

MiCollab Advanced Messaging Getting Started with UCConnect Interactive Voice Response (IVR)

For version 9.0 and above

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Preface

This document is written for Mitel certified MiCollab Advanced Messaging (MiCollab AM) technicians and administrators who are experienced with MiCollab AM and are familiar with its procedures and terminology. This book assumes you are familiar with MiCollab AM and the Microsoft Windows® operating system.

This installation guide applies to MiCollab AM 9.0 and the UCCConnect Interactive Voice Response application. It consists of the following parts:

- An introduction to UCCConnect and its features
- Information on the interaction between MiCollab AM and UCCConnect
- Installing UCCConnect on MiCollab AM, developer, and remote platforms
- Starting the UCCConnect Server utility
- Developing Scripts
- Testing and Debugging Scripts
- Sending Faxes through UCCConnect
- Deploying Scripts

References

A catalog of technical documentation is included on the MiCollab AM Installation Media. If you are installing any advanced applications, such as Networking and Fax Server applications, you should refer to the appropriate technical documentation for application and installation information.

Documentation

The technical documentation is produced in the PDF format and requires the PDF reader to view it. The documentation set for this MiCollab AM includes the following documents and resources:

- **Developer Resources.** Contains programming guides and API references for developers for integrating the server clients and web applications with MiCollab AM.
- **Integration Technical Notes (ITN).** Contains a set of guides that describe the integration methods and instructions for a variety of phone systems to work with MiCollab AM. The ITNs are generally used by resellers or administrators who are experienced with MiCollab AM and familiar with the integration procedures and terminology.
- **Quick Reference Card (QRC).** Contains shortcuts and quick instructions telling subscribers how to access and use the messaging system.

- **Server Documentation.** Available as a PDF only. Contains administrative guides for administrators about installing, configuring, and administering the messaging system, and user guides for subscribers about accessing the messaging system and checking and sending messages.
- **Spare Parts Documentation.** Contains a set of guides that describe the instructions for installing and configuring hardware parts to work with MiCollab AM. These documents are written for Mitel certified MiCollab AM technicians who are experienced with MiCollab AM and familiar with the procedures and terminology.
- **Software Release Notice (SRN).** This notice introduces the new features, capabilities, and hardware/software requirements for the corresponding MiCollab AM version.

For more related documents, refer to the following list of references:

Table 1. References

Document Number	Document Title
Server Documentation	System Installation and Configuration Guide
Server Documentation	System Administration Guide
Server Documentation	Call Processor Mailboxes Administration Guide

Documentation Updates

Documentation updates may be available from the following sources:

- Mitel certified technicians can view or download documents and program files from our partner web site: connect.mitel.com/connect

Help

The primary source of information about MiCollab AM is the online help available within any of its administrative utilities. You can access **Help** as follows:

- Click the **Help** button in the dialog box or window in which you are working
- Press the **F1** key at any time.

UCCConnect Wizard VB.NET

The primary source of information about UCCConnect Wizard is the online help available within the UCCConnect Wizard. You can consult UCCConnect Help by taking one of the following steps:

- Click the Help button in the UCCConnect Wizard.
- Press the **F1** key at any time.

UCConnect API Reference

Mitel provides the UCConnect Help .NET API Reference with the UCConnect application. To display the API Reference select, from the Windows taskbar, go to **Start > All Program > MiCollab AM Desktop > UCConnect > UCConnect API Reference**.

Document Conventions

The following conventions are used in this document:

- **Key Names.** Names of keys on the keyboard are shown in a box.

Example: **Enter**

When two keys must be pressed simultaneously, they are joined by a + sign.

Example: **Alt + Tab**

- **Reference to Document.** *Italics* fonts can also signify the titles of other documents.

Example: See the *System Installation and Configuration Guide*.

- **UI Element Names.** Names of UI elements such as dialog windows, screens, menu items, tabs, buttons, icons, etc. are shown in bold.

Example: On the **Startup** screen, click the **Start** icon.

- **User Input.** Information required to be typed or spoken is shown in italics.

Example: Type the password *voicemail*.

- **Warning, Caution, Important, and Notes.** Text for the contents that require attention are shown as follows:

WARNING A warning paragraph advises you of circumstances that can result in the loss of data, harm to the system server platform, or personal harm.

CAUTION Failure to follow these recommendations can result in unauthorized access to the system and consequent loss of data.

IMPORTANT An important paragraph gives decision-making information or informs you of the order in which tasks need to be completed.

NOTE A note gives additional information, provides an explanation, or indicates an exception to the information in the preceding text.

Frequently Used Terms

Table 2. Frequently Used Terms

Terms	Description
System Server	<p>Term refers to an organization's computer platform(s) that have MiCollab AM software installed and handles the core system functions such as storing messages, database.</p> <p>It can also refer generically to the System Server platform, the Call Server platform, or both. The term is most often used to describe a software or hardware installation or configuration practice where the role of the server platform is not specifically expressed.</p>
Call Server	<p>Term refers to an organization's computer platforms that have MiCollab AM software installed and serve as the interface to the system (PBX). The Call Server(s) interface with the System Server for the purpose of accessing messages, and database.</p>

Introduction

UCConnect is an Interactive Voice Response (IVR) application that allows callers to exchange host database information automatically through MiCollab AM. UCConnect allows you to build advanced computer telephony applications using any .NET language. With the vast array of third-party components available for .NET, you can develop custom IVR applications that use host access and database connectivity to provide sophisticated voice messaging, fax support, and other features to the enterprise.

