IC Workstation Applications in Citrix and Terminal Services Environments

Technical Reference

Interactive Intelligence Customer Interaction Center® (CIC)

2016 R2

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(See Change Log for summary of changes.)

Abstract

This document describes support for CIC client-side applications in Citrix and Terminal Services environments including requirements, installation, and troubleshooting.
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Introduction
This document describes support for CIC client-side applications in Citrix and Terminal Services environments including requirements, installation instructions, and troubleshooting tips.

In this document:
- Audience
- CIC client-side applications supported on Citrix and Terminal Services
- About Citrix and Terminal Services
- Limitations to using CIC client-side applications in Citrix and Terminal Services
- Installing the CIC client-side applications on the Citrix or Terminal Server
- Enabling Terminal Server access for users
- Troubleshooting guidelines

Audience
The audience for this document includes Citrix/Terminal Services and CIC administrators and anyone else who wants to better understand the CIC client-side applications in a Citrix or Terminal Services environment.

CIC client-side applications supported on Citrix and Terminal Services
Interactive Intelligence supports applications such as Interaction Desktop, Interaction Voicemail Player (requires Outlook), Interaction Supervisor, Interaction Recorder Client, and Interaction Screen Recorder Capture Client (for capturing screens from applications running through XenApp) in the following remote application server environments:
- Citrix® XenApp 6.0 on Windows Server 2012 R2
- Terminal Services on Windows Server 2012 R2

Multi-platform and remote users are encouraged to run these supported CIC client-side applications with the Citrix or Terminal Services client.

Supported IC Business Manager modules and CIC user applications
The CIC client-side applications that are supported on Citrix and Terminal Services clients are categorized as either user applications or IC Business Manager modules.
- Supported user applications are Interaction Desktop, Interaction Voicemail Player, and Interaction Screen Recorder Capture Client.
  
  Note: The SIP Soft Phone is not supported on Citrix or Terminal Services servers. However, Interaction Desktop hosted on Citrix or Terminal Services may be paired in combination with a SIP Soft Phone deployed on the user's host (workstation) machine with a local USB device.
- Supported IC Business Manager modules are Interaction Supervisor and Interaction Recorder Client.

For more information about the CIC user and IC Business Manager applications, see the Interaction Center Installation and Configuration Guide in the Installation and Configuration section of the CIC Documentation Library.
IC Server Manager application is not recommended with Citrix

Interactive Intelligence does not recommend running any of the application modules installed by the IC Server Manager installation program on Citrix clients. Examples of IC Server Manager modules are Interaction Administrator and Interaction Process Automation Designer.

Install the Server Manager modules on an administrator's or developer's workstation, outside the Citrix environment. In a production environment, do not run these application components directly from the IC server.

For more information about IC Server Manager modules, see the Interaction Center Installation and Configuration Guide in the Installation and Configuration section of the CIC Documentation Library.

Third-party application support

Interactive Intelligence supports our customers using Citrix and Terminal Services to the best of our ability, although we cannot guarantee the reliability of third-party applications and equipment. Customers using these third-party applications do not in any way void their support and maintenance agreement.

Interactive Intelligence does not offer support on any aspect of Citrix XenApp or Windows 2012 Terminal Services. For support on these products, contact the manufacturer directly.

- Citrix XenApp and the suite of supporting applications are considerable. Locate information regarding Citrix setup, licensing, and usage from Citrix directly at www.Citrix.com. If you choose to deploy any CIC client-side applications using Citrix, we highly recommend having a trained and certified Citrix Administrator on staff.

Check these websites regularly for updates and hotfixes for your applications.
About Citrix and Terminal Services

Terminal Services is a component of Microsoft Windows 2012 (both server and client versions) that enables access from almost any computing device to a server running Windows-based programs or the full Windows desktop. Users can connect to a terminal server to run programs and use network resources on that server.

Following is a short description of Microsoft’s Windows Terminal Services, taken from the Microsoft website. The Terminal Services server role:

“provides technologies that enable users to access Windows-based programs that are installed on a terminal server, or to access the full Windows desktop. With Terminal Services, users can access a terminal server from within a corporate network or from the Internet.

Terminal Services lets you efficiently deploy and maintain software in an enterprise environment. You can easily deploy programs from a central location. Because you install the programs on the terminal server and not on the client computer, programs are easier to update and to maintain.

When a user accesses a program on a terminal server, the program execution occurs on the server. Only keyboard, mouse, and display information is transmitted over the network. Each user sees only their individual session. The session is managed transparently by the server operating system and is independent of any other client session.”

Citrix XenApp (formerly Citrix Presentation Server) is a remote access/application publishing product that “sits on top” of a Windows 2012 Terminal Server, providing extra functionality and usability.

Following is a short description of Citrix XenApp, taken from the Citrix website:

“Citrix XenApp is an on-demand application delivery solution that enables any Windows application to be virtualized, centralized, and managed in the datacenter and instantly delivered as a service to users anywhere on any device.”

Requirements

Windows Terminal Server is included with Windows Server 2012 R2. Terminal Services licensing is required.

Citrix XenApp must be installed on the same server as the Windows 2012 Terminal Server. Citrix XenApp and Terminal Services licenses are required.

Architecture

Citrix XenApp and Terminal Services extend the model of distributed computing by allowing computers to operate as both thin and fat clients simultaneously. At the hardware level, a thin client is a device that relies on a server for applications and data, and performs little or no application processing. Thus a thin client (often called a terminal) requires relatively small amounts of RAM and local disk storage capacity. A typical computer (sometimes called a fat client) usually has more RAM and a larger disk drive so it can handle all of an application’s code and data locally.

Centralized computing resources

Citrix XenApp and Terminal Services allow centralized management of some or all computing resources for each client connected to the server and provide each user with their own working environment.
Limitations to using CIC client-side applications in Citrix and Terminal Services

This section mentions some limitations to using CIC client-side applications in Citrix and Terminal Services environments.

Audio

If using Interaction Voicemail Player, users may be limited in voice mail playback.

- If your IC Server uses Interaction Voicemail Player, you can use the Handset Audio Service to re-direct the playback of voice mail message to a station phone or remote number.
- Voicemail playback works if the user is logged on to Outlook through Citrix XenApp. Clicking a voicemail message in Outlook launches a Citrix instance of Interaction Voicemail Player. However, if Outlook is on the user’s computer and Interaction Voicemail Player is on the Citrix server, clicking a voice mail message in Outlook will not use the Voicemail Player through Citrix. Users can still open the .wav file by browsing for the correct file in Interaction Voicemail Player if they have access to the folder where the file is located.
- A user without any audio support can dial into the system to listen to messages.

Note: Adding audio support to Citrix XenApp and/or Terminal Services requires extra network bandwidth. The quality of the audio may be poor when clients are connected across low-bandwidth connections.

Graphics

To conserve network bandwidth, consider suppressing the splash screen for Interaction Desktop and the other supported CIC client-side applications (not all the supported applications have splash screens). The splash screen is the graphic containing product and company information that appears while the application is starting.

To suppress the splash screen, use the –disableSplashScreen command-line argument:

1. In the Citrix management console, select the Interaction Desktop application → properties → application → location → command line arguments.
2. Enter –disableSplashScreen

You can also use this argument with Interaction Center Business Manager.

This argument tells the applications to suppress the splash screen that is normally displayed during start-up.

When the splash screen is transmitted to a remote desktop client over the network, the transmission consumes extra network bandwidth and forces the user to wait before accessing the application.

See the Interaction Desktop online help for more information on user configuration options.

Although this is not an issue with CIC client-side applications, the graphics quality of Citrix XenApp and Terminal Services may be degraded and not appear to be as clear as when running the application locally.
SIP Soft Phone

The SIP Soft Phone is an on-screen dial pad that can be used to place and control calls from the Windows desktop using SIP-based communications. The SIP Soft Phone application requires the use of a USB headset to deliver audio to the user. The SIP Soft Phone is a feature component in the IC User Applications installation program.

Note: The SIP Soft Phone is not supported on Citrix or Terminal Services servers. However, Interaction Desktop, hosted on Citrix or Terminal Services may be paired in combination with a SIP Soft Phone deployed on the user's host (workstation) machine with a local USB device.

Installing the CIC client-side applications on the Citrix or Terminal server

Installation of any of the supported CIC client-side applications occurs only on the Citrix XenApp server or the Terminal Server. This is a major advantage for software updates and upgrades.

The installation process is almost the same as installing the CIC client-side applications on an individual’s client workstation. Before running the IC User Applications install or the IC Business Manager Applications install, Windows must be in Install mode. This is required for Windows when programs will be used by multiple users.

Do one of the following to activate the system for Install mode at the Citrix XenApp server or Terminal Server:

- Use the Add/Remove Programs tool in the Control Panel to install the IC User Applications or IC Business Manager Applications. Use the Add New Program link to browse to the IC User Applications or IC Business Manager Applications installation program on the IC Server.
- From a DOS command line, type: change user /install
  If you use this option, you can return to normal execution mode by rebooting or at a DOS command prompt typing: change user /execute

Either of these methods will place Windows in Install mode.

During the CIC client-side application installation, make the choices appropriate for your environment. There is no need to make special installation choices to run in a Citrix environment. For installation instructions, see the Installation and Configuration Guide.

Note: Not all the features/components available to install in the IC User Applications or IC Business Manager Applications installation programs are supported in Citrix and Terminal Services. See “CIC user and business applications are supported” and “SIP Soft Phone” in this document for more information.

Enabling Terminal Server access for users

This section describes how to grant users in Citrix and Terminal Services environments the permissions needed to log on successfully to a Windows 2003 Terminal Server.
1. Click Start, point to Programs, point to Administrative Tools, and then click Computer Management.

2. To expand the branches, click the plus symbol (+) next to System Tools, click the plus symbol (+) next to Local Users and Groups, and then click the plus symbol (+) next to Users.

3. Double-click the user who you want to be able to log on as a Windows NT Terminal Server client.
   
   Note: This step only works if the user is a local user on the local machine. In most cases, the users will be domain users. These can be modified from Active Directory on the domain controller under the “Users” folder.

4. On the Profile tab, click to select the Allow to log on to Terminal Server check box, and then click OK.
   
   Note: The check box is actually under the Terminal Services Profile tab, where it is labeled Deny this user permissions to log into any Terminal Server. This box must NOT be checked. (It is unchecked by default.)

   For a domain-level user, double-click the user in Active Directory, navigate to the Terminal Services Profile tab, and clear the Deny this user permissions to log into any Terminal Server check box just as you would for a local user under Computer Management.


6. Click Start, point to Programs, point to Administrative Tools, and then click Terminal Services Configuration.

7. