Converged Intelligent Messaging

Virtual Receptionist Administration Guide

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Contents

What's new for CIM Virtual Receptionist administrators in 10.0

CIM 10.0 contains new and changed features for Virtual Receptionist (VR) administration.

Revision 06.02

March 12, 2021. CIM 10.0

Configuring the Virtual Receptionist Schedule and Ring Times

Administrators can disable the In Hours and Out of Hours menu trees in the Virtual Receptionist User Interface (UI) and provide ringing to a defined phone number directly, without prompt, as an alternative.

Refer to "Virtual Receptionist Service" (page 9) and "Subscriber GUI Operation" (page 54) for details.

Revision 06.01

May 31, 2018. CIM 10.0

European Portuguese language support

CIM 10.0 adds European Portuguese language support for Virtual Receptionist. If your service provider has enabled this language selection for your account, you may select Portuguese (Portugal) as your Web (GUI) language.

Password enhancements

You may now configure an alphanumeric password for Web GUI access instead of using a PIN. Your PIN is still applicable for TUI access, and you may update it via the My Account page.

Refer to "Virtual Receptionist Account" (page 80) for details.

Virtual Receptionist overview

This guide provides a *generic* service description and requirements for the Converged Intelligent Messaging Virtual Receptionist (VR). The VR offer is targeted for the carrier market for the small to medium size business customer (SMB).

Information contained in this guide is generic. All VR capabilities are included. Individual customer needs are targeted through private branding of the user interfaces (TUI and GUI) and through the inclusion of selected capabilities determined and provided by Professional Services.

Supported languages for CIM applications

CIM applications can support US English, UK English, Castilian Spanish, Latin American Spanish, German, Canadian French, Brazilian Portuguese, and European Portuguese language options. Administrators can configure which languages to make available to subscribers. Subscribers may select an available language to use for their CIM User Interface(s).

International dial plan and localization support for CIM applications

Phone numbers may be entered in the country's national format (e.g. in the United States, xxx-xxx-xxxx) or in the E.164 international public telecommunications numbering plan format (e.g. for the United States, +1 xxx-xxx-xxxx), up to 20 characters in length. This includes phone number fields for outbound dialing features such as phone notifications and voicemail attendant (operator).

Virtual Receptionist Service

The Virtual Receptionist (VR) is an interactive voice response system directing callers to the intended destinations within a company's enterprise. The VR is designed to offload a live attendant, providing an unattended, intelligent answering service and call routing function allowing callers to route themselves to a destination through Touch Tone input in response to voice prompts. The VR is designed to be easy to use, easy to manage and easy to grow. The service is designed primarily to address the business environment.

The VR is provided to customers for purposes of deployment of automated attendant services to their markets. The application permits a variety of classes of service (COS) to be created for specific markets and deployed to the customer subscriber base.

The VR integrates easily with the customer's existing business environment. It may be configured to provide a 'front end' to a very small business (one or two) or to a small business consisting of a relatively larger number of employees servicing their customers by telephone and having additional capabilities including Converged Intelligent Messaging communications products (e.g., voicemail, unified communications, and unified messaging applications) for creating customized business solutions.

The VR service provides the following high level features and capabilities.

Subscriber Account

The VR is a subscriber account that permits configuration and management of VR Service by the subscriber or an assigned administrator.

Scheduled Operation

The VR schedule may be subscriber/administrator configured for the following operation:

- In hours – This schedule permits the administrator to assign the hours of business operation. If established, the In Hours greeting and associated menu functionality is provided to the caller.

- Holiday – This schedule permits the administrator to assign up to 20 holidays during the calendar year. If established, the Holiday greeting with associated menu functionality is provided to the caller. The Holiday schedule overrides the In Hours schedule.

- Out of hours – This schedule is implicitly defined as being active when the Holiday and In Hours schedules are not. That is, the Out of hours schedule is active during the time periods when the In Hours schedule and Holiday schedule are not active. During Out of Hours operation the Out-of Hours greeting and associated menu functionality is provided to the caller.

Virtual Receptionist Menus

- VR Menus – The VR supports a maximum of 10 menus. The number of menus supported by a given VR offer is configurable at the system level. A Menu consists of a Greeting and programmable extensions numbered 1 through 9 and additional global menu options [*], [#] and [0].

  By default, a Menu is associated with the In-Hours, Out-of-Hours and Holiday schedules (i.e., In-Hours Menu, Out-of-Hours Menu and Holiday Menu). The remaining Menus may be configured as Submenus (up to 87 submenus per partner).

  Administrators can configure the VR offer to disable the In Hours and Out of Hours menu extensions. Enabling this option modifies the caller experience. There are no voice prompts or menu options and incoming calls ring the configured phone number directly without any prompts.

- VR Submenus – A VR Menu may be configured to refer to another Menu (Submenu). This capability provides the administrator with the ability to set up configurations modeling multiple auto attendant processes in a single subscriber account.

  When using Submenus, the caller may return to the previous menu by pressing star [*] (default).

Note: The global keys of every menu ([*] and [#]) may be configured in the VR Class of Service (COS) for the return function as described in Global Menu Key operation.

- Menu Default Action – Each menu supports a default action that is taken in the event that no caller input is received. No caller input is defined as the user not responding to the menu greeting within 5 seconds (configurable).

  The In-Hours, Out of Hours and Holiday menus will replay 3 times in the event of no caller input and then either Disconnect the user, or, direct the user to the Operator if programmed, the general mailbox if available (configured), or if the VR mailbox is not supported will disconnect the caller. Operation may be configured in the VR Class of Service (COS) for the No caller input control as described in No Caller Input control.

  All Submenus will replay 3 times and then disconnect the caller.

Greetings

The VR supports a variety of greetings. The following main greetings are defined.

- In hours – This greeting is played to the caller while the In Hours greeting is active.

- Out of hours – This greeting is played to the caller during the time when not in schedule and not on a holiday schedule.

- Holiday – This greeting is played to the caller while the Holiday schedule is active.

- General Voicemail Greeting (optional) – This greeting is played to the caller prior to leaving a message in the general mailbox of the VR. This applies only if the general mailbox service is configured.

- Submenu Greetings – The VR may be configured with additional internal Submenus which can be referenced from a menu extension. Each Submenu has an associated greeting. This greeting is played to the caller when accessed.

  - During playback of a Submenu Greeting, the caller may press star [*] and be moved back to the previous Menu, or Submenu, Greeting.
    The VR supports professionally recorded Greetings as well as custom greetings. Custom greetings may be recorded by the customer by means of the TUI. Greetings may also be uploaded to the VR by means of the Web GUI when setting up the VR. This capability permits custom as well as professionally recorded greetings to be associated with the VR.

Virtual Receptionist Extensions

An extension is the number that a caller enters after listening to the VR greeting to access a particular VR member. The VR supports up to 10 extensions. These extensions are numbered 0 through 9. Each extension may be configured by the VR Administrator to provide functionality for that member. Extension 0 is reserved for Operator assistance (described below). By default, Extension [#] is reserved for Directory assistance (Dial by Name service) if provided. Extension [*] is reserved for caller control of Submenu operation (providing the ability for the caller to back up a menu).

> *Note:* The global keys of every menu ([*] and [#]) may be configured in the VR Class of Service (COS) for the return function as described in Global Menu Key operation.

Administrators may program each extension [1-9] as follows:

- None (the extension is not used). A caller entering this extension number will be informed of an invalid key press.

- Dial a Telephone Number – This capability permits the caller to be routed to a dialed telephone number, subject to the dialing plan configured for the partner offer.

  When routing to a Telephone number, a Ring Time may be optionally set to determine the time the outbound call is attempted without being answered before the VR takes another action. This action may be to route the caller to VR main mailbox, to transfer the caller to an external account, to repeat the Menu greeting or to disconnect the caller.

- Go to an (external) Account. This capability allows the caller to be routed to an existing account (e.g., voice mailbox, announce only mailbox, another VR). Each account is identified by an account (telephone) number.

  > *Note:* In this case, no call is made. Rather, the VR application connects the caller to the designated account using internal logic. The destination may be any account in the Partner.

- Extension Dialing – A VR extension is reserved for the Dial by Extension Number service. This service allows the caller to access a member of the customer's enterprise by dialing (2-5 digits) an extension number. This extension number is assigned to the member by proper configuration of the Directory (see Directory for a description of the Directory configuration). This capability is supported only if the VR COS supports Directory Services.

- Go to Voicemail (optional) – A caller may be automatically routed to the VR main mailbox. When routed to the mailbox, the VR mailbox greeting shall be played prior to prompting the caller to leave a message. This

choice is provided if the VR is configured with a general mailbox. If the VR COS is not provided with a mailbox, this choice shall not be given to the administrator when configuring the VR.

- Go to a Submenu. A VR Menu (i.e., In-Hours, Out of Hours or Holiday Menu) may be configured to route the caller to a Submenu. A Submenu may also be configured to route to another Submenu. With Submenu operation, a caller may navigate (return) to a previous Menu by pressing the [*] key.

- Hunt (optional). This service is designed for applications where a group of customer service agents (for example, in call centers) are available to take calls. You may configure a set of telephone numbers (max 4) and a selection of the hunting algorithm to use to find the idle member of the group. You may set a Ring Time (optional) when routing to Hunt telephone numbers to determine how long the VR should wait for the call to be answered before taking another action. If Hunt is not configured for the VR COS, you will not hear the Hunt menu choice.

- Announcement – A recorded announcement may be utilized to provide the caller with such things as directions, or sales event information.

- Route to an Operator Extension [0]. – This extension is reserved on all Menus for Operator assistance. The Operator extension may be configured as:

    − None

    − Dial a Telephone Number

    − Go to an Account

    − Go to Voicemail (optional).

- Directory Extension [#]. – By default, this extension is reserved on all Menus for Directory access (Dial by Name feature). When accessed, the caller may "spell" the name of the person using their telephone keypad. When the "name" is resolved to a single member, the system shall place a call to that member and connect the caller (See Directory).

    Note: Directory services is an optional VR feature (See Directory). If Directory services are not configured with the VR COS, attempts to enter the Directory services by a caller shall be treated as an error (e.g. "*invalid entry*").

General Mailbox

The general mailbox is an optional feature configurable at the partner level (see General Mailbox). This section applies for VRs configured with a general mailbox.

- A *general mailbox* is associated with the VR and support both voice and Fax messages by means of an administrable configuration option

- Voice messages may be reviewed by the subscriber using the telephone TUI. Voice messages may also be reviewed using the GUI.

- Fax messages may be reviewed by the subscriber and forwarded to a fax machine (telephone number) using the TUI. Fax messages may also be viewed via the GUI and forwarded to an email, fax machine, viewed locally using a fax viewer client or downloaded to the PC.

- The general mailbox is assigned mailbox number 0. Calls are routed to the general mailbox when one of the following occurs:

  — the caller selects the Operator extension and that extension (0) is programmed to 'Go to Voicemail'

  — the caller selects the Operator extension and there is no answer or the caller does not make a selection

  — the caller selects a VR extension programmed to 'Go to Voicemail'

  — a Fax message is detected.

- Trash – This folder maintains deleted messages. These messages may be restored by the administrator to the Inbox. Trash messages are maintained for a variable amount of days before they are removed, as governed by a configuration option.

- The general mailbox shall be supported in *native* form or as a Plug-in. Native form mailboxes adhere to the user interface aspects for general mailbox management as specified in this document. Plug-in mailboxes conform to other voicemail classes of service that are supported by a given Customer (carrier).

  Note: If Plug-in mailboxes are supported, the type of mailbox shall be determined by Professional Services.

  Rationale: Plug-in mailboxes permit the VR to support an existing voicemail product user interface. Typically, a customer who has Ribbon voicemail products supporting their existing subscriber base, would want general mailbox access to conform to the same user interface (e.g. the same call flow, button presses, etc.).

- Notifications – As part of the general mailbox service, the VR Administrator (or subscriber, depending on the permissions) may set up their account to be notified of new messages arriving in the general mailbox. A variety of message notification options are available, including notifications by email, text message, or by telephone.

Note: The Virtual Receptionist GUI may be provided to subscribers and/or to designated administrators. The permissions for providing this capability are negotiated with the customer.

Directory

The VR provides an optional Directory that contains contact information configured by the Administrator which is utilized for support of the following features:

- Dial by Name (Directory Dial) – This feature allows a caller to reach a VR contact by 'spelling' the contact's name using the telephone keypad. A caller accesses the (corporate) directory, by pressing [#] on any menu, and then enters the contact name. Once resolved, the VR routes the caller to the named contact.

- Dial by Extension Number – This feature allows a caller to reach a VR contact by dialing the contact's assigned extension number. The extension number may be configured to support a variety of dial plans (e.g., a 3 digit dial plan) which are assigned by the administrator during configuration of the menu extensions.

- The Administrator of the Directory establishes the contact naming conventions, dialing configurations and associates each contact with a recorded name via the GUI. A member contact may personalize their recorded name at a later time via the TUI.

Directory Service is an optional feature of the VR which can be applied as part of the COS definition. VRs with Directory Service support Dial by Name and Dial by Extension number features. VRs without Directory Service do not support these features.

Note: Attempts by callers to access directory services when Directory services are not provided shall be treated as an error. That is, the caller shall be informed of an 'invalid entry'.

Subscriber/Administrator Configuration

Subscribers/Administrators may configure and manage their VR using the intuitive, simple and easy to use interfaces.

- A subscriber TUI is available for reviewing messages, providing greeting/announcement administration, name recording for Directory service contacts, changing PIN, and changing the language of the prompts.

- A GUI is available to permit self-managed (by the subscriber or designated Administrator) VR Configuration The subscriber/administrator may perform the following functions by means of the GUI:

  – Configure the VR account.

- — Display/Export contents optional VR Directory
- — Manage VR Greetings (Upload, Click to Record, Review)
- Menu Greetings (In-Hours, Out-of-Hours, Holiday or Submenu)
- Main Mailbox Greetings (optional. Provided only if the VR is configured with the general mailbox partner parameter).
  - — Manage Announcements (Upload, Click to Record, Review)
- An announcement may be recorded on any VR extension (1-9).
  - — Program Schedules
  - — Display/Configure VR Menu Extensions
  - — Manage the optional VR mailbox (review messages via the GUI, forward messages to other destinations, etc., voice and fax).
  - — Set up Notification options for new messages arriving in the mailbox. (Optional. Provided only if the VR is configured with the general mailbox partner parameter).
  - — Change PIN
  - — Change language for the GUI and/or TUI
  - — Review Call History (Call Detail Records), if applicable.
  - — Download Selected Applications and Documentation, if applicable.

System Administrators may also use the Agent Interface OSS to:

- Review and edit the configuration of the VR.
- Set any subscriber option of the VR.
  - — If the VR supports the general mailbox feature, the OSS Agent shall be able to view messages in the general mailbox without changing message states of the reviewed messages.

Account Access

- Account access – The VR account may be accessed by means of both TUI and GUI.
  - — Caller TUI access is accomplished by dialing the VR telephone number (main number) or by being routed to the VR indirectly (i.e., CFBNA).

— Subscriber TUI access shall be provided as 'Open Tree'. Open Tree access is used by all subscribers to authenticate. Once connected to the application, the subscriber is prompted to enter the telephone number of the (VR) account and/or to enter their PIN, prior to being granted access to the account.

— A subscriber/administrator GUI (See Virtual Receptionist Graphical User Interface (GUI) provides Web access for subscribers using a standard browser. Username/Password secure login is supported.

Virtual Receptionist Configurations

The following figure shows a default configuration.

Default Configuration
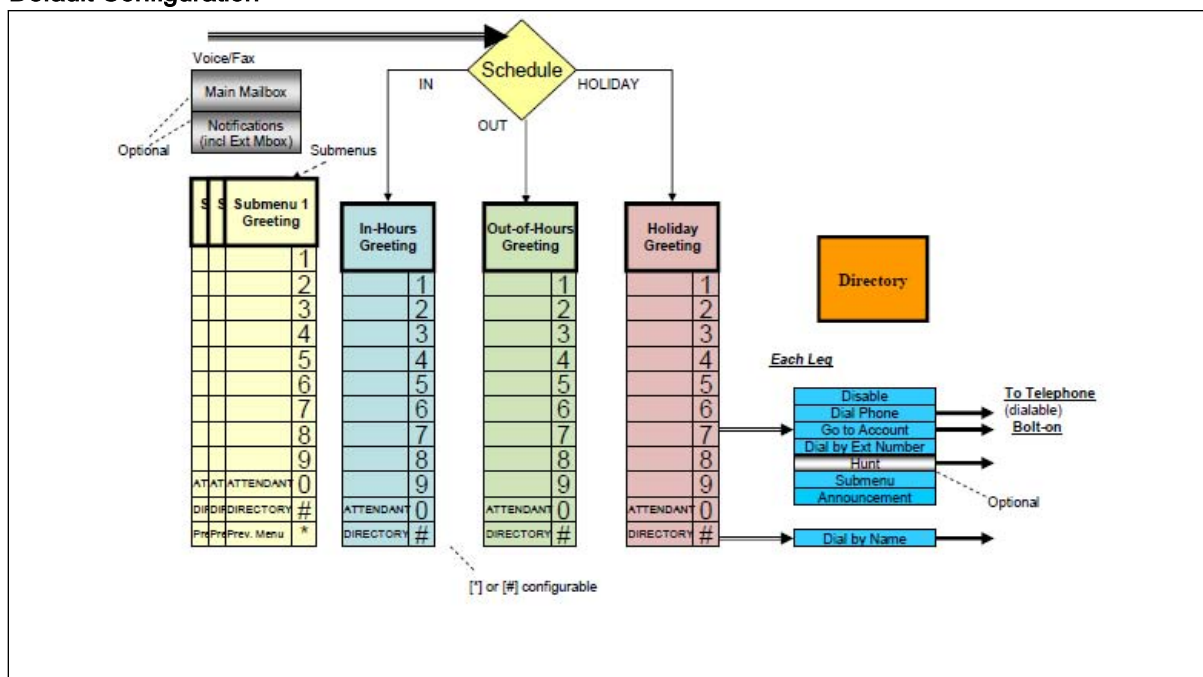
As depicted, the VR consists of a Schedule and supports three main Menus; In Hours, Out of Hours and Holiday.

