

# Voice Mail Synchronization with Gmail for Business

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The Synchronization with Gmail for Business feature automatically synchronizes the state of a ShoreTel user's voice mail with the state of each corresponding email when voice mail status is sent via ShoreTel's email notification. The HQ or DVS server monitors the state of a user's voice mails and emails and synchronizes those states. For example, when a user opens the voice mail notification email, the voice mail is marked heard on the voice mail system, and the message-waiting indicator on the phone is turned off.



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**Note**

In the current release, Google Gmail is the only email server that a ShoreTel system can interoperate with for synchronization of voice mail status. The feature currently works on Gmail Premier and Educational email accounts only. These accounts have the APIs that are necessary for the integration to work.

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## Background

A user account can be configured so that the user receives email notification of a new voice message. This email notification can also arrive with an attached WAV file of the actual voice message. The user can receive both the notification and the voice mail by way of the email client. However, in releases below Release 11.2, the status of the messages is not synchronized.



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**Note**

Below Release 11.2, email notification is not synchronized with the related voice message on the server: After a user listens to a message by playing the WAV file attached to the emailed notification, the message on the voice mail server remains marked as unheard. Even though a system administrator could specify in Director that messages be marked as heard after email notification is sent, this approach does not allow the ShoreTel system to determine whether the message has actually been read by the email client.

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## Voice Mail Synchronization Terms

This section contains definitions of acronyms that are relevant to the feature.

- Gmail: Google's email service.
- IMAP4: Internet Message Access Protocol 4. An application-level Internet protocol used for accessing email from a remote mail server.
- OAuth: This open protocol supports secure API authorization from desktop and web apps through a simple, standard method. For more details, see Use of the OAuth Protocol section. To research OAuth, go to <http://code.google.com/apis/accounts/docs/OAuth2.html>.

## Behavioral Details

This section describes a range of details about the feature. Some details are more visible, such as the consequences of user action on a message as described in the Synchronization Rules section. Certain internal and network-level details are also described.

### General Details

This section contains some general technical details of the feature.

- To monitor the status of email, Synchronization with Gmail for Business uses the IMAP4 and OAuth protocols to access and authenticate with Gmail server. The Secure Sockets Layer (SSL) protocol is used to secure pertinent communications on the network.
- Access to user email by login with the username and password is not used.

### Synchronization Service

The service runs on HQ and all DVS servers. The name of this service is ShoreTel-VmEmSync.

Each service is responsible for synchronizing the mailboxes that are on the same server. For example, the service running on HQ syncs the mailboxes located on HQ.

In the case of mailboxes on a Voice Mailbox Server switch (VMB switch), the synchronizing is done by the VmEmSync service that is running on the same server as the TMS that manages the VMB.

### Synchronization Rules

The tables in this section contain synchronization rules. The applicable rules depend on whether an email notification has the attached WAV file and whether the server is synchronizing during ShoreTel-VmEmSync service startup or during normal operation.

### Synchronization upon Startup

Start-up synchronization refers to initialization of the ShoreTel-VmEmSync service. This service gathers information on all voice mail and related email for each user and then synchronizes the states based on the rules in either [Table 63](#), which is for email text only, or [Table 64](#), which is for email with WAV file attachment. In these tables, the voice mail and email states occupy the two columns at left, and the resulting sync action is in the column at right.

**Table 63: Start-up Synchronization with WAV File Attachment**

Voice Mail State	Email State	Sync Action
Deleted	Not Deleted	Delete Email
Heard	Unread	Mark Email Read
All other states	Any state	No action

**Table 64: Start-up Synchronization with WAV File Attachment**

Voice Mail State	Email State	Sync Action
Heard	Unread	Email Read
Unheard	Read	Mark Voice Mail Heard
Deleted	Not Deleted	Delete Email
Not Deleted	Deleted	Delete Voice Mail

## Synchronization during Normal Operation

Synchronization during normal operation is triggered when a user makes a change to a voice mail or email. In [Table 65](#) and [Table 66](#), the voice mail change is in the left column, and the consequence for the voice mail or email is in the right column.

**Table 65: Sync with Email-only Text during Normal Operation**

Event	Sync Action
Voicemail is deleted.	Delete email.
Voicemail is heard	Mark email as read.
All other events.	No sync action.

**Table 66: Sync with WAV File Attachment during Normal Operation**

Event	Sync Action
Voicemail is deleted.	Delete email.
Voicemail is heard.	Mark email as read.
Voicemail is undeleted.	Move email to Inbox. Mark email as unread if voice mail is unheard.
Voicemail is marked unheard.	Mark email as unread if voicemail is in "NEW" folder.
Email is deleted.	Delete voicemail.
Email is read.	Mark voicemail as heard.
Email is undeleted.	Move voicemail to "Saved" folder.
Email is marked unread.	Mark voicemail as unheard if email is not in "Trash" folder.

## Usage of Network Resources

Before setting up this feature, consider its use of network resources as described in this section.

The ShoreTel system monitors the state of all user messages so that, for example, when a voice message is heard, the system reflects the state change in a timely manner. To ensure timely updates to the status of all messages, the system uses network bandwidth in proportion to the number of messages.