To implement UCConnect in an organization successfully, consider the roles of the following individuals, who constitute the implementation team:

- MiCollab AM Administrator
- Telecom Technician
- MIS/IT Support Staff
- Software Developer

NOTE Provide each member of the implementation team a copy of this online book several days or weeks before the implementation of UCConnect. This guide is best read sequentially to allow you to begin developing UCConnect IVR applications.

IMPORTANT Scripts and IVR applications written for OS/2-based Automated Agent are incompatible with UCConnect scripts for Windows-based servers. You must re-write these OS/2-based scripts and IVR applications using Microsoft VB.NET and Windows-based UCConnect.

Required Skills

Though advanced expertise in telephony is not required to configure MiCollab AM for UCConnect, understanding MiCollab AM and telephony fundamentals is essential. If you are unfamiliar or uncomfortable with telephony concepts, consider using a certified MiCollab AM technician and a telecommunications technician to assist you.

Basic computer technician skills are required. If you are unfamiliar with installing peripherals on PCs, or configuring network connections, you may require assistance from a qualified PC technician. You should also have a basic understanding of the Microsoft Windows operating systems. If you are unfamiliar with terms such as Control Panel utilities and Windows services, you should have a knowledgeable technician assist you.

To develop custom IVR applications, seek out the services of a software developer with programming experience in a Microsoft .NET language. This typically requires a person with 1 to 2 years (or more) of experience writing .NET applications. If your application uses advanced database or host access or is particularly complex, you may require a programmer with experience in a particular area.

Installing UConnect

You can install UConnect on the following three types of platforms:

- **Call Server platforms** – MiCollab AM Call Server platforms, on which most compiled UConnect scripts run, are production-level servers. Refer to the corresponding Software Release Notice for hardware and software requirements of specific platforms.

NOTE In this instance, Call Server platforms include a System Server with Call Services and Lines enabled.

- **Developer platforms** – A workstation or server platform on which a software developer creates and tests the IVR scripts for UConnect applications. Each developer platform must be equipped with a sound device, a microphone, and the Visual Studio development tool used to create the IVR scripts.
- **Remote servers** – A server platform on which compiled UConnect scripts may run. These are separate server platforms that communicate with the Call Server platform through the Local Area Network (LAN) connection. In addition, you must install UConnect on the Call Servers on which the scripts execute and with which the remote server communicates.

System Requirements

This section discusses the system requirements and the required physical connections necessary to install UConnect on these platforms.

The following list specifies the requirements for each type of platform for UConnect. For specific information on the hardware and software requirements for MiCollab AM platforms, refer to the *Software Release Notice for MiCollab AM 9.0* or contact your MiCollab AM dealer. Review these requirements before continuing to the other sections in this book

Call Server Platform

- Windows Server 2008 R2 with Service Pack 1, Windows Server 2012 R2, or Windows Server 2016 (Server with Desktop Experience)
- MiCollab AM 9.0
- UConnect version
- Mitel software feature license key enabled with UConnect
- 2.6 GHz single core, 1.8 GHz dual core Intel® Pentium IV™ or better microprocessor
- 1 GB memory without speech, or 2 GB with speech
- 60 GB hard disk drive with a 40 GB C partition (Windows Server 2008 R2 with Service Pack 1, Windows Server 2012 R2, or Windows Server 2016)
- Microsoft .NET 3.5 SP1

NOTE The UCCconnect installation wizard installs the required .NET Framework automatically.

- Color VGA-compliant graphics adapter and monitor
- USB drive / DVD drive compatible with DVD+R media
- Windows-compatible network interface card (NIC) and connection to the LAN

Developer Platform

- Windows 7, Microsoft Windows Server 2008 R2 with Service Pack 1, Windows Server 2012 R2, or Windows Server 2016 (Server with Desktop Experience)
- Microsoft Visual Studio 2008 or Microsoft Visual Studio 2010

IMPORTANT By default, all .NET applications compile with a Target CPU of **AnyCPU**; however, UCCconnect scripts compiled with this setting do not function on 64-bit operating systems. To correct this limitation, open the Advanced Compiler Settings window, and then set the Target CPU to **x86**.

- Microsoft .NET 3.5 SP1

NOTE The UCCconnect installation wizard installs the required .NET Framework automatically.

- Color VGA-compliant graphics adapter and monitor
- USB drive / DVD drive (compatible with DVD-R media)
- Sound card and microphone that support recording and playback of **.wav** files

NOTE When running UCCconnect in a virtual machine, there is no way to pass microphone inputs directly from the host machine to the virtual machine. You must record prompts elsewhere and copy them to the virtual machine.

- Sound editing software

IMPORTANT On Windows 7, Windows Server 2008 R2 with Service Pack 1, Windows Server 2012 R2, or Windows Server 2016 platforms, the UCCconnect wizard can be used to record prompts. However, the resulting recorded **.wav** files must be converted from 16-bit, 44,100 samples/second stereo to G.711 encoding before they are placed into service on the Call Server. The conversion process requires a third-party sound editing application.

The Windows Sound Recorder provides basic sound editing functionality. However, Mitel recommends a sound editor with the ability to do audio manipulations such as trimming silence at the beginning and end of a phrase. Such an editor may be included with the software bundled with the computer's sound card. Refer to the [Recording Voice Prompts](#) section later in this book for more information.

Remote Platform

The UConnect remote server is a server platform dedicated to the execution of UConnect IVR scripts and connected to the MiCollab AM server through a network connection.

The following list represents the minimum hardware required to run UConnect IVR scripts on a remote platform. The processor and memory requirements for a specific remote UConnect platform depend on the size, complexity, and number of scripts the platform runs; the developer is responsible for determining the requirements necessary to run each script.

- Microsoft Windows Server 2008 R2 with Service Pack 1, Windows Server 2012 R2, or Windows Server 2016 (Server with Desktop Experience)
- Microsoft .NET 3.5 SP1

NOTE The UConnect installation wizard installs the required .NET Framework automatically.

- Color VGA-compliant display adapter and monitor
- A network interface card (NIC) and connection to the LAN
- USB drive / DVD drive compatible with DVD+R media

Voice and Fax Connections

To run scripts in production mode, where callers use telephone lines to call into or out of the system, you must have a Call Server platform properly configured with voice linecard resources to support each voice line that serves MiCollab AM.

Optionally, to support a fax application, you must have a functional OpenText RightFax server equipped with Brooktrout fax line cards. The RightFax server communicates to MiCollab AM servers and remote UConnect servers through the local area network connection. For information about RightFax, refer to the *Software Release Notice for MiCollab AM 9.0* packaged with your MiCollab AM System Server software and to the RightFax documentation packaged with your RightFax software.

Network Connections

MiCollab AM server platforms, remote UConnect platforms, and RightFax server platforms require local area network connections in order to communicate with one another.

In addition, network connections allow system access for system administration, for system maintenance, and for network communication with the outside world.

Developer platforms may use network connections to upload scripts to MiCollab AM servers and remote servers. All MiCollab AM platforms require a network interface card regardless of whether they are connected to a LAN.

Installing UConnect Software

You have several installation options for UConnect, and one or more of these options may be appropriate for your application. Please read this information carefully to determine which option(s) are right for you before attempting to install the software. This chapter discusses the tasks required to install UConnect on each platform type.

MiCollab AM Call Server Platforms

The Call Server platform (includes the System Server with Call Services and Lines enabled) is the most commonly selected option. Use this option if you are configuring a system for an end-user site or for script development where you wish to run scripts in production mode using telephone lines to call into or out of the system.

The Call Server typically runs additional MiCollab AM application modules such as **Voice Mail, Automated Attendant, Automatic Speech Recognition, or Unified Messaging.**

You can use the Call Server platform to develop scripts and record prompts if a sound device, microphone, and a Microsoft .NET development tool is installed. However, Mitel recommends that you develop scripts and record prompts on developer platforms, and then you can copy the files to the Call Server. Developing scripts on production MiCollab AM systems may adversely affect call processing.

Developer Platform Option

Install UConnect on a developer platform to create .NET scripts or record prompts on a different computer than the platforms on which they run, and then upload the scripts to MiCollab AM or a remote UConnect server platform.

Because voice ports are not required with this option, scripts run using a supplied Call Simulator utility that emulates a Touch-tone™ telephone and allows the developer to speak prompts through the platform's sound device as the script executes.

Software developers can create, test, and debug scripts on their workstations before uploading the script and allowing it to run on the Call Server platform. This alleviates runtime problems on a MiCollab AM system that is actively processing calls.

In addition, the developer platform requires .NET development tools to create, test, and debug scripts.

IMPORTANT You must also install any non-standard .NET assembly references used on the developer's platform on the Call Server that is executing the scripts.

Remote Platform Option

The remote platform executes scripts on one or more remote servers that communicate with the Call Server platform through the network connection. Remote UCCONNECT servers mitigate performance problems. Use a remote UCCONNECT server for the following reasons:

- On systems that require a large number of ports or a large amount of CPU capacity
- On systems that have many simultaneous scripts executing
- On systems that have intensive database access requirements
- On systems where resource restrictions allow a limited number of scripts to run on a single platform

The remote platform offloads the intensive CPU and disk workload from the Call Server. You can dedicate scripts to run on the remote platform only, or split them to run on both the Call Server and the remote platforms.

The remote platform option is more complex to configure. You should deploy a remote server only when it is required. The remote server configuration significantly improves overall system performance when running some UCCONNECT scripts; however, scripts that must start quickly or play and record large amounts of speech perform best on the Call Server platform itself.

Installing UCCONNECT

The following procedures provide instructions on how to install UCCONNECT on MiCollab AM servers, developer platforms, and remote servers. There are two distinct installation processes:

- UCCONNECT installs on MiCollab AM servers by installing the MiCollab AM Server component from the Server Components folder of the MiCollab AM 9.0 Installation Media, and then selecting UCCONNECT from the list of software components during the setup process.
- UCCONNECT installs on development and remote server platforms by installing the UCCONNECT stand-alone component from the Developer Components folder of the MiCollab AM System Server 9.0.

Installing UCCONNECT on a Call Server

To install UCCONNECT on a Call Server:

To install UCCONNECT on a MiCollab AM platform you must install the MiCollab AM server software. If MiCollab AM 9.0 is already running, you must shutdown MiCollab AM before you begin, and then re-install MiCollab AM Server software.

NOTE If this is a new install and you intend to use the **Automatic Speech Recognition** feature, you must install the ASR/TTS software before you install MiCollab AM 9.0 software.

- 1 Log on to the platform using a Windows Administrator account.
- 2 Shut down all running programs.
- 3 Insert the MiCollab AM 9.0 Installation Media into the appropriate drive.
- 4 Perform one of the following:

- If autorun is enabled, the MiCollab AM 9.0 Installation Media displays. In the Mitel MiCollab AM Installation Media **Components** area, click **MiCollab AM Server**, and then skip to **Step 6**.
- If autorun is not enabled, on the Windows taskbar, select **Start > Run > Browse**, and then continue to **Step 5**.

5 Locate and open the ...\\Server Installs\\Telephony Server folder, double-click **start.hta**, and then click **OK**. The MiCollab AM Installation main window displays.

6 In the **Server Components** section, select **MiCollab AM Server**. The **Welcome** page displays.

7 Click **Next**. The **License Agreement** displays.

8 Click **Yes** to accept the License Agreement.

If you have not installed the **MiCollab AM Speech and TTS Support** components, a warning displays.

IMPORTANT You must accept the terms of the license agreement to continue with Setup.

9 Click **Next** to continue with the next step in the installation. The **Select Hardware Support Components** page displays.

10 Select the checkboxes in the **Software** list to choose the following individual components. Select only the components you require for the installation.

NOTE If installation detects the current version of any of the software packages, the corresponding checkbox is not available.

11 Click **Next** to continue. The **Select Components** page displays.

12 In the **Components** list, select **UCConnect**.

Verify that the **Destination Folder** points to the location where you want MiCollab AM installed. If you want to change the default destination folder, click **Browse** and then type or select the drive and folder destination from the list.

IMPORTANT Mitel recommends that you install MiCollab AM software on a partition separate from the operating system. By default, MiCollab AM software installs on the **D:** drive partition in the **MiCollab AM** folder.

13 Click **Next**. The **Start Copying Files** page displays.

14 Setup lists the components currently selected for installation. Verify the components you are about to install, and then click **Next**.

15 The setup wizard continues through the first part of the installation, and then the **System Restart** page displays.

16 Remove all disks from the computer's drives, and then click **Finish** to restart your system.

17 Log on as the administrator after the platform restarts. A pop-up dialog box displays to alert you that the installation is resuming, and then the installation completes.

Installing UConnect on a Developer or Remote Platform

To install UConnect on a developer or remote platform:

- 1 Log on to the platform using a Windows Administrator account.
- 2 Shut down all running programs.
- 3 Insert the MiCollab AM 9.0 Installation Media into the appropriate drive.
- 4 Perform one of the following:
 - If autorun is enabled, the MiCollab AM 9.0 Installation Media displays. In the Mitel MiCollab AM Installation Media **Components** area, click **MiCollab AM Server**, and then skip to **Step 6**.
 - If autorun is not enabled, on the Windows taskbar, select **Start > Run > Browse**, and then continue to **Step 5**.
- 5 Locate and open the ...\\Server Installs\\Telephony Server folder, double-click **start.hta**, and then click **OK**. The MiCollab AM Installation main window displays.
- 6 In the **Developer Components** section, select **UConnect (stand alone)**. The **Welcome** page displays.
- 7 Click **Next**. The **License Agreement** displays.
- 8 Click **Yes** to accept the License Agreement.

IMPORTANT You must accept the terms of the license agreement to continue with Setup.

- 9 Click **Next** to continue with the next step in the installation. The **Select Components** dialog box displays.
- 10 Perform one of the following:
 - If you are installing UConnect on a Developer platform,
 - Select **UConnect Developer**.
 - Select **SNMP Support** if you want to install SNMP support for UConnect on the Developer platform.
 - If you are installing UConnect on a Remote platform,
 - Select **UConnect Remote**.
- 11 Accept the **Destination** folder or click **Browse** to select another location.
- 12 Click **Next**. The **Start Copying Files** dialog box displays.
- 13 Review the current installation path, and then click **Next**.
- 14 Once the software is installed the **Dr. Watson for Windows Configuration** dialog box displays. Click **Yes** to enable logging to the MiCollab AM log files, or click **No** to leave the settings at default.
- 15 Click **Finish** to complete the installation process and restart the computer.

Starting the UConnect Server Utility

The **UConnect Server** utility installs as part of the UConnect installation when you install UConnect on a MiCollab AM Call Server, a developer platform, or a remote platform. The utility is located in the **Control Panel**. Use this utility to start and stop the UConnect Server service and to configure the service for automatic startup.

For Call Server platform installations, you would typically select the **Launch Scripts on Local Machine** checkbox. If you intend to open scripts from multiple machines – that is, if your scripts run on remote servers – you may choose to share the running of scripts between the Call Server platform and the remote machines by selecting this checkbox.

Alternatively, you can force the scripts to run only on the remote machines by clearing the box. On a developer system, the check box should remain cleared.

The **UConnect** utility allows you to launch a startup script automatically when the UConnect service starts. Use the startup script option to launch additional **scheduled** scripts – scripts that run at certain times and are not connected to incoming calls.

For example: use these scripts for outbound calling or to log on to host computers.

The **MiCollab AM Configuration** utility provides general configuration settings for MiCollab AM and provides the ability to start and stop the Call Server. For more information on the **MiCollab AM Configuration** utility, see the *System Administration Guide*, *System Installation and Configuration Guide*, and the online help.

Both the **MiCollab AM Configuration** and **UConnect** utilities allow for automatic startup of each service when the platform starts. These utilities run as Windows services, allowing them to start automatically when the operating system starts.

However, these two services default to manual startup initially, which allows you to configure and test them properly before they run. Testing includes calling in and successfully executing a sample script. Once you have finished installing and testing the **Call Server** and **UConnect** software, be sure to set both **Control Panel** utilities for automatic startup.

To start MiCollab AM:

- 1 Open **MiCollab AM Configuration** and select the **Main** tab.
- 2 Click **Startup**.

To Start the UConnect Server service:

NOTE To run UConnect on a Call Server, the MiCollab AM service must be running.

- 1 Select **Start > Control Panel**, and then double-click **UConnect**. The utility displays.
- 2 Click **Startup**.

IMPORTANT If you are doing one or more remote installations, you must start up the UCCconnect service on each remote platform.

Viewing Line Status

You can determine the status of each line on the Call Server using the **Line Status** utility. When a UCCconnect call is being processed, the **Line Status** displays **UC <name>** where <name> is the name of the script that is executing. For more information on the **Line Status** utility, refer to the MiCollab AM help topic.

Testing the Installation

To test UCCconnect after you have installed it, you can configure a Call Processor mailbox on the Call Server to run the **GUESS** sample script. **GUESS** is a simple guessing game in which the script generates a random number between 1 and 100 and gives the caller several chances to guess the correct number.

MiCollab AM Admin Utility

MiCollab AM Admin allows you to configure UCCconnect to run scripts for inbound calls from Call Processor mailboxes. Typically, MiCollab AM offers the caller a list of options from the answer mode Call Processor mailbox, the automated attendant. Callers can initiate UCCconnect scripts from the answer mode Call Processor mailbox or from any other Call Processor mailbox configured to run scripts.

For more information about **MiCollab AM Admin** or Call Processor mailboxes, refer to the online help system, *System Administration Guide*, and *Call Processor Administration Guide*.

You can initiate scripts from a Call Processor mailbox using **Speech** commands, by entering digits from a Touch-tone telephone, or through a time-out action of the Call Processor mailbox. Script names must be seventeen characters or less. Do not include the **.exe** file extension.

To configure a Call Processor mailbox to run GUESS:

- 1 Make sure that MiCollab AM is running.
- 2 Log on to **MiCollab AM Admin** from the System Server or a client workstation.
- 3 Select a Call Processor mailbox or create one if necessary.
- 4 In the **Call Processor Actions** section, select the **View** dropdown list, and then select **DTMF Only**.
- 5 Select an unused DTMF Key to use for the test.
- 6 In the **Action** field of the selected key, select **Open Script**.
- 7 In the **Arguments** field, type "Guess".

NOTE You must enclose the script in quotes.

- 8 Click **OK**.
- 9 Perform a test call.
 - a Place a call to MiCollab AM, log on to the Call Processor if necessary.
 - b Dial the digit you configured for the test.
 - c The **GUESS** script begins.
 - d If you hear the prompt, "Pick a number between 1 and 100," you are running the **GUESS** script.

Shutting Down the System

Shutdown MiCollab AM only during periods of low call volume. During a shutdown, the system waits until all callers have disconnected before completing the process, and no new callers can access the system. It may take several minutes to complete the shutdown process, depending on the configuration.

To shut down the system:

IMPORTANT Shut down MiCollab AM first, and then wait for the lines to go down before you shutdown the UCCONNECT Server.

If you shut down the system in reverse order, callers who have already accessed the system could process a request to initiate a script. If the UCCONNECT Server is shut down, the script is terminated.

- 1 Open **MiCollab AM Configuration** and select the **Main** tab.
- 2 Click **Shutdown** and wait until **Current Status** displays **Stopped**.
- 3 On the **UCCONNECT Control Panel** utility, click **Shutdown**.

Developing UConnect Applications

You can use any of the .NET languages (VB, C# or C++) to develop debug your own scripts. However, if you use any of the UConnect sample scripts as a starting point, you must use VB.NET to modify the script.

If you use the Visual Studio .NET development environment, you can step line-by-line through the script execution, set breakpoints, create watch points, and monitor the flow of execution just as you would when developing and debugging any .NET application.

Use the call simulator on a developer system to input Touch-tone and play prompts over a sound device. On a Call Server platform, you can call into MiCollab AM and run the script or use the call simulator, if you have a sound device installed.

NOTE You must have Visual Studio .NET installed on the Call Server platform to develop and debug scripts, regardless of whether you use the call simulator or call in to run the script.

Developing scripts from the Call Server platform is not a recommended practice and may cause call processing problems on a working system.

Visual Studio .NET Requirements

- The included Sample Applications and any Applications that are created using the UConnect Application Wizard require Visual Studio .NET 2008.
- The UConnect .NET Assembly is built using .NET Framework 3.5 SP1. If you are creating new Projects, Visual Studio .NET 2003 is supported.
- If you are using another language such as C# or C++ to create new projects, Visual Studio versions .NET 2003 and .NET 2008 are supported

NOTE The Visual Studio 2008 requirement is primarily because the Project Files (*.vbproj) are built using this version. However, all source files from the Sample Applications and the UConnect Application Wizard are compatible within a Visual Basic Project created with Visual Studio .NET 2003.

Using the Sample Applications

UConnect provides a number of sample application scripts to help you get started. These scripts provide examples of the various types of VB.NET scripts and show ways to use the various IVR programming functions.

Studying the samples is a quick and effective way of learning to develop UConnect scripts, and you can use their code fragments as resources once you start developing your own applications.