Each main menu has an associated Greeting and supports up to 10 configurable extensions (extensions 1 – 9, and 0 operator) and two global ([*] and [#]) extensions.

Each extension may be configured to: None (not used), dial a phone number, access an external account, perform dial by extension, perform (optional) hunting operation, refer to another VR Submenu, access the VR general (main) mailbox (if optioned) or play an announcement.

Submenus may be referenced from any main menu (In-Hours, out-of-Hours or Holiday) menu extension or from other Submenus. Global Extension pound [#], is reserved for Directory Dial (i.e., Dial by Name feature). Extension star [*], is reserved for returning to the previous VR Menu when Submenus are used.

> *Note:* These functions may be reversed ([*] for Directory, [#] for Back) by appropriate VR partner parameter configuration.

A Directory, if provided, is utilized to support the Directory Name Dial and Dial by Extension Number features.

The VR, configured with the general mailbox, supports the capability to establish notifications (email, sms, etc.) when new messages are deposited. If the VR is not configured with the general mailbox, notifications are not supported.

Administrators can disable the In Hours and Out of Hours menu extensions. This configuration disables the In Hours and Out of Hours voice prompts and menu options. Incoming calls ring the defined phone number directly without any prompts.

Virtual Receptionist In Hours and Out of Hours Disabled Configuration
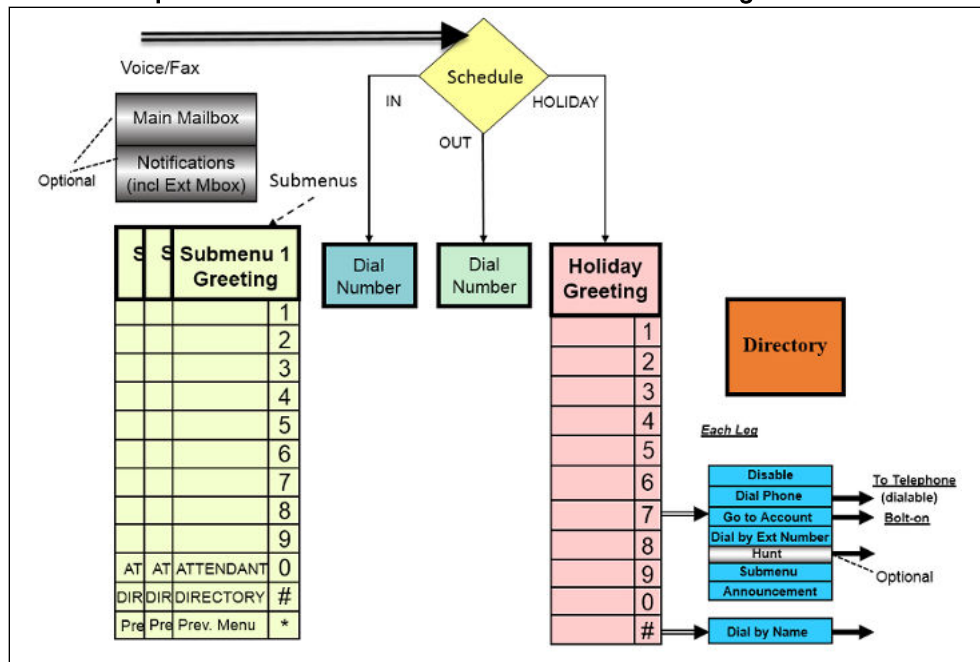
Virtual Receptionist Telephony User Interface (TUI)

The following sections provide the telephone user interface (TUI) requirements for the VR product.

System Parameters

System parameters associated with each VR COS are specified by Professional Services.

High Level TUI Flow

The following figure depicts a high level menu structure of the VR configured without a general mailbox, from both the subscriber and caller perspective. The first four levels of the TUI flow are shown. The detailed TUI call flow is provided in the next section.

> *Note:* This depiction includes all capabilities of the VR offer. The capabilities provided to the customer may vary as agreed to with the customer.

Caller and Subscriber High Level Call Flow with a General Mailbox
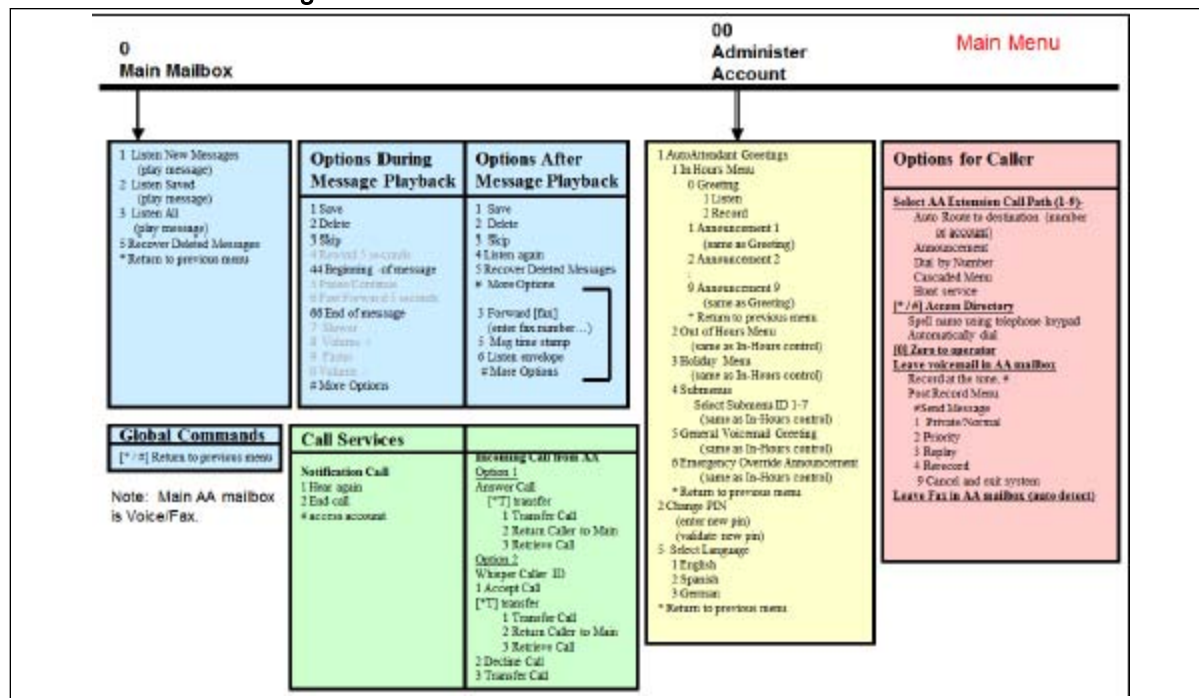
Subscriber Operation

Once authenticated, the subscriber is brought to the Main Menu as depicted in the previous figures. From this point, the subscriber may review the VR Main Mailbox (key [0]), if configured, or may administer the VR settings (e.g., Greetings, Announcements or change the PIN), (key [0,0]).

If configured with a general mailbox, the subscriber can:

- Listen to New Messages (requires general mailbox) - Message headers (for voice and fax messages) and content (for voice messages) are played back to the subscriber in date ordered time. During playback of each message, message Playback options are enabled (Save, Delete, Skip, Rewind, Rewind beginning, Pause/Continue, fast forward, end of message, Volume control and Speed control). At the end of message playback, the subscriber may save, delete, skip, listen again, forward the message or replay the envelope.

- Listen to Saved Messages - Saved messages are played back to the subscriber as described above (same operation as Listen to New Messages).

- Listen to All - Messages are played back to the subscriber with New messages first followed by Saved messages.

From Administer Account, the subscriber can:

- Change the In Hours Greeting or any of 9 In Hours Menu Extension Announcements.

- Change the Out of Hours Greeting or any of 9 Out of Hours Menu Extension Announcements.

- Change the Holiday Greeting or any of 9 Holiday Menu Extension Announcements.

- Change any of the Submenu Greetings or any Submenu Menu Extension Announcements.

    Note: The number of submenus is configurable per partner, up to a maximum of 87 submenus. The default number of submenus is 7.

- Change the General Mailbox Greeting (requires the general mailbox).

- Change the language subscribers and callers will hear. Each language prompt is spoken in its native language.

- Change the account PIN. By default, the account PIN may be from 4-10 digits in length. When changing the PIN from the TUI, the system will provide checking for the following conditions:

    — The PIN cannot be same digit repeating

    — The PIN cannot be ascending digits

    — The PIN cannot be descending digits

    — The PIN cannot be substring of primary mailbox number

Caller Operation

Caller operation (Call Services) will vary as a function of the programmed configuration and depending on whether the general mailbox function is provided.

Upon connection to the VR, the caller shall be provided with the recorded VR Greeting (In Hours, Out of Hours or Holiday) depending on the "active" schedule.

During or after Greeting playback, the caller may select a programmed extension using their telephone keypad. Each extension may be programmed by the subscriber to be disabled, permit the caller to route to another (external) subscriber account (e.g., voice mailbox account), to a telephone number, dial by directory extension number, to the general mailbox (if so configured), to a hunt group (if configured) or to an announcement.

Menu Extension 0 (operator) can be set up for operator assistance and, if used, would be configured with the telephone number or external account number of the designated operator.

Menu Extension pound (#) gives the caller access to the Directory (dial by name feature). The caller may 'spell' the name of the contact using their telephone keypad and once resolved, the system will dial the contact and connect the caller to the contact when answered.

Called Subscriber or Called Member

Called users (Call Services) in High Level Flow with General Mailbox) can be the Subscriber or Members of the VR community defined in the Directory.

The Subscriber may receive telephone notification of new messages arriving in the VR mailbox, if properly configured. When the subscriber answers the notification call, they are informed that the call is a new message notification and are presented with a menu that allows the subscriber to listen to the notification again, end the call or go to access the VR mailbox to review the message.

The called member of the VR (i.e., those members who receive calls from the VR) shall be provided using one of two methods of operation as controlled by system configurable parameters.

1. The caller id of the calling party is made known to the called member by means of an in-band whisper (in-band prompts). The called member may then accept the call, decline the call, Transfer the call to the extension of another member of the VR or return the caller to the VR Main Menu.

2. The called user may answer the call (no whisper) and communicate with the calling user. The called member may transfer the call to the extension of another member of the VR or return the caller to the VR Main Menu.

Detailed TUI Operation

Flow diagrams depicting detailed system operation of the Telephone User Interface (TUI) for the authentication process, the calling user and the authenticated subscriber are defined in this section. These diagrams provide the call flow functionality and contain uniquely numbered prompts and menus. Each prompt number may be cross-referenced to the specific prompt list provided in prompts.

First Time Authentication

There are no first time authentication procedures. The subscriber/ administrator is expected to configure the VR (e.g., set up greeting and call routing, etc.) shortly after provisioning.

Configuration of the VR is performed via the Web GUI.

If not previously configured via the GUI, however, the first time the subscriber authenticates on the TUI, they are requested to record their In Hours greeting as a reminder that it is not recorded. The call flow for first time authentication is provided in Call Flow Diagram - Authentication.

Account Provisioning and Initialization

When provisioned, the system uses default settings (including a greeting and defaulted options) that enable the caller to access the system. Caller functionality however, is very limited until such time as the subscriber/administrator configures the VR.

The default settings for VR are:

- Default Greeting (43008d "You have reached an Auto Attendant. If you know your party's extension, enter it now.")

- Default Menu Extension Settings = Disabled.

- Default Schedule = In-Hours (24/7).

- Default Main Mailbox Greeting (43088 "You have reached an Auto Attendant mailbox. Start recording at the tone. When finished, press the pound key.").

- Notifications = off

A caller, who is routed to the VR which is in the default condition, shall be requested to enter a VR extension, and in the event of no caller action or three attempts to access a VR extension which is not programmed, shall be routed to the main mailbox and requested to leave a message.

Forced Change

The VR shall support an optional Forced Change feature. Each time the PIN is reset or changed by the OSS Agent process, the VR enters the Forced Change state. While in this state, the subscriber is required to use the temporary PIN (assigned by the Agent) for their next authentication.

Once authenticated, using the temporary PIN, the subscriber is forced (prompted) to change the temporary PIN to a personal PIN before access to the VR services are granted.

The system remains in the Force Change state until the personal PIN has been provided by the user and accepted by the system. At this point the VR exits the forced change state. Subsequent authentication requests shall be made using the personal PIN.

This optional feature is supported by agreement between the Carrier and Ribbon.

TUI Menu Operation and Global Controls

General rules for TUI menu operation and global commands are contained in this section.

Subscriber Menu Operation

The following general rules govern TUI Menu operation.

- When the user fails to respond to a prompt that requires input, the system will timeout in five (5) seconds (subject to a system parameter) and re-prompt the user.

  — If the user fails to respond to a number of successive prompts, the system shall announce that it is terminating the session ("Goodbye"), then disconnect the call.

- When the user enters a keystroke that is not supported for a given menu, the system will provide a negative acknowledgement ("Invalid entry, please try again") and replay the menu.

  — If the user fails to respond with a proper keystroke after three successive prompts, the system shall announce that it is terminating the session ("Goodbye"), then disconnect the call.

- When the user fails to enter a requested keystroke the menu is played again.

  — The default timeout system parameter for no response to a menu prompt is 5 seconds and is controlled by a configurable system parameter.

  — The default number of times allowed for successive prompts without a response is 3 and is controlled by a configurable system parameter.

  — If the user fails to respond after three successive prompts, the system shall announce that it is terminating the session ("Goodbye"), then disconnect the call.

Global commands

Global commands are those that have a unique meaning independent, for the most part, of where the subscriber is in the menu structure. The following global commands are supported:

- Star [*]

  — Caller

- At a Submenu the [*] command returns the caller to the previous menu.

- Caller may use [*] to indicate 'any character' when spelling the name of a contact when Directory services have been invoked.
  - Subscriber
- When navigating menus, the [*] command returns the subscriber to the previous menu.
- Pound [#]
- Caller
  - At any VR Menu, the [#] command indicates a request to access directory services for use with the Dial by Name service.
- Subscriber
  - During entry of solicited information (e.g., record a greeting) - indicates the end of the entry.

System Access

This section provides the system access method supported for the caller and the subscriber. Access by the caller is for purposes of contacting a member of the company or service provided by the VR. Access by the subscriber is for purposes of authentication and subsequent account administration purposes.

The table shows the potential PSTN Access Methods, the elements of the protocol expected to be received by the system and some notes on operation.

Access methods shall be negotiated with the customer.

Access methods

Potential Access Method	Functional Elements of Call Control	Notes
Caller Access - Dial phone number transfer to VR. (CFBNA)	ANI = caller's number OCN = subscriber's number DNIS = Well known DNIS	The caller dials a number which is redirected (e.g., CFBNA) to the VR. *Note:* This is not a typical access method but could be supported.
Caller Access - Direct Dial	ANI = caller's number DNIS = Well known DNIS	The caller dials a direct number (e.g., the company main number) and is connected to the VR. This is the primary caller access method for VR services.

Access methods (cont'd)

Potential Access Method	Functional Elements of Call Control	Notes
Subscriber Access -Dial access code, from the subscriber's phone.	ANI = subscriber's number DNIS = Well known DNIS	This method of account access may be utilized by subscribers calling from their telephone. The switch interprets the dialed access code and routes the call as to the VR Open Access number.
Subscriber Access -Open Access	ANI = caller's number DNIS = Well known DNIS	This method of account access may be utilized by subscribers of the system for purposes of authentication or to leave a message for another subscriber. The Open Access number is dialed directly by the subscriber. The subscriber must enter their VR account number and a PIN for access into their VR account.

Call Flow Diagram - Authentication

The following figure depicts the incoming call and authentication operational flow. Prompts referred to in this diagram are provided in .

(Prompt Identifiers are enclosed in brackets).

VR Access and Authentication
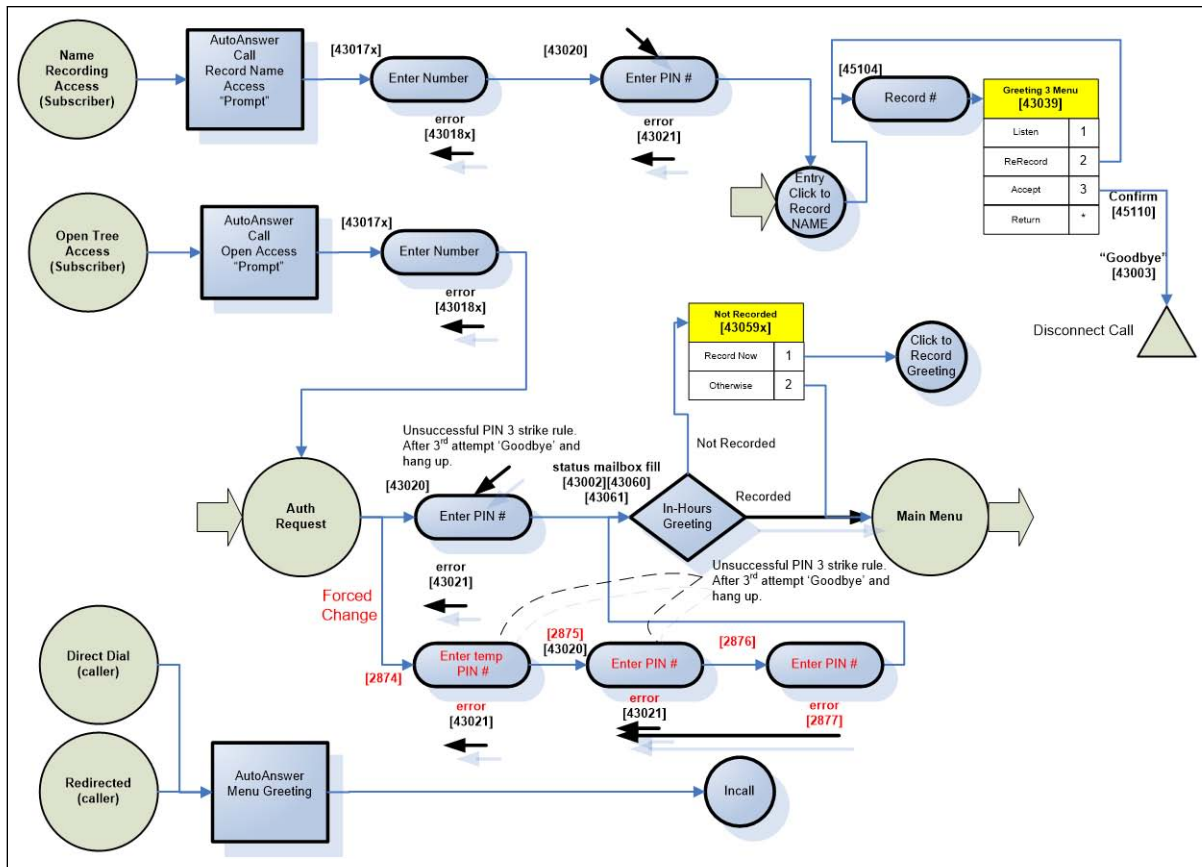
The diagram depicts the various access methods for the caller and the subscriber.

- Caller Access
  - Direct Dial - Callers access the VR by directly dialing the VR number. In this configuration, the VR supports direct dial caller access and the associated network is configured to route directly to the VR.

- Redirected Call - Callers dial a number which is forwarded to the VR, In this configuration, the VR supports forwarded calls and the network is configured to forward calls (on selected events; e.g., busy) to the VR.

- In either case, when the incoming call is received, the VR automatically answers the call and begins playback of the active greeting (In-Hours, Out of Hours, Holiday or Default) prompting the caller for input.

- Subscriber Access

  - The subscriber uses open tree to access the system. With open tree access all subscribers call the same telephone number via direct dial procedures.

  - When the incoming call is received, the VR automatically answers the call and prompts the subscriber for the telephone number of the VR.

  - Upon successful entry of the VR number, the subscriber is prompted to enter their PIN.

    Note: If the VR is in Forced Change, the temporary PIN must be used (see Forced Change). In this case the subscriber is prompted to change the temporary PIN to a personal PIN.

  - Upon successful entry of the PIN, the subscriber is authenticated and gains access to the VR main menu. The subscriber may manage the VR from the Main Menu (e.g., record greetings, review mailboxes, etc.) using the Telephone keypad.

  - As part of subscriber authentication, if the In Hours Greeting has not yet been recorded, the system shall prompt the subscriber to record the greeting. Otherwise, the subscriber is brought to the Main Menu.

- Name recording Access

  - Name recording is accessed by a member of the VR community (i.e., contained in the Directory) or as part of Click to Record service which is invoked from the GUI as part of the Directory Set Up.

  - With this service, a separate *Name Access* telephone number is assigned for purposes of member name recording.

    Note: This is an *optional* service and is only provided if member name recording is available, as determined by Professional Services.

  - The Directory contact may use direct dialing to access this service using the telephone number and a unique PIN. The telephone number and PIN may be provided to the contact member during the creation of the Directory. See Directory Set Up.

— If Click to record operation is invoked (the subscriber/administrator invokes CTR from the GUI (see Authenticated Subscriber), the subscriber/administrator is called and, when connected, is automatically authenticated (see Click to Record Entry in the diagram above) and prompted to record the name. The link to Click to Record is also provided to the contact in email during the creation of the Directory.

— Once the name is successfully recorded the subscriber or contact is automatically disconnected.

Caller Interface

This section describes the caller experience after the call has been answered by the system. The detailed call flow is provided in Call Flow diagram - Caller Interface.

Greetings

Each VR supports the following greetings:

- In Hours Greeting - A VR greeting that is subscriber recorded. This greeting is used as the main greeting when the VR is configured for In Hours Menu use and the programmed schedule is In Hours.

- Out of hours Greeting - A VR greeting that is subscriber recorded and is used when not In Hours or on Holiday.

- Holiday Greeting - A VR greeting that is subscriber recorded and is used when the Holiday schedule is in effect. The Holiday Greeting (schedule) overrides the In Hours and Out of hours Greetings (schedule).

- Submenu Greetings - A VR greeting that is subscriber recorded and is used when cascading menus. Each Submenu has an associated greeting. A maximum of 87 Submenus can be supported.

- Main Mailbox Greeting - Each VR optionally supports a single main mailbox with an associated greeting.

- Emergency Override Announcement - Each VR supports a single emergency override announcement. This announcement shall be personally recorded by the subscriber and enabled or disabled on subscriber demand. When enabled, the override announcement takes precedence over any scheduled menus (In-Hours, Out-of-Hours or Holiday). After playback of the announcement, the caller is then prompted to repeat the announcement or to disconnect.

- Announcements - Recorded announcements may be configured on any Menu extension. There are 9 announcements available per menu.

- Default Greetings - VR Menu greetings (In-Hours, Out of Hours, Holiday and Submenu 1-87 greetings) and the Mailbox Greeting have default, prerecorded greetings. These default greetings are utilized by

the VR until such time as the greetings are recorded by the subscriber. The default greetings are not utilized once the recorded greetings are activated.

Announcements do not have a default.

The maximum greeting/announcement length is a system parameter. Attempts by the subscriber to record greetings exceeding this value shall result in the greeting being truncated and retained by the system (as if the subscriber terminated the recording normally, e.g., press the # key).

Caller Options during Greeting Play

The following options are available to the caller/subscriber during VR greeting playback.

Select Extension

If any VR extension is enabled, the caller may access that extension during or after greeting play by entering the appropriate key. Operation after extension selection is determined by the configuration of the VR (i.e., go to external account, dial a number).

Dial 0 for Operator

If enabled and properly configured, the caller may press [0] at any VR menu to be connected to a designated operator.

Caller Options

After the VR greeting is played, the caller is prompted according to the subscriber programmed VR configuration:

Dial 0 for Attendant

This option allows the caller to press [0] to reach an operator. If the caller presses [0], a call is placed to a predetermined (subscriber provisioned) telephone number. The caller is provided with call progress prompts.

Once the call is answered by the operator the two-way talking path is completed and the subscriber and operator can converse. When the operator disconnects from the call, the caller is provided with a graceful disconnect ("goodbye") and the process is ended. If the caller hangs up, the process is ended.

Extensions [1–9 and 0]

Any programmed extension may be accessed by the caller by entering the appropriate key. Each extension may be configured by the subscriber to dial a number, route the caller to an external account (e.g., mailbox

account), perform extension dialing, route the caller to the general mailbox (optional), route the caller to a Submenu, perform Hunt (optional) or provide an internal announcement.

Route Caller to a Telephone Number

The VR may be programmed to route the caller to an external telephone number. In this case, the VR places a call to the programmed destination telephone number and provides feedback to the caller that a call is being placed (e.g., a message indicating that a call is being placed and instructions on how to return to the main menu).

Route Caller to (External) Account

The VR may be programmed to route the caller to an external account. In this case, the caller is connected directly to that account. The VR is no longer active on the call. The caller is subjected to the call flow provided by the external account (e.g., greeting playback and functionality of the account). The caller may not return to the VR menus from the external account.

The destination may be any account in the Partner.

Extension Number Dialing

The VR may be programmed to permit a caller to reach a VR member by dialing the member's assigned extension number. In this case, the caller must know the extension number of the VR member and enter the number using the telephone keypad. The VR, based on information contained in the Directory, places a call to the assigned member.

When the call is placed to the VR member, call progress feedback is provided to the Caller. When the Called member answers, the VR bridges the Caller and Called member together (2 way talking path is complete). The VR, if optioned appropriately (see Transfer Option), continues to hairpin caller and member, for the duration of the call.

Submenu

The VR may be programmed to permit a caller to reach a Submenu. In this case, the caller shall hear the configured submenu greeting and be subject to the menu configuration choices established for the Submenu.

Hunt

The Hunt service is an optional feature of the VR. If enabled, you may program the VR to route the caller to a Hunt service. Use the GUI to configure up to four telephone numbers and the Hunt algorithm type the VR Administrator should use. The Hunt algorithm can be:

- Circular – with this option, hunt calls are placed starting at the 'next' telephone number in sequence. The system retains the last telephone number called and starts on the next telephone number in the sequence with each new call.

- In Order – with this option, calls are always placed to the first number in the list and if that number is busy, a call is placed to the next number in the list.

- Random – with this option, calls are placed to the non-busy destination telephone numbers in a random order.

- Least called – with this option, calls are placed in order to the numbers that have been called the least. The service keeps a record of the number of times calls have been placed and uses this information to route subsequent calls to members who have answered the fewest calls.

- Simultaneous – with the simultaneous option, the VR places calls simultaneously to all telephone numbers. You may optionally set a Ring Time to use when routing to Hunt telephone numbers to determine how long the VR should wait for the call to be answered before taking another action.

In the event that the hunt algorithm exhausts all numbers before being answered, the system shall terminate the hunt process, play (46060) 'Your call could not be completed.' and return the caller to the VR menu.

General Mailbox

The VR supports an optional general mailbox. The VR may be programmed to route the caller to the general mailbox. When routed to the mailbox, the Caller has the following options:

Leave a Voice Message

The mailbox greeting is played and the caller is prompted to leave the message after a tone and end the recording by pressing the pound key.

If the caller hangs up before pressing the pound key their recorded message is retained (i.e., automatically sent).

If during the recording of the caller message, the caller presses any key, the message is retained, and the caller is brought to the Post Record Menu.

After the caller leaves a voice message they are brought to the Post Record Message Menu, they may:

- **Send it**. This option will result in the recorded message being deposited in the subscriber's mailbox and the caller being disconnected.

- **Mark/Cancel Private**: The caller may mark the message as private. The caller may also remove private marks from the message. Messages marked private cannot be forwarded by the subscriber.

- **Mark/Cancel Urgent**: The caller may mark the message as Urgent. The caller may also remove Urgent from the message. Messages marked urgent will be uniquely identified as such for purposes of playback order.

- **Playback**: The caller may listen to the message that they have recorded to verify the contents.

- **Rerecord**: The caller may delete and re-record the message. When this option is selected the original message is deleted and the subscriber is re-prompted to record the message.

Listen to Announcement

The VR may be programmed by the subscriber to provide an announcement to the caller. After the announcement is played to the caller, the caller has the following options:

- **Listen Again**. This option will replay the announcement to the caller.

- **Return to the Previous Menu**. With this option the caller may return to the VR menu Greeting.

- **Hang Up** - The caller may hang up and disconnect.

Directory Extension (Dial by Name) [#]

The VR Dial by Name service permits a caller to reach and VR member by accessing the Directory (press [#] at any menu) then 'spelling' the name of the member using the telephone keypad. The VR attempts to resolve the name entered by the caller (last name, first name or both).

If the result is a single member, the VR informs the caller of the name then provides a menu which allows the caller to confirm and then places the call.

If the result is from one to eight members, the VR informs the caller with a menu list of names requesting the caller to select one. When the caller makes the selection, the VR confirms the name and then places the call.

If the result is greater than eight members, the VR informs the caller that they should perform another search.

Prior to placing the call, the VR quotes the NAME of the member being called. It is expected that this Name shall be *recorded* by the VR Administrator during Directory Set up (see Directory Set Up). If the member NAME has not been recorded the VR shall 'spell' (using alphabetic prompts, 'a', 'b', etc.) the name of the contact beginning with the Last name then First name.

When the call is placed to the VR member, call progress feedback is provided to the Caller. When the Called member answers, the VR bridges the Caller and Called member together (2 way talking path is complete). The VR, if optioned appropriately (see Transfer Option), continues to hairpin caller and member, for the duration of the call.

Call Flow diagram — Caller interface

The following figures depict the Caller Interface operation as defined in Caller Interface. Prompts referred to in these diagrams are provided in "Virtual Receptionist prompts" (page 46).

Caller Access
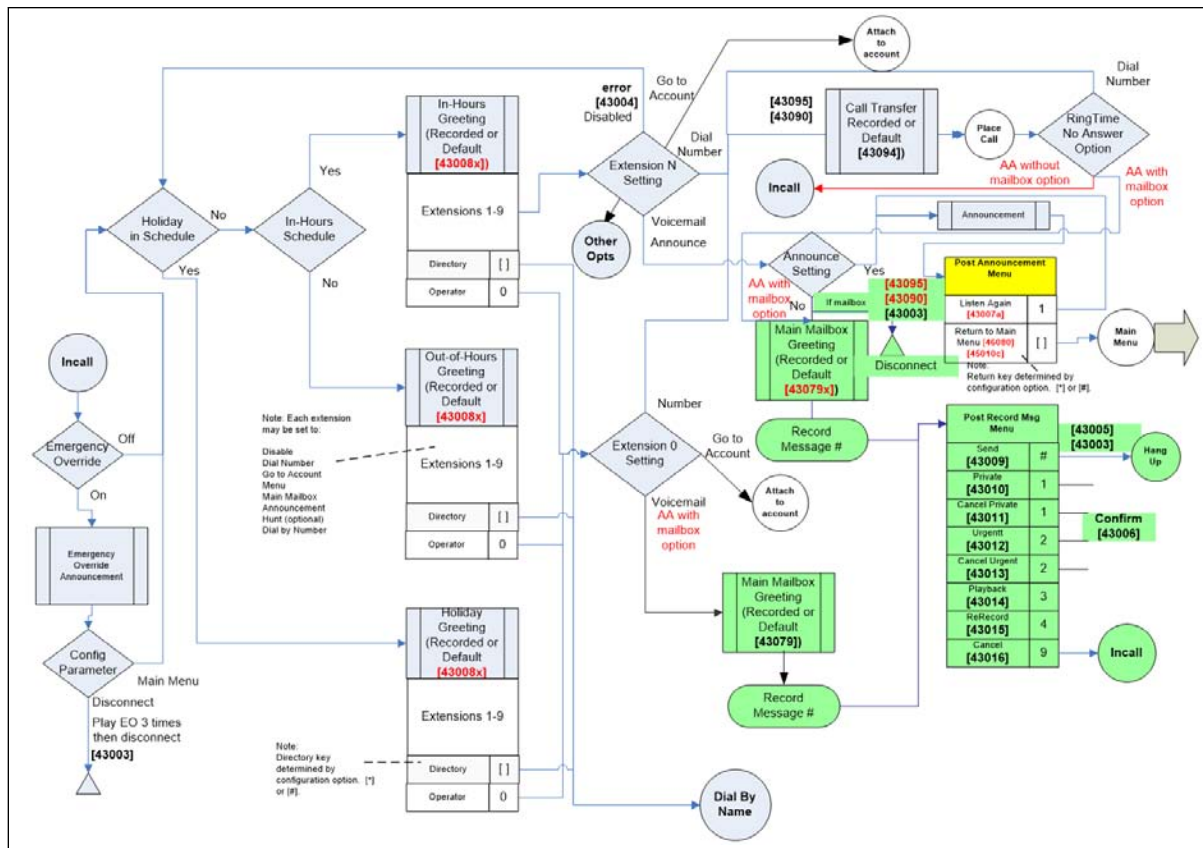
Caller call flow — Dial by Number, Hunt, Submenu Operation

Caller Directory — Dial by Name
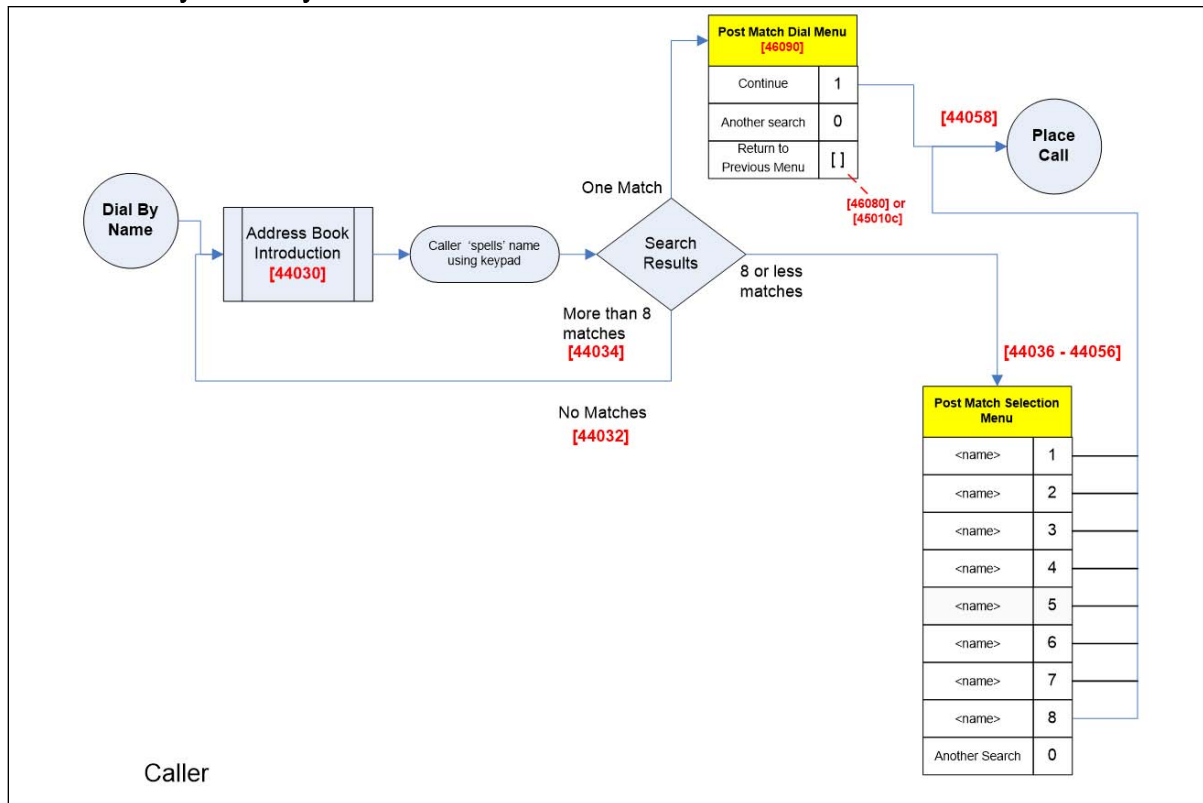
Authenticated Subscriber

This section describes the authenticated subscriber experience for system access via the Main Menu. The detailed call flow is provided in Call Flow Diagram - Authenticated Subscriber.

Message Center Operation and Management

The following sections describe *Native* VR mailbox operation. This operation is the default of the VR.

Procedures relating to optional *Plug-In* mailbox operation shall be determined by the voicemail application supported. When Plug-In mailboxes are utilized, the TUI Main and Administration menus shall remain intact (see the first figure in High Level TUI Flow). The call flow for voicemail review shall be determined by the Plug-In. Mailbox options, if any, shall be included in the call flow under the Administration Menu.

Post Authentication

When the subscriber has authenticated (see Call Flow Diagram - Authentication), the system shall:

- Provide status of the Emergency Override Announcement, if EA is on, and allow the subscriber to Turn Emergency Override off.

- Bring the subscriber to the Main Menu.

Main Menu

The Main Menu permits the subscriber to:

- Access the general mailbox (0) for message management purposes, if configured.

- Access More Options (0,0) for purposes of account management.

General Mailbox

When the general mailbox is accessed by the subscriber, the system shall:

- Announce the Mailbox fill status.

    - A system-provided status messages for voicemail levels meeting and exceeding 80% of the storage capacity shall be played warning the subscriber that the message capacity is approaching full.

A system-provided status message for voicemail levels at 100% (full) capacity shall be played informing the subscriber that no additional messages will be

After the message status the subscriber may:

- **Listen new messages**. This option is provided for new messages in the mailbox. A *new* message is one that has been left and is being accessed for the first time.

- **Listen saved messages.** This option is provided for saved messages in the mailbox. A saved message is one that has been explicitly saved during message review.

- **Review all messages**. This option is provided to review all messages stored in the mailbox, whether new or saved.

- **Recover Deleted messages**. This option allows the subscriber to recover all messages that have been deleted during the current session. Recovered messages are placed back in the inbox and retain the status (new or saved).

> *Note:* If the subscriber ends the session (e.g., hangs up) after deleting messages, they may not be recovered by this mechanism on subsequent sessions.

- **Return to Previous**. This option moves the subscriber back to the Main Menu.

Messages received while message playback is in progress are stored by the system. These messages can be accessed by the subscriber from the Main Menu after playback of the message sequence, as described in the previous bullet item, is complete.

Message Playback

- When messages are accessed by the subscriber, messages are played in the order of newest message by date played first.

- Each message is played back to the subscriber with the header played back first followed by the message body (for voicemail). Only message headers are played for Fax messages.

Message Playback Controls

During message playback the subscriber shall have the following functionality available.

- **Save message**. Changes the message state from new to saved.

- **Skip message.** The next message will begin play. The original message state (new or saved) remains unchanged.

- **Speed controls.** The subscriber can increase and decrease speed while the message is playing. The speed control remains in effect for the session. Speed control adjustment can be made at any time with the exception when the subscriber is on a menu where the menu selection conflicts with the speed adjustment key. All messages and menus begin playback at normal default speed on the next authentication.

- **Volume control.** The subscriber can increase or decrease volume while the message is playing. All messages begin playback at normal default volume (midrange) on the next authentication.

- **Envelope.** The subscriber can replay the envelope of the message. Message envelope contents include:
  - Folder Name — inbox
  - Status — new, saved
  - Sensitivity — private, urgent
  - Class — voicemail, fax

- — Message Indication — reply, forwarded
- — Day/Time — today, yesterday, \<date>,\<time>
- — From — \<telephone number> or \<name>
- — Length — \<seconds>

Individual components of the message envelope may or may not be played depending on the COS.

Post Message Playback

After message playback the subscriber will be able to:

- **Save.** Mark a new message as one that has been saved.

- **Delete.** Delete the previously played message and begin playback of the next message. If no more messages are in queue, return to the main menu.

    Note: Erased messages may be recovered using the Recover Deleted Messages feature.

- **Skip.** Move to the next message leaving the current message intact with no state (new or saved) change.

- **Listen again (Replay)**. The message is replayed with the envelope (if enabled) followed by the voicemail content. If the envelope feature is off, only the voicemail content will be played with an 'end of message' separator prompt played between messages.

- **Envelope**. Plays the message envelope associated with the message that has been played back.

- **Timestamp**. Plays the message time of arrival.

- **Reply.** The subscriber may reply to a caller's message with a recorded message. This function operates only if the caller is a voicemail subscriber.

The system determines if the caller is (or is not) a Voice mail subscriber by means of the caller id (e.g., ANI) of the left the message. When **reply** is invoked, the subscriber is requested to record a message. After the message is sent, the system automatically deposits the recorded message

in the designated mailbox of the subscriber that had left the message. If the caller id indicates that the message was not from a subscriber, this menu item (**reply**) is not offered.

- **Forward to Fax.** The subscriber may forward a stored fax message to a fax machine. When requesting to forward a stored fax, the subscriber is prompted to enter the telephone number of the destination fax machine. This option is not provided when reviewing a voice message via the TUI.

- **Recover Deleted Messages**. This option allows the subscriber to recover all messages that have been deleted during the current session. Recovered messages are placed back in the inbox and retain the status (new or saved).

    Note: If the subscriber ends the session (e.g., hangs up) after deleting messages, they may not be recovered by this mechanism on subsequent sessions.

Message States

Messages are in one of three internal states as determined by the TUI (New, Unread, and Read).

New messages are those which have been deposited in the account and are available to the subscriber on the first authenticated TUI session after they are deposited.

Unread messages are those that are formerly new (on a given session) but have not been accessed, or have not been fully listened to, before the session ends. That is, a message automatically moves from the 'new' message state to the 'unread' message state if an authenticated subscriber disconnects from the session before listening to the entire message.

Read messages are those which have been explicitly saved or deleted after listening to the complete body of a message.

Subscribers are provided one of two message statuses for VR stored messages; new and saved. The following table provides the mapping between internal and external states of messages, by default.

Message state mappings

Internal State	External State Name (Default)
New	New
Unread	New
Read	Saved

Administrator Account

The Administer Account selection permits the subscriber to configure additional VR options including Greetings management, Announcement management, Security management (changing the PIN), and Language management.

The following options and functions are provided.

- **Greetings and Announcements.** This function allows the subscriber to manage the VR Menu Greetings and Announcements. When selected the subscriber may choose between:
  - Administer In--Hours Greeting and Announcements
  - Administer Out of hours Greeting and Announcements
  - Holiday Greeting and Announcements
  - Submenu Greetings (1-87) and Announcements
  - General Mailbox (extension 0) Greeting
  - Emergency Override Announcement
  - Return

After selection of a particular Menu greeting (In-Hours, Out-of-Hours, Holiday) the subscriber may:

- Manage the Menu Greeting [0]

- Manage the Menu Announcements [1-9]

  Note: There are 9 announcements which may be administered for this menu)

- Return

After selection of the Submenu Greeting and Announcements, the subscriber is requested to enter the Submenu identifier (1-87). Once the appropriate Submenu is identified, the subscriber may.

- Manage the Submenu Greeting [0]

- Manage the Submenu Announcements [1-9]

  Note: There are 9 announcements which may be administered for this menu)

- Return

After selection of the General Mailbox Greeting the subscriber may manage the greeting.

After selection of the Emergency Override announcement the subscriber may manage the announcement.

The following controls are available when managing Greetings or Announcements:

- **Listen.** Listen to the recorded greeting.

- **Record/Re-record.** Record or Erase and re-record an existing greeting or announcement.

- **Accept.** After recording a greeting the subscriber indicates acceptance of the greeting. That greeting is stored by the system.

- **Change PIN.** This function allows the subscriber to change the PIN of the account. When selected the subscriber is prompted to enter and to validate the new PIN.

- **Select Language.** This function allows the subscriber to select the language subscribers and callers hear.

Call Flow Diagram — Authenticated Subscriber

Prompts contains the corresponding prompt list.

Detailed Subscriber Call Flow
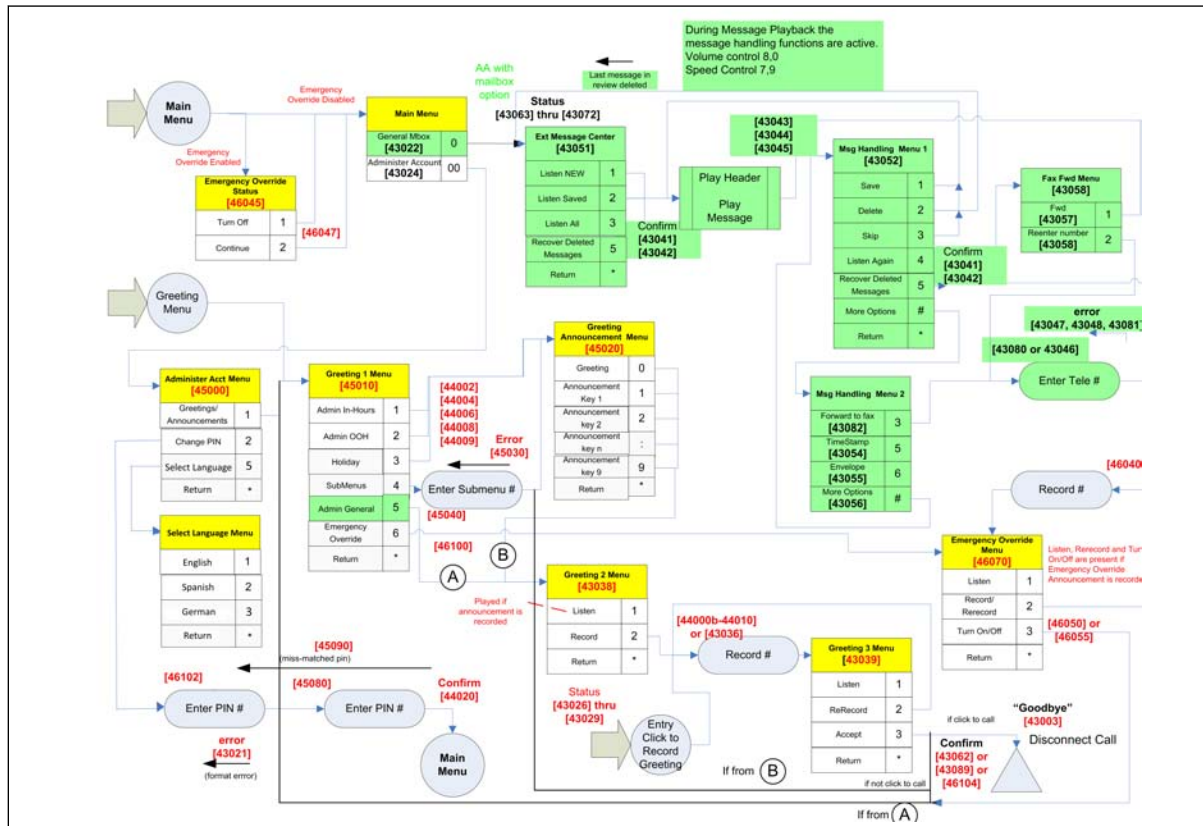
Called Subscriber

This section describes the subscribers experience for:

- Telephone Notifications of new messages arriving in the VR mailbox.

- Incoming calls from the VR to a member of the VR community (i.e., defined in the VR Menu configurations or in the Directory).

Notifications

New message Notification control (on/off), entry of the telephone number and scheduling notifications are subscriber features controlled by means of the GUI.

If notifications are enabled, the system launches a call to the programmed telephone number for notifications of new messages arriving in the mailbox.

At the time of the notification, the system places a call to the subscriber's designated telephone in accordance with the notification option settings. Caller ID information shall indicate that the call is from the VR (i.e., calling party number or ANI, is the telephone number of the VR).

When the subscriber answers the notification call, the system announces (whisper) that this is a notification and provides caller id information. The subscriber is then given the following choices:

- **Listen Again** - this function allows the subscriber to have the notification repeated. When selected, the notification prompt and menu are repeated.

- **End this call** - this function ends the call. The VR will disconnect from the subscriber.

    Note: The subscriber may simply hang up to accomplish this.

- **Access your account** - this function enables the subscriber to gain access to their account. When selected, the subscriber is prompted to authenticate (enter their password). If successful, the subscriber is logged into their account to retrieve messages.

Calls Received from VR

A member of the VR community may receive calls routed through the VR from a caller. The detailed call flow is provided in Call Flow Diagram - Called Member or Subscriber.

Operation is determined by a parameter which determines if whisper (voicing of Caller ID) is on or off for the VR COS (see Whisper Services).

For the case where whisper is off (default operation), the Called user is connected to the calling user, through the VR, when the call is answered.

For the case where whisper is on, when the member answers the incoming call, the VR shall provide whisper, indicating the calling user (Caller ID). The system shall provide a menu reflecting the following choices:

- **Accept call** - this function allows the subscriber to answer and connect to the caller. When invoked a two way voice communications path is established between the subscriber and the caller.

- **Decline call** - this function ends the call.

- **Transfer the call** - this function, described in the section below, permits the subscriber to transfer the active call to another extension or number.

Active Call Transfer

Active Call transfer is a supplementary service allowing the called member flexibility in managing calls received from the VR.

- A Called member may transfer the Caller to the Main Menu of the VR or to another member extension number.

- The called user may invoke transfer prior to answering the call or may invoke transfer after answering the call.

  – Pre-answer transfer - The called user, after notification of the incoming call (whisper caller id), is presented with the following menu:

  – Accept Call - Selection of this function will connect the called user to the caller.

  – Decline Call - Selection of this function will result in the caller being disconnected (Goodbye).

  – Transfer Call - Selection of this function will permit further call management by providing the following menu functions:

    – Transfer the call - This function results in the called user being prompted to enter the extension number of the party to transfer the caller to. The system validates the extension number by means of the Directory. When validated, the destination places the call to the indicated extension number. Once completed, the called user is disconnected from the call.

      Note: The VR maintains the connection between the caller and the destination extension.

- Return the caller to the VR main menu - This function moves the caller to the VR Main Menu and disconnects the called user.

- Retrieve the caller - This function allows the called user to connect to the caller.

— Post-answer transfer - This function can only be invoked when the called user has answered and is connected to the caller (end-to-end communications path through the VR). The called user places the caller on hold by entering the TUI command [*8]. The user is then provided with a menu which allows them to dial an extension or to select the main menu. After completion of this task the called user is dropped and the caller is connected to the appropriate designation.

Call Flow Diagram — Called Member or Subscriber

The following flow depicts the called subscriber operations for notification calls.

Called user operation
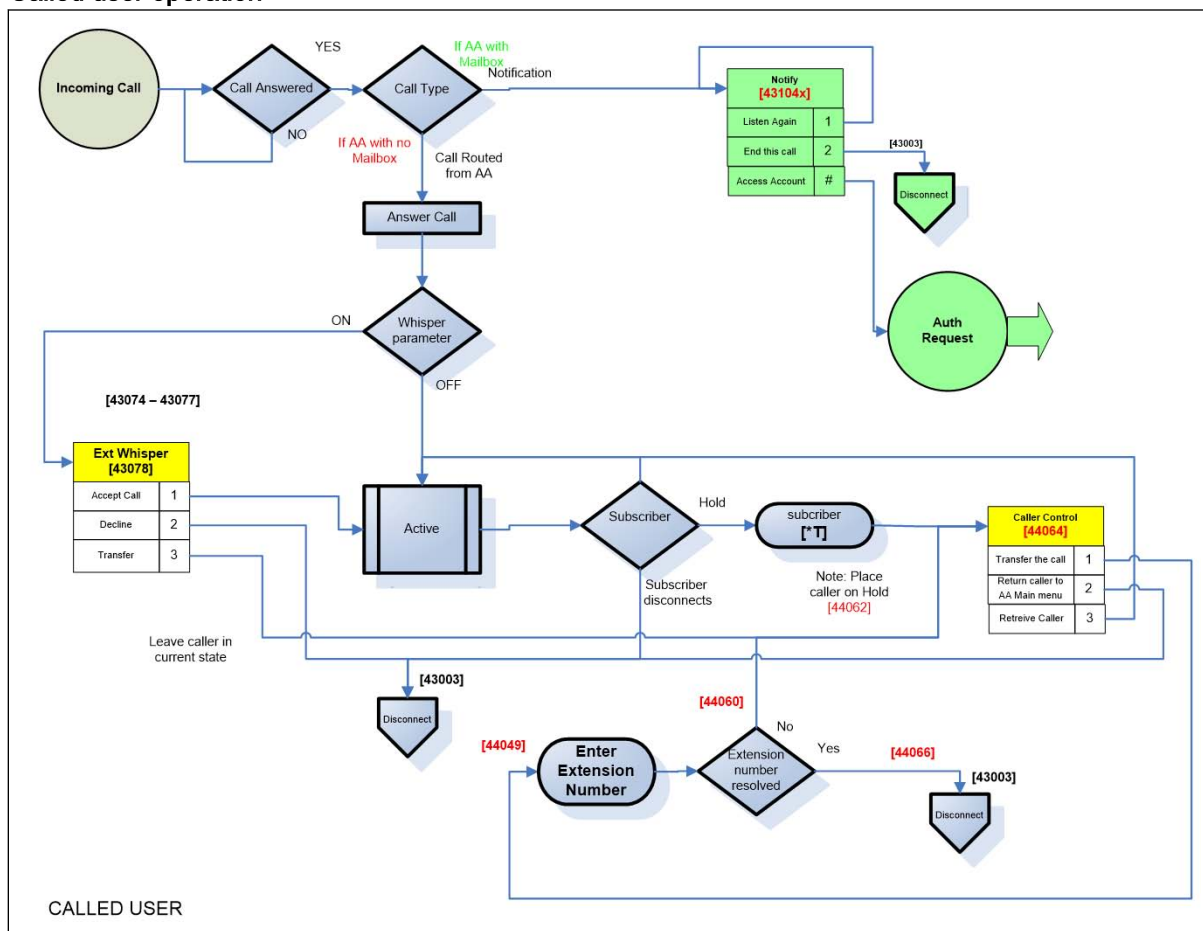
Prompts

The following table provides the complete list of prompts for the VR product.

Virtual Receptionist prompts

Filename	Prompt – US English
P2680	Sorry you have failed to enter the correct passcode. You must contact customer care to reset your passcode
P2681	Sorry, this account is blocked as a security measure. You must contact customer care to reset your passcode.
2680	Sorry you have failed to enter the correct PIN. You must contact customer care to reset your PIN
2681	Sorry, this account is blocked as a security measure. You must contact customer care to reset your PIN.
19053	Your setting has been updated
19079	For U.S. English, press 1. For <Language>, press <n>…
43001x	That is an invalid number. Please try again.
43002	Your mailbox is full.
43003	Goodbye.
43004	Invalid entry. Please try again.
43005	Your message has been sent.
43006	Completed.
43007a	To listen to this announcement again, press 1.
43008g	…Auto Attendant.
43008v	To access the company directory, press the star key.
43008w	To access the company directory, press the pound key.
43008x	You have reached an Auto Attendant.
43008y	If you know your party's extension, press it now.
43009	To send your message, press pound.
43010	To mark the message as private, press 1.
43011	To cancel privacy, press 1.
43012	To mark the message as urgent, press 2.

Virtual Receptionist prompts (cont'd)

Filename	Prompt – US English
43013	To cancel urgency, press 2.
43014	To playback message, press 3.
43015	To re-record the message, press 4.
43016	To cancel, press 9.
43017x	Welcome. Please enter your Auto Attendant number followed by the pound key.
43018x	That is not a valid Auto Attendant number. Please verify your information and try again.
43019	Your records are currently unavailable. Please call back later.
43020	Enter your PIN followed by the pound key.
P43020	Enter your passcode followed by the pound key.
43021	That PIN is incorrect. Please try again.
P43021	That passcode is incorrect. Please try again.
43022	To access general voicemail messages, press 0.
43024	To administer your account, press zero zero.
43025	General voicemail greeting.
43026	Mailbox…
43027	…greeting…
43028	…announcement…
43029	…for extension…
43030	In-hours greeting.
43031	Out-of-hours greeting.
43036	Start recording at the tone. When finished press the pound key.
43038a	To listen, press 1
43038b	To record, press 2. To return to the previous menu, press the star key.
43039	To listen, press 1. To re-record, press 2. To accept, press 3.
43041	Deleted messages were recovered.
43042	There are no deleted messages to recover.
43043	There are no more messages.

Virtual Receptionist prompts (cont'd)

Filename	Prompt – US English
43044	There are no more new messages.
43045	There are no more saved messages.
43046	Enter the telephone number of the destination FAX machine. End by pressing the pound key.
43047	We're sorry, we cannot place a call to that number. Please enter another number.
43048	That is not a valid telephone number. Please try again
43049	Enter the recipients extension followed by the pound key
43050	Your message has been copied.
43051b	To listen to your new messages, press 1. To listen to your saved messages, press 2. To listen to all of your messages, press 3. To recover deleted messages, press 5. To return to the previous menu, press the star key
43052x	To save the message, press 1. To delete, press 2. To skip, press 3. To listen again, press 4. To recover deleted messages, press 5. For more options, press the pound key. To return to the previous menu, press the star key.
43053	To copy the message to another mailbox, press 4.
43054	To listen to the message timestamp, press 5.
43055	To listen to the message envelope, press 6.
43056	For more options, press the pound key.
43057	To forward as fax to ...
43058	... press 1. To re-enter the fax destination number, press 2
43059x	You do not have an Auto Attendant greeting recorded. If you want to record your greeting now, press 1. Otherwise, press 2.
43060	Your mailbox is full. To receive new messages, please delete your old messages.
43061	Your mailbox is near the storage limit.
43062	Your greeting has been updated.
43063	You have no messages at this time.
43064	You have one new message.

Virtual Receptionist prompts (cont'd)

Filename	Prompt – US English
43065	You have one saved message.
43066	You have …
43067	... messages.
43068	One is new.
43069	... are new.
43070	... and ...
43071	One is saved.
43072	... are saved.
43073	Your party has disconnected. Goodbye.
43074x	You have an incoming Auto Attendant call.
43075x	You have an incoming Auto Attendant call from …
43076x	You have an incoming Auto Attendant call for …
43077	… from …
43078x	To accept the call, press 1. To decline this call, press 2. To transfer the call, press 3.
43079x	You have reached an AutoAttendant mailbox.
43080	Enter the telephone number of the destination FAX machine, end by pressing the pound key. To return to the General mailbox, press star.
43081	That is not a valid telephone number. Please try again
43082	To forward the FAX to another number, press 3.
43083	That mailbox is full. Please try another.
43084	Your call will end in 60 seconds.
43087	Dialing…
43089	The announcement has been updated.
43094	Please wait while we connect you.
43095	Transferring call.
43097	…press…
44000a	Start recording your…
44000b	…at the tone. When finished, press the pound key.
44002	…In-Hours…

Virtual Receptionist prompts (cont'd)

Filename	Prompt – US English
44004	…Out-of-Hours…
44006	…Holiday…
44008	…Submenu…
44009	…General Mailbox…
44020	Your PIN has been updated.
P44020	Your passcode has been updated.
44030	Enter the name of the contact entry you would like to retrieve using the letters of your telephone keypad. Use the star key to indicate any sequence of characters. When finished press the pound key. To exit the directory now press pound.
44032	There were no matches for that search.
44034	That search matched more than 8 entries. Please try to refine your search.
44036a	There were …
44036b	…matches for that search.
44038	Press 1 for…
44040	Press 2 for…
44042	Press 3 for…
44044	Press 4 for…
44046	Press 5 for…
44048	Press 6 for…
44049	Enter the extension number of the party you wish to transfer this call to, followed by the pound key.
44050	Press 7 for…
44052	Press 8 for…
44054	Press 9 for…
44056	Or press zero to perform another search.
44058	Name…
44060	I'm sorry, that extension is not valid.
44062	Please hold.
44064	To transfer the call, press 1. To return the caller to the Auto Attendant main menu, press 2. To retrieve the caller from hold, press 3.

Virtual Receptionist prompts (cont'd)

Filename	Prompt – US English
44066	Caller Transferred.
44068	Sorry this mailbox is full.
44070	…Menu.
45000a	To manage greetings and announcements, press 1
45000b	To change your PIN, press 2
P45000b	To change your passcode, press 2
45000e	To select language, press 5
45000s	To return to the previous menu, press the star key
45010	To manage your In Hours Menu, press 1. To manage your out of hours menu, press 2. To manage your holiday menu, press 3. To manage your Submenus, press 4. To manage your General Mailbox Greeting, press 5.
45010b	To manage your Emergency Override announcement, press 6.
45010d	To manage your In Hours Menu, press 1. To manage your out of hours menu, press 2. To manage your holiday menu, press 3. To manage your Submenus, press 4.
45010e	To manage your General Mailbox Greeting, press 5.
45020a	To manage the …
45020b	…Greeting, press 0.
45021	To manage the Menu announcement on key …
45022	Press …
45023	To return to the previous menu, press the star key.
45030	Sorry that is not a valid Submenu identifier. Please try again.
45040	Enter the Submenu identifier, followed by the pound key.
45050	Holiday Greeting.
45060	Your call could not be completed.
45080	Please re-enter your PIN followed by the pound key.
P45080	Please re-enter your passcode followed by the pound key.

Virtual Receptionist prompts (cont'd)

Filename	Prompt – US English
45090	The two PINs you entered do not match. Please try again.
P45090	The two passcodes you entered do not match. Please try again.
46040	Start recording your emergency override announcement at the tone, followed by the pound key.
46045	Emergency override is on. To turn it off, press 1. To continue, press 2.
46050	Emergency override has been turned off.
46055	Emergency override has been turned on.
46060	Your call could not be completed. Please call back later.
46070a	To listen, press 1. .
46070b	To record, press 2.
46070c	To rerecord, press 2
46070d	To turn it on, press 3
46070e	To turn it off, press 3
46080	To return to the previous menu, press the pound key.
46090	To continue, press 1. To perform another search, press 0.
46100	Emergency Override Announcement.
46102	Enter your new PIN followed by the pound key.
P46102	Enter your new passcode followed by the pound key.
46104	Your recorded name has been updated.
46106	Enter your temporary PIN then press pound.
P46106	Enter your temporary passcode then press pound.

Virtual Receptionist Graphical User Interface (GUI)

Ribbon provides a Graphical User Interface (GUI) as part of the VR solution. The GUI is utilized as the primary means of VR configuration. The GUI permits the subscriber to access their VR account via the web interface and:

- View and manage configuration options. These include defining extensions, schedules, greetings, directory and additional options.

- Manage the (optional) general mailbox. The subscriber may access messages left in the VR mailbox (e.g., view fax or listen to voice messages using the media player of the PC).

- Manage subscriber security. The subscriber may change the Password used for Web GUI access or the PIN used for TUI access.

    Note: The implementation may differ in form (look and feel) from the depictions of the Web GUI provided in this section. The content and functionality of the services, however, shall constitute requirements. Telephone numbers, account numbers, names, and NTERACT branding are used for example purposes.

Compatible Web Browsers

The Subscriber GUI shall be compatible with the following Web Browsers:

- Microsoft Windows:

    – Internet Explorer 10.0 and above

    – Firefox 20.0 and above

    – Safari 5.0 and above

    – Google Chrome 30.0 and above

- Apple Mac:

    – Firefox 20.0 and above

    – Safari 5.0 and above

Access Restrictions

Access to the subscriber GUI is provided by means of layered restrictions to provide subscriber security and unique authentication. The following optional security levels shall be supported:

- Network access restriction

- Data encryption

- Partner authentication

The first layer of security is at the network level. At this level, Ribbon will only allow incoming connections from known/trusted IP addresses. A Partner must provide Ribbon with a set of IP addresses that will be originating socket connections to the system. Only these IP addresses will be allowed to execute a transaction.

The second layer of security consists of data encryption. This is provided using the HTTPS protocol for receiving requests and returning responses. This allows all data exchanged between a partner and Ribbon to be encrypted using 128-bit encryption.

The third layer of security consists of authenticating the subscriber. Authentication contains two fields. One field is a unique subscriber identifier (userid). The second field is a subscriber password. This required information is used by Ribbon to authenticate the validity of a subscriber.

Private Branding

The GUI shall provide for private branding consisting of the Customer Company name and Logo. The GUI shall permit adjustment of the color scheme to meet the customer's needs. Font changes may be applied; however they are subject to the physical limitations of the template.

> *Note:* The VR default template is fixed in nature. Any custom work to change the organization of the default template may require additional development costs.

Applicable Functionality

VR service offers for the Customer may be tailored in terms of functionality. As such, the functionality of the GUI can vary accordingly. Depending on the VR service offer, an entire page may or may not apply, or options within a page may or may not apply depending on the Class of Service (COS) definition.

Subscriber GUI Operation

This section provides a detailed description of the GUI template and functions provided on each web page.

First time login and forced change

The VR supports an optional Forced Change feature. The first time a subscriber logs into the Web GUI, or each time the OSS Agent resets or changes the Password, the VR enters the Forced Change state. While in this state, the subscriber must use the temporary Password for their next authentication. For first time logins, the Password is the same as the PIN given by the service provider. For Password resets, the value is assigned or generated randomly by the OSS Agent.

Once authenticated using the temporary Password, the VR forces the subscriber to change the temporary Password before providing access to the VR services.

The system remains in the Force Change state until the subscriber provides a new Password. The VR exits the forced change state if the new Password is accepted.

This optional feature is supported by agreement between the Carrier and Ribbon.

General Template

Each page of the VR GUI consists of a template as depicted in the following figure.

Note: Certain pages will apply depending on the VR configuration. Optional configurations (e.g. VR with general mailbox and Hunt feature service) are shown using explanatory notes in each depiction.

Located at the top left corner of each web page is an area for the Customer logo. In addition, color schemes may be individually tailored for the Customer. For purposes of this document, the generic Ribbon logo is shown.

General Template
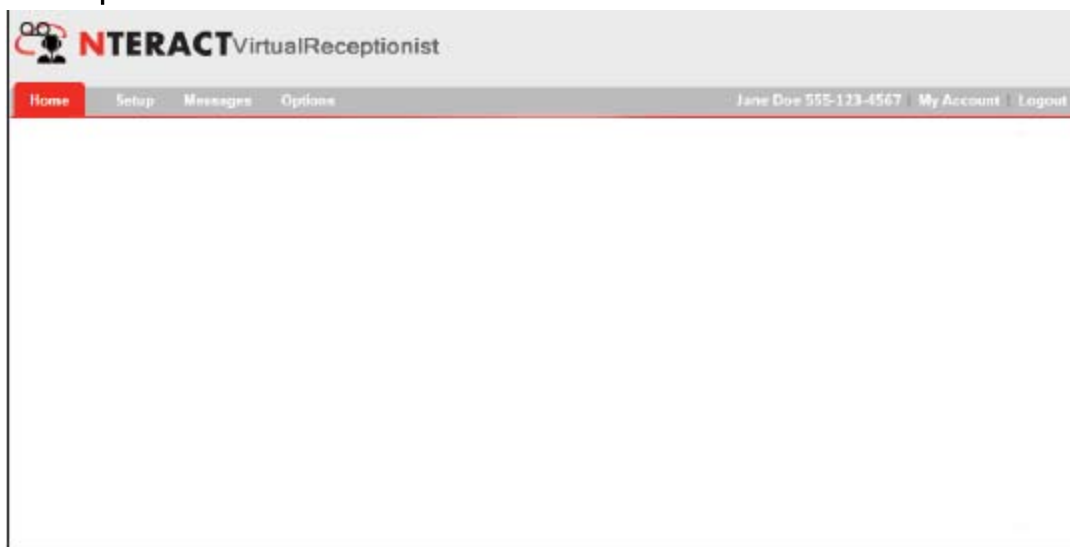
The Horizontal Navigation area is located at the top of each page and contains common navigational elements of the VR. These include:

- **Home.** This link returns the Subscriber to the Home Page.