For example, consider a ShoreTel deployment that supports 1000 users and that each user has 5 messages. The state of 5000 messages total is monitored by the ShoreTel system. For monitoring the state of 5000 messages, the required bandwidth is 75 Kbytes per second. In this scenario, the time to synchronize a message's state change between voice mail and email is less than 20 seconds.

In the event of a server restart, the initial synchronization time for a system with up to 1000 users is less than 3 minutes.

## Synchronization Criteria

Synchronization is automatically enabled for a user if both of the following are true:

1. The user is configured to receive email notifications. The email address must be that of the user's Premier/Education Gmail account.
2. The system administrator configured an email server with the domain for the user's email address by using OAuth consumer key and secret strings. For example, the system administrator configured OAuth access with the domain for the user's email address. Refer to [Google OAuth Configuration](#) on page 496 and [ShoreTel Director Configuration](#) on page 497 for more information.

## Use of the OAuth Protocol

The OAuth protocol lets a 3rd party gain access to a user's account without needing the user's password. By relying on OAuth, the ShoreTel-VmEmSync service can use the IMAP4 AUTHENTICATE command to examine a user's email without logging in as the user. Gmail and most Google APIs support OAuth.

For the Premier and Education versions of Gmail, OAuth is set up by the system administrator. The admin enables certain capabilities and acquires a system-generated consumer secret at the Google OAuth management web page. The system administrator must first perform these actions in the applicable Google page before providing access to all accounts on a domain. An example of the Google Apps web page appears in Figure 176. In Figure 176, the machine-generated OAuth consumer secret is the value that the admin copies to a new Gmail configuration area of Director.

The consumer secret from Google OAuth management and the consumer key allow the ShoreTel HQ server or DVS to:

- Authenticate with Google mail servers without needing the user passwords.
- Establish a trusted host relationship between the two servers.

**Note**

The Google Apps web page can change without notice, so the administrator might see a variation of what appears in [Figure 176](#).

## Configuration

This section describes how to set up this feature and provides some prerequisite information.

ShoreTel synchronization with Gmail Premier and Education Services utilizes a Google Apps OAuth key and user secret. The origins of the key and secret are described in the Google OAuth Configuration and ShoreTel Director Configuration sections.

### Google OAuth Configuration

This section describes the steps that a system administrator performs at the Google Apps web site for OAuth Management before performing the steps in ShoreTel Director.

Google Apps for vmemsync.com - Premier Edition admin@vmemsync.com

Google apps  Search accounts Search Help Center

Dashboard Organization & users Groups Domain settings Advanced tools Support Service settings -

↳ Back to Advanced tools

#### Manage OAuth key and secret for this domain

OAuth consumer key: vmemsync.com  **Enable this consumer key**  
Allows this key and secret to be used to generate OAuth requests to Google Data APIs

OAuth consumer secret: **M0fV8WLBbn+AZnGkuXybu2+** **Regenerate OAuth consumer secret**

X.509 certificate: We do not have a certificate for your domain.

Upload a certificate: (Optional)  
 **Browse...**  
File must be in PEM format. [Learn More](#)

Two-legged OAuth access control  **Allow access to all APIs**  
The key and secret above are able to access any user's data for all Google Data APIs. [Learn more](#)

**Save changes** **Cancel**

Figure 176: Google OAuth Management Page

Complete the requisite steps at the Google Apps site:

1. Navigate to the current Google Apps page. Refer to [Figure 176](#) for an example of this page.
2. Enable the following two fields:
  - OAuth consumer secret — Enable this consumer key
  - Two-legged OAuth access control — Allow access to all APIs

3. At OAuth consumer secret, click the button labeled **Regenerate OAuth consumer secret**. A secret is generated and displayed.
4. Write down or otherwise copy the secret. This secret must be entered in ShoreTel Director as described in ShoreTel Director Configuration.

## ShoreTel Director Configuration

An existing Director page has a new area for setting up Synchronization with Gmail for Business. The page is System Parameters – Edit Other Parameters, and the new area is labeled Gmail Configuration, as [Figure 177](#) shows.



The screenshot shows a section titled "Gmail Configuration:" with two input fields. The first field is labeled "Gmail Consumer Key:" and the second is labeled "Gmail Consumer Secret:". Both fields are empty text boxes.

*Figure 177: New System Parameters - Edit Other Parameters Fields*

The consumer key is what is listed on Google's OAuth Management Page. Refer to [Figure 176](#) on page 496 for an example of this key, which is located beside **OAuth consumer key**.

The consumer secret comes from the Google Apps domain management web site.

Complete the following steps to activate the feature in Director:

1. Open Edit Other Parameters by navigating to **Administration > System Parameters > Other**.
2. Enter the OAuth consumer key from the Google OAuth management page in the box labeled **Gmail Consumer Key**.
3. Type the secret that was generated in the Google Apps web page in the box labeled **Gmail Consumer Secret**.
4. Click the **Save** button at the top of the Edit Other Parameters window.