As a starting point, start the VB.NET development environment and load the **GUESS** sample script. If you installed UCConnect in the default path, you can locate this application in the **...\CX\UCConnect\Samples\Guess** folder.

Next, examine the VB.NET code for this application. The application is initiated within the **Public Sub Main()** procedure. This is standard for most UCConnect applications.

NOTE Refer to the Mitel. UCConnect.chm help file for the full API reference.

About AVST.UCConnect.dll .NET

UCConnect uses a .NET DLL Assembly module (**AVST.UCConnect.DLL**) to provide methods for implementing IVR functions.

For example,

There are methods to collect Touch-tone digits, speak prompts, and transfer calls.

AVST.UCConnect.DLL installs and is automatically registered during the UCConnect software installation.

Each of the sample application projects references the **AVST.UCConnect.DLL**. If you are creating a new project, you must first create a reference (import) of the **AVST.UCConnect.DLL**. This file is located in the **...\CX\UCConnect\Bin** folder.

The following example of the **Project Properties References** tab displays the location of the **AVST.UCConnect.dll** file.

About SOAP Client API Access

UCConnect provides direct access to the telephony system SOAP Server within the UCConnect Development Environment.

For more information on using this API, refer to the help file, **UCConnect API Reference.chm**, which is located in the start menu of the **MiCollab AM Desktop** group on systems with UCConnect installed.

For more information on the telephony system SOAP API, refer to MiCollab AM Web Services API Developer's Guide located on the telephony system Installation Media.

Using the UCConnect Application Wizard

UCConnect provides a utility called the UCConnect Wizard – VB.NET to simplify the process of creating new application scripts. The use of the UCConnect Wizard to create scripts is not a requirement, but recommended, in order to save time in both the development and the debugging of your script.

By default, the UCConnect Wizard simply generates a script framework using a file name that you provide. This framework provides initialization, exit, and default error handling routines that enable you to begin designing your application immediately. You can also choose to add up to four predefined routines or code segments to the framework before generating the script and exiting UCConnect Wizard.

To start the UCCConnect Application Wizard, select **Start > Programs > MiCollab AM Desktop > UCCConnect > UCCConnect Wizard - VB.NET**.

NOTE At any time while using the Wizard, click **Help** or press **F1** to get specific information about the utility.

The available code segments include:

- **Create a menu of options** – allows you to define:
 - The keys you want in your menu
 - A voice prompt to describe the menu to a caller
 - Additional prompts to confirm each key press in the menu
 - How to respond to an invalid selection or no selection at all
 - Prompt for input from the caller—allows you to define:
 - A prompt to request a string of digits from a caller
 - Specify how the string should be validated
 - Set responses for invalid input or no input at all
- **Take a message** – allows you to specify:
 - The Subscriber mailbox for collecting voice messages
 - The Subscriber mailbox used as the source, and optionally define a maximum length for each message
 - Transfer call to an extension—allows you to define:
 - A destination device number for incoming calls
 - The type of transfer you want the script to use

Configuring the Script and Prompt File Location

If you create a script manually, the first thing you should do is configure the script so that it knows where to look for its speech prompts. To do this, you must set the `ScriptSpeechDir` property to the name of the directory that contains the prompts.

For example,

```
UCC.ScriptSpeechDir = "FirstApp"
```

NOTE The prompt directory that you specify in the `ScriptSpeechDir` property must be located in a sub-directory of the `...\\CX\\UCCConnect\\Speech` directory.

The property specifies a relative path, not an absolute one. For example, if the `ScriptSpeechDir` is set to **FirstApp**, the script attempts to retrieve its prompts from the `...\\CX\\UCCConnect\\Speech\\FirstApp` directory.

In most cases, you should create a separate directory for each script you develop. If you use the UCCConnect Wizard to create your script, the Wizard creates this directory and sets the `ScriptSpeechDir`

property in your script automatically. By convention, the directory has the same name as the script. However, if you want two scripts to share a single prompt set, you can set the **ScriptSpeechDir** properties of both scripts to the same directory name.

NOTE If you write two scripts to share one prompt directory, you must also design their installation scripts to install their prompts in the shared prompt directory. For more information, refer to [Deploying Your Applications](#) later in this document.

Sending Text Messages from UConnect Applications

UConnect now includes a method for sending SMS or Text Messages directly from the UConnect Development Environment.

For more details please refer to the help file, **UConnect API Reference.chm**, which is located in the start menu of the **MiCollab AM Desktop** group on systems with UConnect installed.

Compiling Applications

Before running or debugging a script, you must compile it into an executable (.exe file) program. The resulting executable file must be located in the **...\CX\UConnect\Incoming\Script** directory. UConnect then transfers the executable to the **...\CX\UConnect\Script** directory, where it runs "production" applications on the Call Server platform.

UConnect creates and runs a separate temporary version of the executable file on each MiCollab AM line from the **...\CX\UConnect\Script** directory. This makes it possible to install a new version of a script while a previous version of the script is running.

To install a new version of a script while a previous version of the script is running, copy the new executable into the **...\CX\UConnect\Incoming\Script** folder. The new version runs automatically the next time the script initiates.

NOTE When compiling applications in Visual Basic, you must insert **-d** in the **Command line arguments** field of the **Debug** tab in the Visual Basic compiler.