- **Setup.** This function provides for VR configuration. Set up pages include set up for In-Hours, Out-of-Hours and Holiday Menu's, managing Greetings, creating Schedules and setting other VR Options.

- **Messages.** This *optional* function provides for Message review and set up of general mailbox related options (e.g., mailbox greeting, notifications, etc.).

    Note: If Mailbox service is not supported this navigation element is not provided.

- **Options.** This function allows you to change your Notifications and Mailbox Greeting.

- **Subscriber name.** This label displays the subscriber name associated with the account. This information is part of the provisioning information associated with each account.

- **Account Phone number.** This label displays the account phone number.

- **My Account.** This function provides for account level Passcode changes

- **Logout.** This link returns the Subscriber to the Subscriber Login Page (i.e., the general page that the Subscriber accesses to log into their account).

Home Page

The Home page provides a summary of account information and provides step by step instruction on account setup.

Home Page
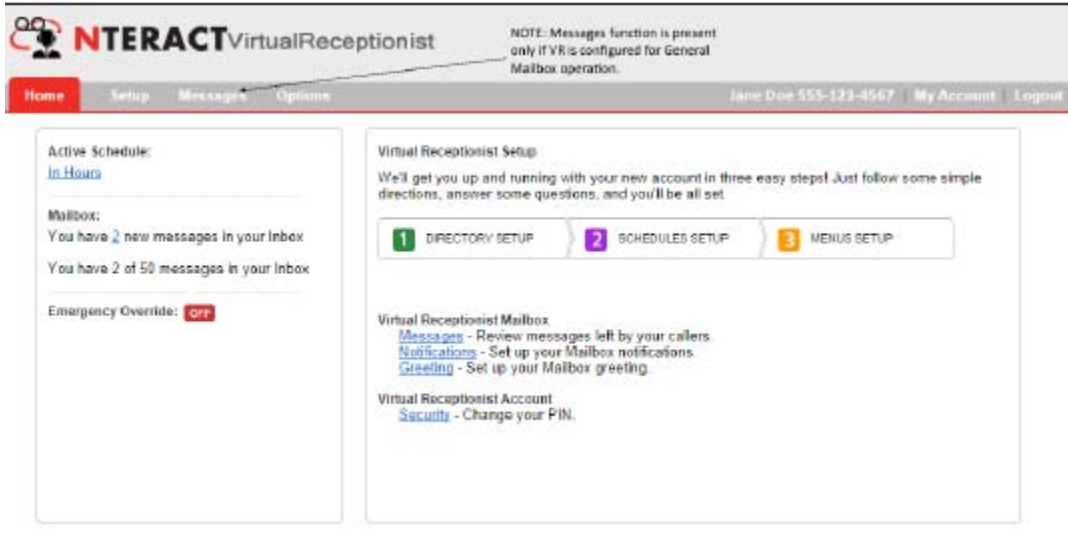
- The Home page is the landing page for the subscriber upon successful GUI authentication and when logging in (ALogin) from the OSS.

- The Home page provides the subscriber with the following statuses, links and controls:

  - Active Schedule Link- provides the Subscriber with the name of the schedule that is currently active. Selecting this link takes the Subscriber to the Configuration Page where the In-Hours and Holiday schedules may be established.

  - Mailbox Link - the number of messages and the maximum number of messages in the VR main mailbox are displayed. Selecting the new messages link will take the subscriber to the Messages/New Page where they may review the new messages.

  - *Note:* This information is provided only if Mailbox capability is supported.

  - Emergency Override Status - An indication informs the user if Emergency Override is ON.

  - Downloads: This optional section provides links to any information relating to the VR. Referenced information may be negotiated with the customer and provided by Professional Services.

  - Virtual Receptionist Setup - This area instructs the user on how to set up the VR in a logical and systematic way.

- Directory Setup - Brings the user to the Directory Setup Page (see Directory Set Up).

  Note: this function is provided only if the Directory service capability is supported.

- Schedules Setup - The In-Hours, Out-of-Hours and Holiday schedules are configured using this page. (see Schedule Set up)

- Menus Setup - VR Menus are configured using these pages. Each Menu consists of a Greeting and Extensions which may be configured to perform the actions based on the customers desire. (see Menus Setup)

  – Virtual Receptionist Mailbox - This section has the following links to assist the user with message review and setup of the VR mailbox.

    Note: This information is provided only if Mailbox capability is supported.

- Messages Link - provides the user with the ability to review messages left in the general mailbox.

- Notifications Link - provides the user with the ability to set up the VR Notifications.

- Greeting Link - provides the user with the ability to manage the general mailbox greeting.

  – Virtual Receptionist Account - This section provides other options and services associated with the VR Account.

- Security Link- provides the Subscriber with the ability to change their authentication Passcode.

  Note: The Passcode is applicable for both GUI and TUI authentication.

Directory Set Up

Directory service is determined by a system option and will depend on the COS configured for the customer. This section applies only if Directory services have been enabled. See Directory Services for the VR COS.

Directory List

The Directory is used to set up the Dial by Name and Dial by Number services.

Directory List Page

The Directory List Page displays a list of all Directory Members.

Each Member of the List is displayed using the following fields:

- *Name (last, first)* - this field displays the Name of the member. Text contained in this field is used by the VR for the Directory Dial by Name feature. This text is compared to that entered by the caller from their telephone Keypad for resolution purposes.

- *Name recording* - this function may be labeled PLAY or RECORD. If the Name of the member has been recorded the PLAY function is available. If the Name of the member has not been recorded, the RECORD function is available. Selecting the PLAY function results in activation of the default PC media player and playback of the Name by means of the PC audio equipment. Selecting the RECORD function results in a pop up allowing the user to record the Name for this member. The RECORD function allows the user to use Click to Record or to upload a WAV file.

- *Extension* - this field displays the extension number (for use with the Directory Dial by Extension feature) of the member.

- *Action* - this field contains the action taken by the system when either the member extension number is entered by the caller (i.e., Directory Dial by Extension feature), or, the member Name is 'spelled' by the caller who has accessed the Directory Dial by Name feature.

- *Email Address* - this optional field contains the email address of the member.

Rationale: The email address field is informational in the initial release of this product. Subsequent product releases of the VR may use this field for member notification purposes and for other capabilities (e.g., permitting a Directory member to personalize their Name).

From this page the administrator may:

- Add Entry - This function allows the administrator to add a member to the Directory.

- Preferences - This function allows the administrator to change the option for the search method used with the Dial by Name feature.

- Import - This function allows the administrator to import a comma-separated values (.csv) file to add to or replace Directory entries.

- Export - This function allows the administrator to export the directory information to a .csv file that can be stored on the local PC.

- Search - This function allows the administrator to search the directory for names beginning with the letter selected by the pull-down. The OK button invokes the search. Those Directory members whose names begin with the particular letter are displayed. The Search ALL displays all members in alphabetic order.

Directory — Add Entry

When the administrator selects the Add Entry function, the Add Entry fields appear at the top of the List Page (all list information is moved accordingly).

Directory Add Entry

The **Add Entry** Fields consist of:

- *First name* - text field, used to accommodate the first name of the member.

- *Last name* - text field, used to accommodate the last name of the member.

- *Extension* - digit field, used to accommodate the extension number for this member for use with the Dial by extension feature.

Note: This field is optional.

- *Action* - pull down, used to set the action taken when the member is selected by the caller for either the Dial by Name or Dial by Extension features. It supports the following choices:

  – Dial - this choice establishes the Action to be dial a number. The number field is located to the right of the pull-down. When Dial is selected, the number field must include a valid telephone number. The format of this number is subject to the dial plan configuration settings (see Dial Plan Configuration).

  Note: A system configuration parameter determines the ring time for all calls placed from the directory.

- Account - this choice establishes the Action to be go to an Account. The number field is located to the right of the pull-down. When Account is selected, the number field must include a valid account number. The destination may be any account in the Partner.

- Voicemail (optional) - this choice establishes the Action to be go to the general mailbox.

  Note: The number field does not apply in this case. Also note that this choice is provided only if the general mailbox has been enabled by a system parameter (see General Mailbox).

SAVE

The save function allows the administrator to save the Directory member information.

Note: All error checking is performed when the SAVE is invoked. If format errors are found in the member data, the administrator is warned and permitted to reenter the data.

The following failures are recognized:

- Failure to enter the first or last name of the member.

- Failure to enter a valid telephone number when *Action* = *Dial*.

- Failure to enter a valid account number when *Action* = *Account.*

CANCEL

The CANCEL function allows the administrator to discard changes to the member information.

In order for the Directory features (Dial by Name and Dial by Extension Number) to operate effectively, the following fields and functions should be configured by the Administrator.

Directory fields required by feature

	Dial By Name	Dial By Extension Number
First Name	x	x
Last Name	x	x
Extension		x
Action	x	x
Email Address		
Recorded Name	x	x

Directory Preferences

When the administrator selects the Directory Preferences function, the Preferences appear at the top of the List Page (all list information is moved accordingly).

Directory Preferences

The Directory Preferences page allows the administrator to select the search criterion used when the Caller utilizes the Dial by Name feature. Choices are:

- Last Name - This option searches for last name only.

- First Name - This option searches for first name only.

- Both - This option searches for both first and last names.

  Note: Callers accessing the Directory feature Dial by Name are expected to enter ("spell") the name of the member using the telephone keypad according to the criterion selected.

Directory Import Function

When the administrator selects the Directory Import function, the Import function appears at the top of the List Page (all list information is moved accordingly).

Directory Import

The Directory Import page allows the administrator to import a .csv file to add to or replace Directory entries. Once a file is selected, the import options include:

• Overwrite duplicates in Directory with imported items (keep the new ones)

• Do not overwrite duplicates in Directory (keep the old ones)

• Add all imported items to Directory without affecting any existing entries

• Replace entire Directory with imported items

The administrator should then select Import or Cancel.

Import - If Import is selected, the .csv entries are imported according to the method selected.

Cancel - If cancel is selected, the user is returned to the base page (the directory page from which the Import was requested).

Directory Export

When the administrator selects the Export function on any Directory Page (Directory List, Directory Add Entry, Directory Preferences), the directory export function is displayed at the top of the page. This function permits the user to Export the directory or to cancel.

Export - If Export is selected, the directory entries are downloaded.

Cancel - If Cancel is selected, the user is returned to the base page (the directory page from which the Export was requested).

Directory Export
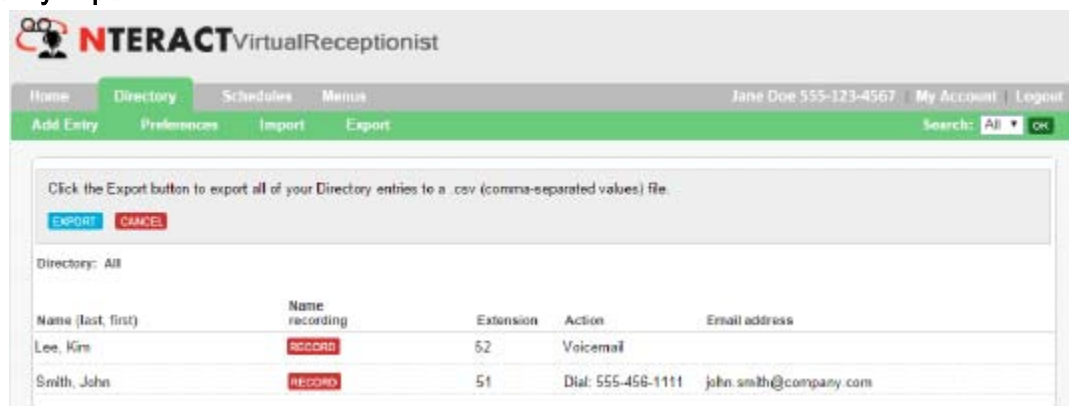
When activated, the VR shall download a csv file with filename *directory.csv* to the local PC. This file may be used as a record of the directory contents.

Schedule Set Up

Schedules Setup provides the Subscriber with the ability to set up In Hours and Holiday schedules. Selecting the Schedules Setup function brings the administrator to the In Hours Schedule page where they may define the business hours of operation.

In Hours Schedule

An In Hours schedule permits the Subscriber to define the days of the week and times of the day which will be considered 'Open'. Four fields are associated with each day of the week. The In-Hours schedule may be used to define one open period during the day.

The first field is a pull-down which permits the selection of "Open all day" or selection of the starting hour.

If "Open all day" is selected, no other fields are applicable and open for 24 hours is assumed for that day.

If a starting time (Hour) is selected, then the administrator shall address the remaining fields. The second field allows selection of starting time minutes (in 15 minute intervals) and AM/PM. The third field allows selection of the closing time Hour. The fourth field allows selection of the closing time minutes (in 15 minute intervals) and AM/PM.

A "quick" link is available to automatically set the In-hours schedule operation Monday through Friday 9am to 5pm. Activation of this link will establish this schedule as explained.

> *Note:* The schedule is saved only after selecting the UPDATE function.

Holiday Schedule

You may specify up to 20 dates (month and day) as Holidays in the Holiday schedule. The Holiday schedule overrides the In-Hours and Out-of-Hours schedule.

To enter a holiday, click the **Start date** field, select a date from the calendar pop-up, and click the **Add** button. You may also enter the holiday as a range of dates by clicking the **End date** and selecting the end date from the calendar pop-up. The dates appear in the associated Holiday list. You may delete Holidays from the list by first selecting the Date and then clicking the **Remove from list** button.

Out-of-Hours

> *Note:* Out of Hours schedule (i.e., when the business is closed) is not explicitly set up by the administrator. Out of hours is defined as any time *not* in hours or a Holiday.

UPDATE - this function saves all schedule entries.

CANCEL - this function allows the administrator to discard changes to the member information.

Menus Setup

Menus Setup provides the Subscriber with the ability to configure Menu operation of the VR.

Each VR Menu may be addressed and configured according to customer requirements. The following VR Menus are supported:

- In-Hours Menu
- Out-of-Hours Menu
- Holiday Menu
- Submenu 1 through Submenu 87

> *Note:* The number of menus supported by a given VR configuration will depend on customer's requirements.

In Hours Setup

When the administrator selects Setup/Menus the In Hours Menu setup page is provided.

In Hours Setup

The In Hours set up page allows the administrator to:

• Play, Record or Change the Menu Greeting

• View the Menu Extension configuration

• Update the Menu Extension configuration

• Print the Menu configuration

Administrators can disable the In Hours menu setup page. When this option is in effect, the In Hours menu setup page does not contain voice prompts, or menu options. Incoming calls ring the phone number directly without any prompts.

In Hours Menu Disabled
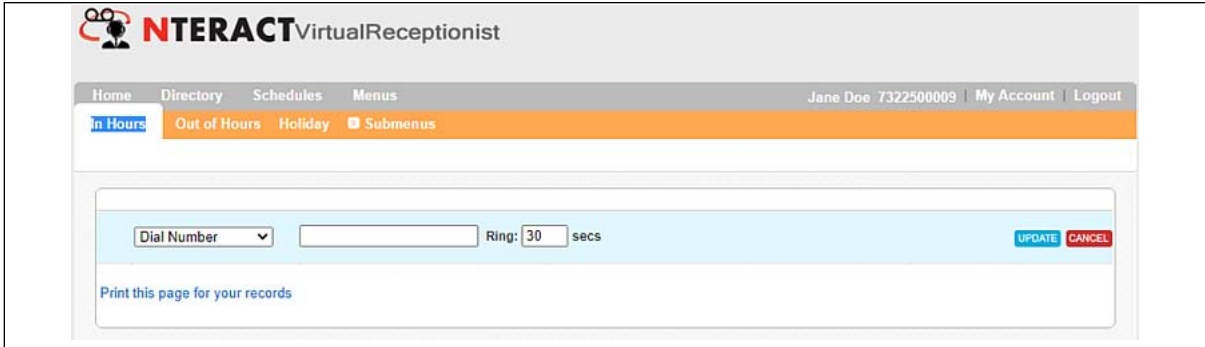
In Hours Greetings Management

The In-Hours Greeting controls are located at the top of the page. The following controls shall be present under the conditions specified:

- If the In Hours Greeting has not been recorded a RECORD button shall be present. Activation of this button shall allow the administrator to record the Menu Greeting. When activated, the administrator shall be presented with a popup with information on how to record the greeting. The administrator may upload a stored wav file or dial the access number and authenticate. The following figure depicts the Change Greeting Popup which allows the administrator to record the menu greeting.

- If the In Hours Greeting has been recorded a PLAY and CHANGE button shall be present. Activation of the PLAY button shall result in playback of the Greeting using the PC media application and associated audio speakers. Activation of the CHANGE button shall result in the Change Greeting Popup permitting the administrator to rerecord the greeting.

