playback using the Windows Media Player

If the Play from Phone checkbox is unchecked then the playback will occur using the PC user’s sound card. The media player can then be used to pause, stop, restart or skip through the recording. This shows the media player controls:

If a recording is playing the user can stop, pause, or restart it using the appropriate controls on the left. He can also drag the slider at the top to jump forward or backward in the current playback. The user can also mute and un-mute the volume as well as change the volume of the current playback. Finally, the small arrows on each side of the position slider allow the user to speed up or slow back down the playback. Note that the forward and back arrows are not used and will therefore always be disabled.
Playback using the User's Phone

If the Play from Phone checkbox is checked then the playback will occur via the user's phone. The phone player controls can be used to pause, stop, restart and skip forward or backwards five seconds at a time. This shows the phone playback controls:

![Phone Playback Controls]

The text box shows the status of the phone based playback. The above graphic shows an active play as evidenced by the green background and play time details. It will change based on the status of a playback call and whether the playback is stopped or paused.

- Playing starts by clicking the play icon next to the desired recording in the grid view. If playing is stopped then playing can be restarted by clicking the play button.

- The play will stop automatically when done or a user can stop it early by clicking the stop button.

- A user can pause and resume playing by clicking the Pause/Resume button.

- Finally, a user can skip forward or backwards five seconds at a time by clicking the Skip Forward and Skip Backward buttons.

When a user initiates a playback using the phone, the player will automatically attempt to place an auto-answer call to the user's extension. Because this takes a second or two, the player does not automatically disconnect the call when playing completes. Therefore, when the user is done with the call he can either hang up his phone or click the Drop Call button to hang up the call. Similarly, if the user wants to first connect the player to his extension before requesting a playback he can click the Make Call button.

Refresh the Folders and Files

When a user runs the player, it queries the configured record server(s) and caches the folders and files that he is allowed to view. However, if folders or files are added or removed then he will not see the changes. The player provides a snapshot at the time it loads. Therefore if a user wants to see recording which were made after he loaded the player he can force the player to re-cache the folders and files by refreshing the browser.

Linking to the Call Recorder Player

The call recorder can be launched in such a way that it will automatically filter calls based on a query string passed as part of the URL format. If the player is launched in this fashion and at least one recording matches the filter value then it will automatically start playing. This allows integration with applications to provide a basic ability to play back a call or calls which match a specific filter as part of their file name.
The format of the URL uses the “File” field name as the query parameter. This is the format of the query string:

\[\text{http://localhost/stpSCALLrecorderplayer?File=<string to filter on>}\]

So, for example, to find recordings which include this GUID in their file name (00010000-0002-4D38-BFC2-0A9B20524153) you could launch the recorder with this URL:

\[\text{http://localhost/stpSCALLrecorderplayer?File=00010000-0002-4D38-BFC2-0A9B20524153}\]

Note that if the user is not already logged into the player then the first time that the player is launched they will need to first log in.