Recording Voice Prompts

You must record and save UConnect prompts as **.wav** files in the following audio format:

- Linear PCM encoding, G.711 A-law, or G.711 u-law
- 8.0 KHz (8,000 samples per second)
- 8 bits per sample
- Monaural
- No data compression applied

NOTE The G.711 u-law recording format is typically used in the United States and Japan. The G.711 A-law recording format is typically used in South America and Europe.

IMPORTANT On Windows 7, Windows Server 2008 R2 with Service Pack 1, Windows Server 2012 R2, or Windows Server 2016 platforms, the UCCONNECT wizard can be used to record prompts.

However, the resulting recorded **.wav** files must be converted from 16-bit, 44,100 samples/second stereo to G.711 encoding before they are placed into service on the Call Server. The conversion process requires a third-party sound editing application.

If your IVR application requires complex prompts, large numbers of drop-in elements such as letters and numbers, or effects such as music under the spoken text, consider purchasing and using an audio waveform editor. These programs are available at a variety of prices and provide different levels of editing and special effect features.

Copying Script Prompts to Speech Directories

By default, the Speech directory name is the same as the application name. Prompts for UCCONNECT scripts are stored in directories (folders) under the **...\\CX\\UCCONNECT\\Speech** directory. There is generally a separate directory for each script, and by convention, the directory shares the same name as the script.

For example:

If you had a script named **Lotto**, the script's speech prompts would typically be stored in **...\\CX\\UCCONNECT\\Speech\\Lotto**.

As previously stated, the **ScriptSpeechDir** property of the UCCONNECT object module must be set to the relative path where the prompts are stored. In this example, the **ScriptSpeechDir** property is **Lotto**.

A unique feature of UCCONNECT is that you can record new prompts on a system that is running and processing calls. To utilize this feature, you must record prompts into a **temporary** directory and then move them into the appropriate subdirectory below the **...\\CX\\UCCONNECT\\Incoming\\Speech** directory. This directory structure is set up to mirror the **...\\CX\\UCCONNECT\\Speech** directory.

When you copy a prompt to a directory under **...\\CX\\UCCONNECT\\Incoming\\Speech**, it moves automatically to the mirror location of **...\\CX\\UCCONNECT\\Speech** as soon as the prompt is not in use by the system.

If the prompt already exists in the destination directory, the new prompt replaces it. Using the Lotto example, if you copy a new prompt into the **...\\CX\\UCCONNECT\\Incoming\\Speech\\Lotto** directory, it moves automatically into the **...\\CX\\UCCONNECT\\Speech\\Lotto** directory.

Recording or copying prompts directly to directories below the **...\\CX\\UCCONNECT\\Speech** directory while the UCCONNECT service is running is not an acceptable practice, if there is a chance that a caller may be listening to the prompt at the same time. If there are no callers on the system while you are recording prompts, this is not a problem.

UCCONNECT System Prompts

UCCONNECT system prompts are stored in a subdirectory of **...\\CX\\UCCONNECT\\Speech**. The **SystemSpeechDir** property of the UCCONNECT control sets the name of this subdirectory for each script, but that name is usually System. If you are going to use a custom prompt set, Mitel recommends that you

create a custom system speech directory and then set the **SystemSpeechDir** property to the new location instead of replacing the system prompts directly.

To retrieve and play a prompt, UCCconnect searches the speech directory belonging to the active script first. If it cannot find the prompt there, it searches the system speech directory. This allows you to record only the specialized prompts that your script needs and retrieve standard prompts, such as numbers and months, from the system directory.

It also enables you to override any specific system prompt by recording a prompt of the same name in your script's speech directory. You may also re-record all of the prompts in the **System** directory so that your application uses a single voice. Take extra care when editing system prompts so that they concatenate smoothly when building numbers, dates, and other phrases.

Sending Faxes from UConnect Applications

You can send faxes from within IVR scripts if you integrate the OpenText RightFax Enterprise Fax Server with MiCollab AM. The fax server supports sending both dynamic fax documents generated by your application and documents previously stored in the fax server's Faxtext library.

The fax server supports Microsoft Word®, HTML, plain text, and many other document formats. Because the .NET environment incorporates automation controls for applications such as Word and Excel®, it is possible to create the **fax on the fly** applications whereby a script creates a Word or Excel document and then sends it as a fax. This type of application is ideal for order status applications or other situations where an IVR application faxes dynamic data.

To send faxes through the fax server, you must configure at least one user account on the fax server as the sender account. For complete information on all of the RightFax server's features, refer to the *RightFax Integration Guide*.

Creating and Sending Fax Documents

- Create the document that you want to send using a suitable program, and then prompt users for the names of the fax library documents that they want to receive.

NOTE Use numeric names for your library documents so that your callers can easily enter the document name from the telephone keypad. If you have a large number of documents, consider placing an index document in your library so that users can fax themselves the index, and use it to select other documents to receive.

For more information about building and organizing a fax library, refer to the *RightFax Integration Guide* or *FaxText online book*.

- Create a temporary text file for each fax document to be sent. This text file provides the Fax Server with control information about the fax transaction that the application is currently setting up. The application must give it a unique name to distinguish it from similar files generated simultaneously by other instances of the application.
- Add the following line to the beginning of the text file: **USERID:id & chr(13) & chr(12)** where **id** is the User ID of the user account that you have created for your application on the fax server.
- The script must append the character codes **chr(13) & chr(12)** to the end of this line because the fax server expects the string of characters containing the code to end in a carriage return **[chr(13)]** and form feed **[chr(12)]**.

For example:

If you have created a user account with an ID of UC for your UConnect scripts to use when sending faxes, each instance of the script should create a text file starting with the line, **USERID:UC & chr(13) & chr(12)**.

- Add the appropriate control codes to the text file, using a separate line for each one. These codes, which are in the form <control code>, enable you to specify address information such as the recipient's name and telephone number, cover page information such as the sender's name and voice telephone number, the names of all documents to be sent, and other control information. *The RightFax Administrator's Guide* provides a detailed list of all available codes.
- Once you have edited and saved the text file, copy it to the ...**RightFax\OutGoing** directory on the fax server.
- Create a share for the fax server's disk drive, and then map it on the Call Server so that UCConnect scripts can copy files there.
- When the UCConnect script copies the text file to the fax server, it renames the file with the file extension, **.tm\$**.
- When you copy the text file to the fax server, rename it with the file extension, **.tmp**. Whenever the fax server detects a file whose name has an extension of **.tmp**, it automatically begins to process it. The additional step of renaming the file while copying it prevents the fax server from starting to process it before it is finished copying.

Sending Text Messages from UConnect Applications

UConnect now including a method for sending SMS or Text Messages directly from the UConnect Development Environment.

For more details please refer to the help file, ***UConnect API Reference.chm***, which is located in the start menu of the **MiCollab AM Desktop** group on systems with UConnect installed.

Deploying Your Applications

Mitel recommends that you use Visual Studio 2008 to create your scripts on a developer platform, as this ensures that all the needed component imports are available on the Call Server at runtime. If your script uses a non-standard .NET assembly, you must ensure that those non-standard components are on the Call Servers as well.

- You must install and configure the following items:
 - A completed script in the ...**CX\UConnect\Script** directory
 - Any third-party components or .dll files used by your script
 - Prompts for your script installed under the ...**CX\ UConnect\Speech** folder in a separate folder named for the script name.
 | For example: ...**CX\ UConnect\Speech\Lotto**
- You must shut down the UConnect service prior to installing scripts.

IMPORTANT Make sure that the installed version of UConnect is the same one under which the script was developed, and that all other scripts running on the Call Server are built using the same version of UConnect.

Running Scripts on a Remote Server Platform

UConnect scripts can run on one or more remote servers connected to MiCollab AM through a network connection. Mitel recommends that you use multiple remote servers when you need to load-balance the overall system and improve performance. In addition, use multiple remote servers in cases where resource limitations restrict the maximum number of scripts that may run simultaneously on a single platform.

Running scripts on a remote platform is not a recommended practice for most installations since it requires considerably more configuration and setup effort. You may wish to consider alternative methods to improve performance on a sluggish system. For example, use a faster PC, a faster hard drive, or additional memory.

The remote platform communicates with Call Servers using the TCP/IP protocol. The machine name must be the Call Server's domain or host name, or its IP address. Share the drive upon which you installed the MiCollab AM and UConnect software, and then map the shared drive of the Call Server on the remote platform.

The **UConnect Remote Control Panel** utility is included in the UConnect software package. The **Network Name** and **Fully Qualified UNC** boxes default with the information you entered during the setup process, but you can change the information at any time by entering new information, and then clicking **OK**.

The following image is an example of the **UConnect Remote Server** utility. The utility has the same **Startup** and **Shutdown** functions as the **UConnect** utilities for MiCollab AM and developer platforms, as well as the **Automatic Startup** feature.

On Call Server platforms:

- If you want the application to run only on a remote server, clear the **Launch Scripts on Local Machine** check box in the UConnect utility.
- If you intend to execute scripts from both Call Servers and remote servers, select **Launch Scripts on Local Machine**.

As calls come in, the Call Server distributes the calls automatically based on how you configure the **Launch Scripts on Local Machine** check box. For example, with the box selected, the Call Server gives the first call to UConnect running on the server, and it then sends the next call to the remote server.

Configuring the UConnect Service for Local and Remote Servers

To allow local and/or remote servers to start UConnect with valid access rights to the Call Server, you must configure the Logon account of the UConnect Server Service on the local, remote, and Call Servers with an administrator's account. This procedure is also required for any other server in the network from which the script needs access to resources.

To set the logon account for the UConnect Server service:

- 1 From the Windows taskbar, select **Start > Control Panel > Administrative Tools > Services**. The **Windows Services Manager** window displays.
- 2 Double-click the **UConnect Server** service. The **UConnect Server Properties** dialog box displays.
- 3 Select the **Log On** tab.
- 4 Select the **This account** radio button.
- 5 Type an administrator's account name or click **Browse** to search for the administrator's account name.
- 6 In the **Password** and the **Confirm password** fields, enter the correct password, and then click **OK**.

IMPORTANT You must delete the dots that are shown in the **Password** and **Confirm password** fields and enter the correct password in these fields before you click **OK**.

- 7 A dialog box advises you that the account is granted the **Log On** service right. Click **OK**.
- 8 Another dialog box advises you to stop and restart the services in order for your changes to take effect. Click **OK** to continue.
- 9 From the **Windows Services Manager** window right-click the **UConnect Server** service, and then click **Restart**. The service stops, and then it restarts.

Setting Diagnostic Logging for UCConnect

The telephony server system now provides extensive logging of UCConnect applications through its **Diagnostics** utility, where you can refer to online help topic, *Turning On File Logging*.

IMPORTANT Perform this procedure only at the instruction of a Technical Support engineer. Logging may consume large amounts of hard disk storage space and significantly degrade performance.