Setup Menus Change Greeting
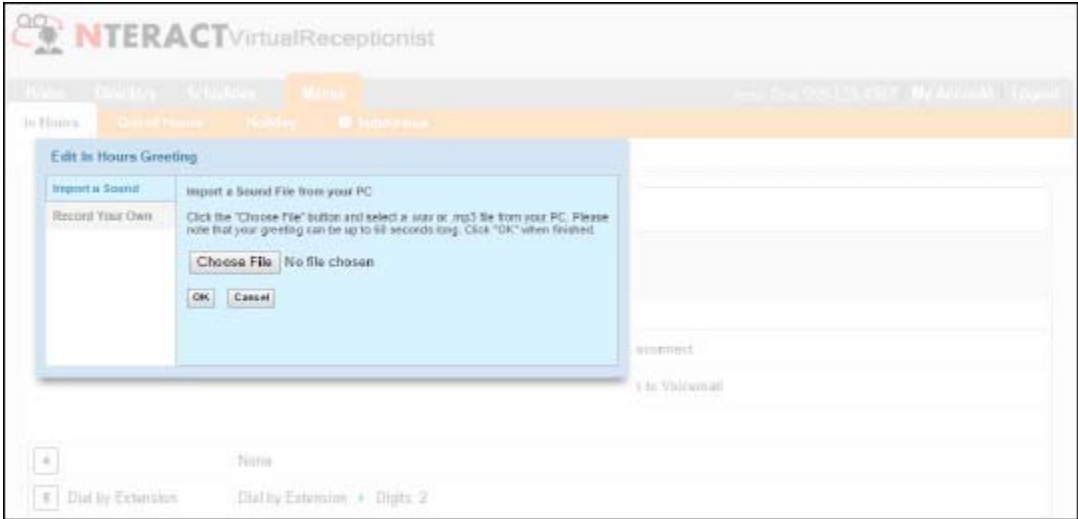
The Change Greeting pop-up provides the Administrator with several options.

The Administrator is informed that they can use their telephone to place a call the VR service, authenticate and record the greeting/announcement.

Record Your Own

The Administrator can have the system place an outbound call to their telephone number where they are and, once connected, automatically authenticate into the VR account and prompt for the greeting or announcement to be recorded.

> *Note:* The number entered must adhere to the supported dial plan.

Import a Sound

The Administrator can use this service to upload a previously recorded .wav or .mp3 file from their PC files. This permits use of professionally recorded greetings and announcements to be associated with the VR.

In Hours Menu Extension Configuration

The administrator may also configure each menu extension from the Menu Set up page. The following figure depicts the In Hours Setup Page when editing a Menu Extension.

This page permits the Subscriber to listen to or record the In-Hours Greeting and to view or configure the In Hours Menu Extensions.

> *Note:* All supported Menus of the VR may be configured in the same way.

In Hours Menu Extension Edit
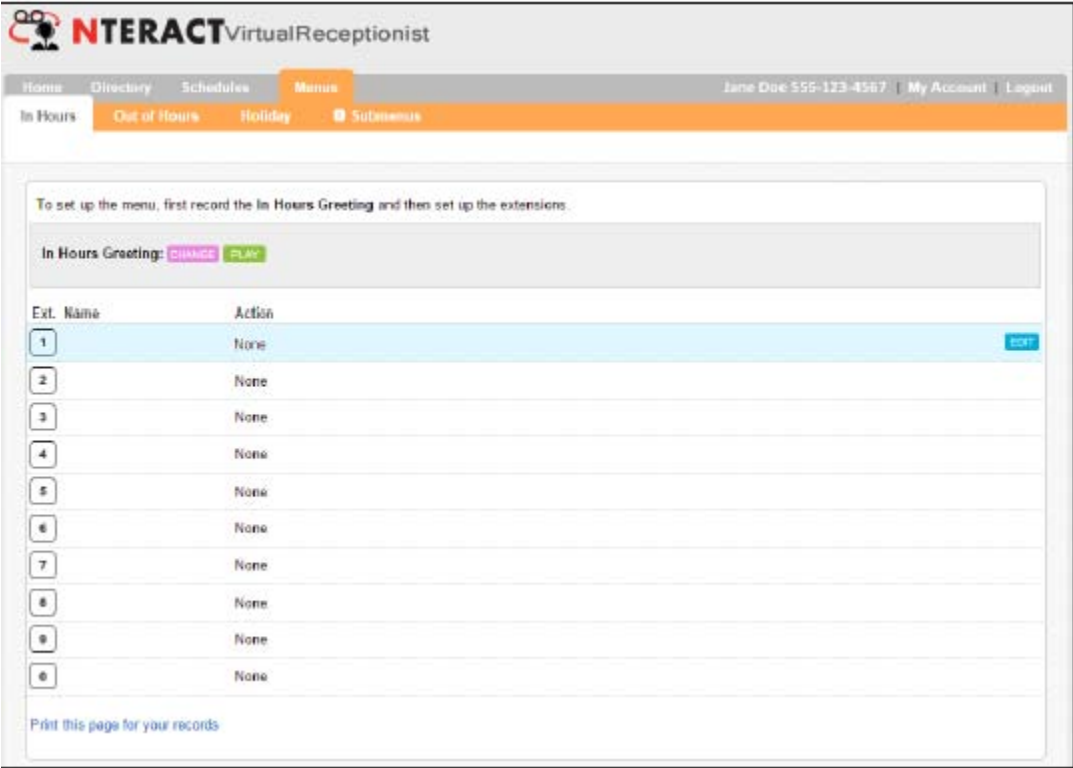
Each Menu extension is represented by a numbered block (Ext.), representing key 1 - 9 and key 0. Associated with each Menu extension is a Name field and an Action.

To configure a Menu Extension, the administrator moves the pc screen cursor to the extension line of interest. A 'mouse over' on the menu extension line shall provide controls for EDIT. Selecting the EDIT control brings the administrator to the Menu Extension Configuration page.

In Hours Menu Extension Configure

This page allows the Administrator to configure each menu extension.

Associated with each Menu Extension is a NAME field an Action field and an UPDATE CANCEL button.

Name - text field. This field is used to provide the name of the extension. This is used only for informational purposes.

Action - This pull-down allows the administrator to configure the operation of the Menu extension. The following choices are available:

None - This setting disables the Menu Extension. A caller attempting to invoke this menu extension shall be informed that the operation is invalid.

Dial Number - This setting allows the administrator to define a telephone number to which the caller will be sent when this menu extension is invoked. When the Dial Number is selected from the pull-down, additional fields are provided for configuration entry. The menu extension edit line for Action = Dial Number is depicted below.

Dial Number

The second field in the Action provides the location for the administrator to enter the phone number. The phone number shall conform to the dial plan supported.

Ring - allows the administrator to enter the number of seconds to ring the phone number (assuming there is no answer) before taking the No Answer option. Ring time shall be between 6 and 180 seconds.

No Answer - this pull-down allows the administrator to select the action taken after the ring time has expired without answer by the destination. The administrator may select:

Disconnect - If selected, the caller will be gracefully disconnected.

Go to Account - If selected, a second field is presented for entry of the Account number. For this selection the caller will be brought to the indicated account (e.g., external voicemail account). The system shall not permit the subscriber to enter an account number that is unknown to the Partner. That is, only telephone numbers associated with provisioned accounts may be used.

Go to Voicemail - If selected, a caller will be brought to the general mailbox.

Repeat the Greeting - If selected, the caller will be brought back to the VR Menu greeting.

Go to Account

This setting allows the administrator to define an account number to which the caller will be sent when this menu extension is invoked. When selected, an additional field is provided that allows the entry of a valid account number. The menu extension edit line for Action = Go to Account is depicted below.

Go to Account
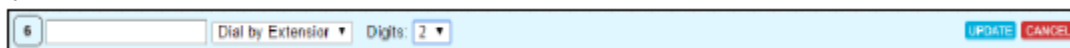
Attempts to enter an account number which is not provisioned shall result in an error pop up ("<number> *is not a valid account. Please verify your information and try again.*"), when attempting to UPDATE the entry. The user shall then be able to reenter the account number or cancel without saving.

Dial by Extension

(provided if VR COS supports Directory Service) - This setting allows the administrator to reserve this menu extension for the Dial by Extension feature. The Dial by Extension feature requires that the key of the starting

---

extension digit be reserved on the menu. For example, if the extension is 5123, then key 5 of the Menu must be configured for Dial by Extension. When Dial by Extension is selected an additional field is provided that allows the specification of the extension dial plan length. The dial plan is specified by selection of the Digits pull-down and may be from 2 to 5 digits. The menu extension edit line for Action = Dial by Extension is depicted below.

Dial by Extension

Go to Voicemail

(Provided if VR COS supports Mailbox Service) - This optional setting allows the administrator to configure the extension to route the caller to the general mailbox.

> *Note:* This choice is provided only if the VR supports the general mailbox option. The menu extension edit line for Action = Go to Voicemail is depicted below.
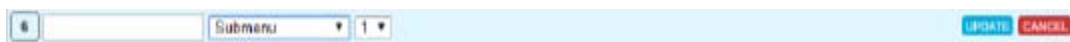
Go to Voicemail

Submenu

This setting allows the administrator to configure the menu extension to route the caller to a VR Submenu. When Submenu is selected an additional field is presented which allows selection of one of eighty seven submenus. It is important to note that the same Submenu can be referenced by other menu extensions. This allows the common submenu trees to be used for different VR menus. The menu extension edit line for Action Submenu is depicted below.

Submenu

Hunt

(Provided if VR COS supports Hunt capability) - This (optional) setting instructs the VR to route the caller according to the hunt algorithm and telephone numbers configured for the extension.

> *Note:* This choice is provided only if the VR supports the Hunt service. When selected, the associated fields allow the administrator to select the Hunt algorithm and to enter the telephone numbers of the hunt community.

The Hunt algorithms supported include:

- Circular — with this option, hunt calls are placed starting at the 'next' telephone number in sequence. The system retains the last telephone number called and starts on the next telephone number in the sequence with each new call.

- In Order — with this option, calls are always placed to the first number in the list and if that number is busy, a call is placed to the next number in the list.

- Random — with this option, calls are placed to the non-busy destination telephone numbers in a random order.

- Least called — with this option, calls are placed in order to the numbers that have been called the least. The service keeps a record of the number of times calls have been placed and uses this information to route subsequent calls to members who have answered the fewest calls.

- Simultaneous – with the simultaneous option, the VR places calls simultaneously to all telephone numbers.

A maximum of four hunt telephone numbers may be specified. Number entry shall conform to the dial plan configured.

In the **Ring** field, enter the number of seconds to ring the hunt phone number (assuming there is no answer) before following the No Answer option. The Ring time shall be between 6 and 180 seconds.

Announce

instructs the VR to play a recorded announcement to the caller when this extension is accessed. When Action Announce is selected, the administrator is presented with the Menu Extension Edit line which provides the ability to Record the Announcement. The Menu Extension edit line for Action Announce is depicted below.

Announce
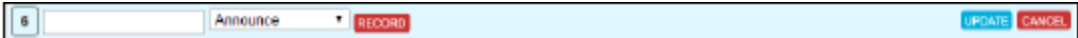
To record the announcement, the RECORD function is selected. When the record function is selected, the administrator is presented with a pop-up which permits recording of the announcement by uploading a .wav or .mp3 file or by calling the subscriber access number, authenticating and navigating to the appropriate menu extension to record the announcement. The following depicts the Change Announcement pop-up.

Record Extension Announcement

The *UPDATE* and *CANCEL* buttons on each line provide the following functionality:

UPDATE - this function performs error checking of the data entered and stores the new information entered on the edit line.

CANCEL - this function discards any changes made to the edit line.

These actions are explained above in the previous section.

Menu Extension

0 (zero) is used for Operator assistance on each menu. The available configuration choices for this service is a subset of the other menu extensions (1-9). The following Actions are supported when configuring Menu Extension 0:

- None
- Dial Number
- Go to Account
- Go to Voicemail (choice provided if the VR supports general mailbox)

Out of Hours Setup

The Out of Hours Setup page allows the administrator to configure the VR for Out of Hours operation.

The Out of Hours Set up conforms to the same format and constructs as that of the In Hours Setup (see In Hours Setup). The additional pages for Out of Hours Setup are not shown in this document in the interest of brevity.

Holiday Setup

The Holiday Setup page allows the administrator to configure the VR for Holiday operation.

The Holiday Menu Set up conforms to the same format and constructs as that of the In Hours Menu Setup (see In Hours Setup). The additional pages for Holiday Menu Set up pages are not shown in this document in the interest of brevity.

Submenu Setup

The Submenu Setup allows the administrator to configure the VR Submenu operation.

A maximum of 87 Submenus are supported by the VR. Submenus are selected from the top navigation area.

The Submenu Setup conforms to the same format and constructs as that of the In Hours Menu Set up (see In Hours Setup). The additional pages for Submenu Set up pages are not shown in this document in the interest of brevity.
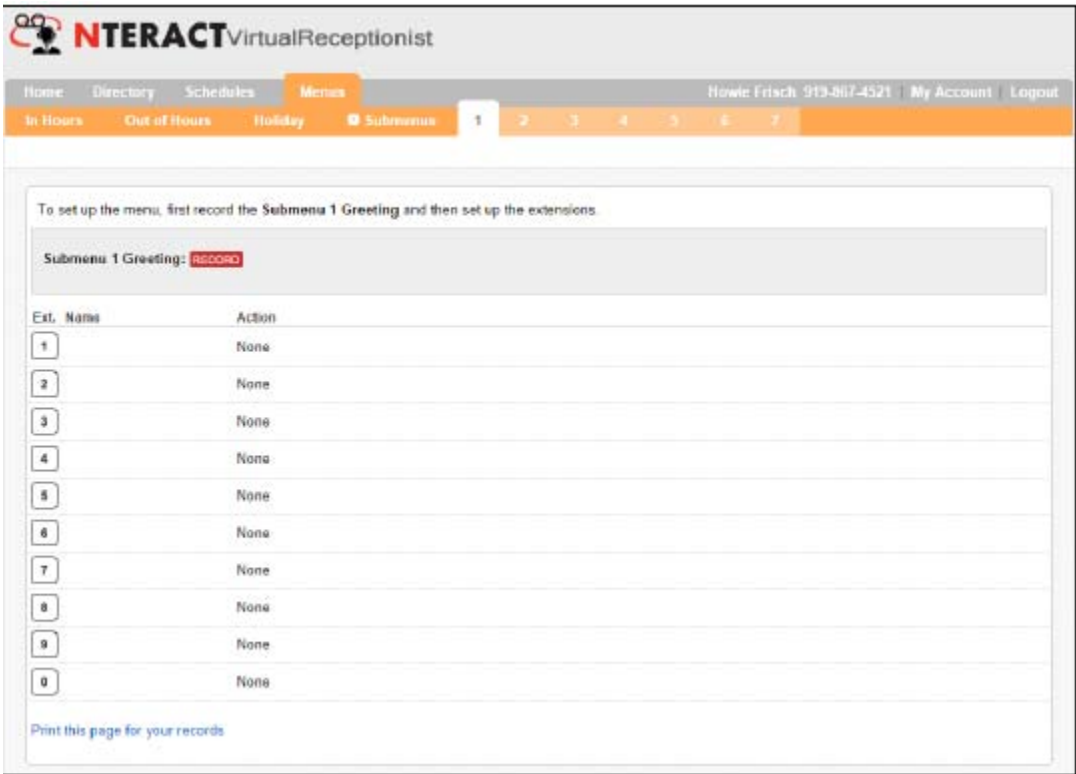
Submenu setup

Virtual Receptionist Messages

Information in this section applies only if the VR supports the general mailbox feature. Continue to *Virtual Receptionist Account* if you do not have the general mailbox feature.

Messages provides the subscriber/administrator with the ability to review and manage messages which have been left in the general mailbox.

Inbox

The new messages page allows the subscriber to review and access messages.

Messages — Inbox

The information of the caller who left the message ("name", if known, and number) is displayed along with additional call information.

A global check box (next to the Actions drop-down) selects all messages. Individual check boxes to the left of each message allow individual messages to be selected. Selected messages may be deleted using the Delete button or sorted using the Actions drop-down.

The Subscriber is able to listen to messages in the mailbox. To listen, the Subscriber clicks the Play button associated with a given message. The voicemail message plays in the browser window. The system supports compressed and uncompressed .wav files.

Additional actions are available for each message:

The Delete Button deletes the selected message(s).

The Mark as New button will return the message(s) to the new message state.

The Download link allows the Subscriber to download the voice file.

Trash

The following figure depicts the Trash mailbox. The Trash mailbox is used to store messages which have been deleted from the Inbox.

Messages — Trash

The subscriber manages the Trash mailbox in much the same way as the Inbox (see Virtual Receptionist Messages).

Virtual Receptionist Options

The Options page gives Subscribers the ability to set up the mailbox greeting, Notification options, and enable Call Announce.

Notifications Setup

The following figure depicts the Notifications page. From this page, the subscriber may set up new message notifications for messages (voice or fax) stored in the general mailbox.

Options — Notification
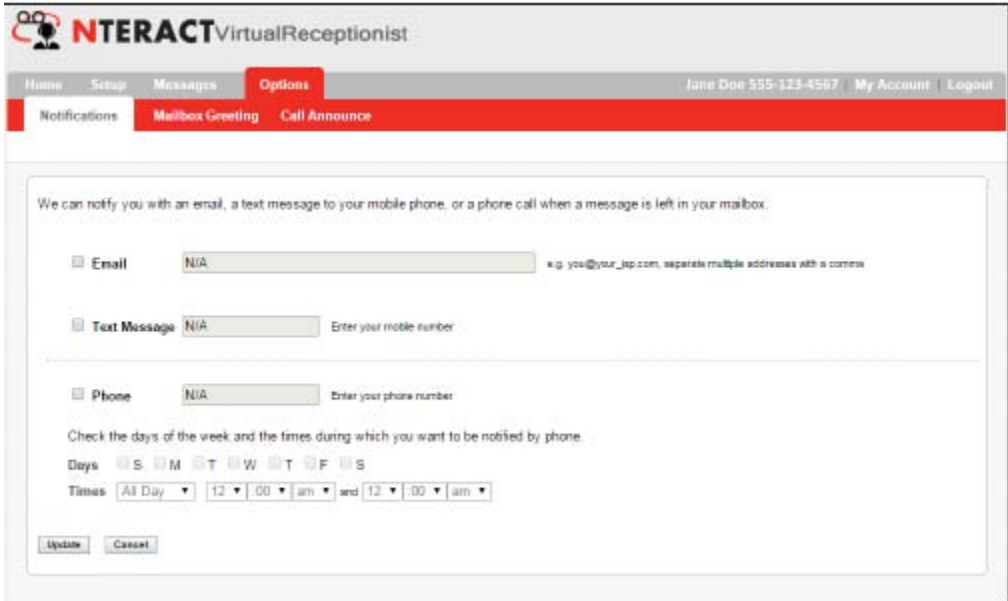
The Notification page allows the subscriber to establish new message notifications by Phone, Text Message, and Email. One or more notification methods may be selected by the subscriber.

Phone Call Notification

The subscriber can establish telephone call notifications by clicking the checkbox associated with *Phone*. When activated, the subscriber may enter a telephone number. The format of this number must conform to the dial plan supported (see Dial Plan Configuration). This phone number shall be validated when the UPDATE function is invoked. If the number does not conform to proper format or dial plan, an error indication is provided to the user and the user is allowed to re-enter the number.

The subscriber can establish the days of the week and times during which they would like to receive phone notifications. Subscribers will not receive phone calls with message notifications outside of the specified days and times.

Once configured, a new message arriving in the general mailbox will result in a call being placed to the telephone number specified. When the call is answered by the subscriber, they will be notified that a new message has arrived. See Notifications for a description of new message telephone notifications.

Text Message Notification

The subscriber can establish text message notifications by clicking the checkbox associated with *Text Message* and entering the telephone number of the mobile phone. When activated, the subscriber may enter a mobile phone number. The format of this number must conform to the dial plan supported (see Dial Plan Configuration). This phone number shall be validated when the UPDATE function is invoked. If the number does not conform to proper format or dial plan, an error indication is provided to the user and the user is allowed to re-enter the number.

Email Notification

The subscriber shall be able to configure the service for email notifications by activation of the checkbox associated with *Email*. When activated, the subscriber may enter the email address. Multiple email addresses may be specified using a comma separator. Once configured, a new message arriving in the VR mailbox will result in an email being sent to the email address specified. The content of the email address shall indicate that a new message has arrived in the mailbox.

Mailbox Greeting

The VR mailbox greeting page allows the administrator to play and record the Mailbox Greeting.

Options — Mailbox Greeting
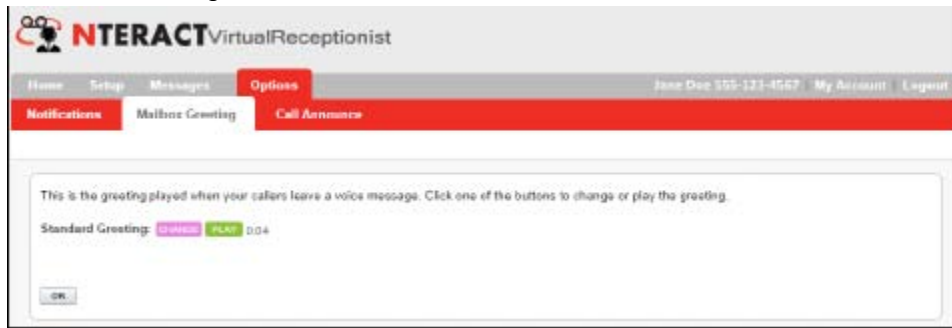
To record the greeting, the user selects the RECORD or CHANGE function. The RECORD or CHANGE function opens the record greeting pop-up.

Options — Change Mailbox Greeting

This page provides the user with instructions on how to record and change the Mailbox Greeting.

There are three methods for recording the Mailbox Greeting:

- Dial the Access Number and select the appropriate menu options - this instructs the user to call the VR access number and authenticate using standard open tree access methods. Once authenticated the user can follow the menu prompts and record the Mailbox Greeting.

- Click to Record - this method allows the user to use click-to-record procedures for recording the mailbox greeting. When activated, the user is requested (via a pop up) to enter their telephone number. The telephone number will conform to the configured dial plan. When completed, the system places a call to the user (at that phone number). When the user answers the call, the system automatically

authenticates the user and brings them to a place in the call flow where they are prompted to record the Mailbox Greeting. After successfully recording and accepting the greeting, the user is disconnected.

- Upload a wav file - this method allows the user to upload a pre-recorded wave file. The user may use the browse function to locate the file on their PC. Selecting the OK function results in the file being automatically uploaded to the Mailbox Greeting.

Call Announce

You may turn Audio Call Announce or Video Call Announce on or off from the Call Announce page.

The Audio Call Announce function announces a forwarded VR call (for example, "You have an incoming Auto Attendant call from [calling phone number]") and then presents the called party with options to accept or decline the call.

The Visual Call Announce function displays the VR extension name when forwarding the call (for example, a person receiving a call on an extension labeled "Sales" in the Menu would see "Sales" on their phone's display).

Virtual Receptionist Account

The My Account page lets you view and update your profile information, GUI password, TUI PIN, and GUI or TUI language. My Account is accessible from any page by clicking the My Account link at the top right of the screen.

To change profile information, click the Profile tab and update the information.

To change the PIN, click the Security tab, enter the current PIN, then enter the new PIN twice. PIN rules and restrictions are determined by configurations set by Administrators. By default, PINs must:

- Contain more than a single, repeating digit (for example, 1352 is valid and 2222 is invalid).
- Contain a non-sequential set of digits (for example, 88278 is valid and 12345 is invalid).
- Be different from your current PIN.
- Be different from all or part of your account phone number.

PINs apply to the TUI.

To change the Password, click the Security tab, enter the current Password, then enter the new Password twice. Password rules and restrictions are determined by configurations set by Administrators. By default, Passwords must:

- Contain at least one uppercase letter.

- Contain at least one lowercase letter.

- Contain at least one number.

- Contain at least one special character.

- Not contain four or more consecutive, repeating characters.

- Not contain your mailbox number.

Additionally, administrators may place restrictions on how often you may reuse the same password (for example, the new password cannot be the same as one of the previous three passwords). Passwords apply to the GUI.

To change the application language, click the Language tab and select the new GUI and/or TUI language.

Changes are accepted after selecting the Update Button on each page.

Virtual Receptionist System Options

This section deals with selected system administrable features and services necessary for the development of the VR Class of Service (COS) provided to a given customer. These features and services are *not* administered by the customer, nor subscriber.

Transfer Option

This option determines the VR treatment of calls which are to be connected end-to-end (i.e., a caller being routed to a called destination).

The VR may be configured to support one of three options involving the handling of calls: No Transfer, Supervised Transfer, or Blind Transfer. This option is settable via COS administration parameters. Each Option is discussed below.

> *Note:* Supervised Transfer and Blind Transfer capabilities require network support.

No Transfer

With the No Transfer option (system default) the VR bridges the caller to the called user for the duration of the call. With this option, every call through the VR is maintained by the VR. The calling and called users have access to all VR services while connected. CDR records are maintained for the duration of each call.

Supervised Transfer

The Supervised Transfer option provides for the transfer of the calling party to the called party by the VR upon receipt of answer supervision on the outbound call (i.e. the called party answers).

The Supervised Transfer option supports two settings:

- All: This setting results in *all* calls being transferred from the platform into the network. The VR tracks CDR until the point of transfer.

- Local Only: This setting results in only local calls being transferred from the platform into the network. As part of this service, an EAS table or equivalent function which defines the customer dial plan must be

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applied to the VR. The method of application of the EAS table goes beyond the scope of this document. The VR tracks CDR until the point of transfer.

Operation

Supervised Transfer allows the VR to transfer a caller to a configured destination using the call transfer feature of the supporting network. This service is utilized for situations where VR port usage is an issue. Calls may be initially routed by the VR (between caller and destination) but then transferred by the VR to free up ports. The platform supports both circuit switched (e.g., PRI, SS7) and packet switched (e.g., SIP) methods and utilizes standard procedures (e.g., RLT, SIP Refer). The specific transfer method and signaling protocol utilized for network transfer of the call go beyond the scope of this document.

If configured to supervised transfer calls, the VR transfers the call only when an end to end connection (between caller and destination) is completed (i.e., transfer is not available during the alerting phase of the call to the destination).

Affected Services

Certain VR features are affected when callers are transferred to the destination as the VR is no longer in the call path. These include:

- The Caller

    — Call Progress: With supervised transfer, the VR provides the necessary in-band call progress treatment (prompts and ring-back tone) until the call is transferred into the network. The end-to-end call path between the caller and the called user is then attached through network procedures.

- The Called user

    — Active Call Transfer: The called subscriber may not use the active call transfer feature once the call is transferred by the VR, (see Active Call Transfer).

    — Whisper Services: The called subscriber will not have access to optional post-call whisper services (see Whisper Services).

Subscriber GUI functionality remains unaffected with Supervised Transfer.

Blind Transfer

The Blind Transfer option provides for the transfer of the calling party to the called party by the VR immediately upon dialing the outbound call (called party).

Operation

Blind Transfer allows the VR to transfer a caller to a configured destination telephone number using the call transfer feature of the supporting network. The platform supports both circuit switched (e.g., PRI, SS7) and packet switched (e.g., SIP) methods and utilizes standard procedures (e.g., RLT, SIP Refer). The specific transfer method and signaling protocol utilized for network transfer of the call go beyond the scope of this document.

If configured to blind transfer calls, the VR transfers the caller immediately upon dialing the outbound call. Once the VR has signaled the transfer it is removed from the call path between the caller and called user.

Affected Services

Certain VR features are affected when callers are transferred to the destination as the VR is no longer in the call path. These include:

- The Caller

  - Call Progress: With blind transfer, the VR provides the necessary in-band caller treatment (menu greetings, prompts) until the call is transferred into the network. When transferred into the network, in-band treatment to the caller is no longer associated with the VR and is rather, provided by the network.

  - Caller Option: When placing an outbound call allows the caller to abandon the call and return to the VR menus. (See Caller Options). This service cannot be provided by the VR after the call has been transferred.

- — Directory Service Access: This service cannot be provided to the caller after the call has been transferred. This includes access to Dial by Name and Dial by Extension features.

- — Leave message: Once transferred, the caller may not leave a message in the VR mailbox.

- The Called user

  - — Active Call Transfer: The called subscriber may not use the active call transfer feature once the call is transferred by the VR,(see Active Call Transfer).

  - — Whisper Services: The called subscriber will not have access to optional whisper services, (See Whisper Services).

- Subscriber GUI impacts

  - — Extension Configuration: When configuring a Menu Extension the *ring time* parameter is not provided as an allowable menu configuration option. See Ring Time in VR Extensions.

  - — Hunt capability (if configured): The Hunt option is not provided as an allowable menu configuration option. See Hunt Setting in VR Extensions.

Directory Services

The Directory services are settable in COS administration parameters. Directory services may be enabled or disabled. If directory services are disabled, the Dial by Name feature and Dial by Extension Number feature are not provided.

Emergency Override operation

Emergency Override operation is determined by a system option that governs caller treatment after the Emergency Override announcement is played. The option allows the caller to be either disconnected or brought to the active menu (e.g., In-Hours, Out-of-Hours, or Holiday).

No Caller Input control

VR menu operation when no caller input is received is determined by a system option. The VR can be optioned to:

- Play the menu 3 times then disconnect the caller.

- Play the menu 3 times, then:

  - — Place a call to the operator, if configured.

    Note: This service is configured as the Menu Configuration option Operator

  - — Go to the general mailbox, if configured.

  - — Disconnect the caller.

Global Menu Key operation

The Global Menu Key operation is determined by an option for the assignment of the Global Menu keys [*] and [#]. These keys may be configured to support Directory access (Dial by Name) or Previous Menu functionality.

Whisper Services

The Called user interface is determined by a Partner Parameter which determines if whisper (voicing of the caller id) is applied or not, before the call answer.

For the case where whisper is not applied (default), the called user is connected to the calling user using the VR when the call is answered.

For the case where whisper is applied, the called user is presented with the whisper (the calling party identification) and the option to answer the call, transfer the call (before answering) or to access the subscriber mailbox.

General Mailbox

Support of a general mailbox is determined by a Partner Parameter which determines if the general mailbox function is provided or if the VR does not provide the general mailbox function.

For the case where the general mailbox function is available (default), the general mailbox services, including new message notification operation, are provided.

Hunt Service

Support of the Hunt service is determined by a Partner Parameter which determines if the Hunt feature is provided as a choice when configuring VR extensions.

For the case when Hunt services are On (default), the administrator of the VR is provided with the ability to configure the VR extension with Hunt services. For the case where Hunt services are Off, the Hunt option is not provided to the administrator when configuring the VR. See VR Extensions on configuration of VR Extensions.

Calling Party Number Selection

A Partner Offer parameter enables the selection of the Calling Party Number to send on outbound two-way calls. The parameter may be set to send the CgPn of the received call (the Caller's number) or the VR Account number.

Calling party name selection

The Visual Call Announce user setting controls the "Calling Party Name" sent in the outgoing VR extension call leg. If Visual Call Announce is enabled, the person receiving the call would see the extension name on their display (for example, a call to an extension labeled "Sales" would appear as "Sales" on the display). If Visual Call Announce is disabled, then the person receiving the call would see the Calling Party Name as it was received in the incoming call leg to VR.

If the Visual Call Announce setting has not been initialized (such as when the account is initially provisioned), then the state of this option is unknown to the TUI. Therefore, the system uses a partner offer parameter to select one of the following default actions for this option:

- Use the incoming Calling Party Name

- Use the Extension Name

- Do not display any name in the outbound call (blank display)

Dial Plan Configuration

Partner Offer parameters may be configured (system configuration) to support various national and international dial plans imposed by the network. Dial plans can control telephone number formatting, validation, and storage. Optional prefixes may be prepended to fixed-length dial plans, and outbound call types (local, long-distance, and international) from the VR may be restricted through system configuration.

The telephone number fields impacted by this configuration include:

- The 'Dial Number' field in VR Menu Extensions Setup.

- The 'Dial Number' Action number field in the Directory Setup.

- The 'Click here and we'll call you' function as part of the Click to record greeting service.

- The Number fields associated with the Hunt service option

- The Fax Forwarding Number

- The Phone Notifications Number

Centrex Dial by Extension

With Centrex Dial by Extension service, the dialed extension number entered by the caller is collected by the VR and sent back to the switch for call routing purposes (e.g., to connect the caller to the extension number dialed).

Centrex Dial by Extension service is an optional feature controlled by Partner/Offer configuration.

When Centrex DBE operation *is* configured, the VR allows a caller, using the TUI, to:

- Enter a *single* key press, to invoke the programmed function of the VR.

- Enter multiple key presses to invoke the DBE function. The accumulated key presses may be composed of any sequence of digits (1 through 9), * and #. The accumulated sequence of key presses is then dialed by the VR.

During and after Menu Greeting playback the caller may enter key presses to instruct the VR as follows:

- If the caller enters a single key press, the VR will wait for a short period of time as determined by the key press timer (initially set for 1 second) and then invoke the targeted function as programmed in the VR.

- If the caller enters multiple key presses, occurring within the key press timer interval, the digits are accumulated by the VR and are then dialed, subject to the dialing rules established for the platform for outbound calls (e.g., Blind Transfer).

  Note: The dial string is determined by the caller and is not constrained to any particular dial plan that may be in place for the customer.

- The VR accumulates a maximum of 7 digits before dialing. When a 7th digit is received, the accumulated digits are dialed. The maximum number of digits accumulated is a configurable option.

It should be noted that with this implementation of DBE Centrex operation, the caller will be subject to a pause, determined by the key press timer, between when the keypad is pressed and when the VR takes action. Also, the caller will not be able to rapidly traverse the targeted menus (type ahead) using rapid key presses, as this will be interpreted as DBE.

When Centrex DBE operation *is not* configured, the VR will employ local operation, with no change to the existing operational characteristics of the VR.

  Note: The Centrex DBE service may be operational at the same time as the VR directory DBE service.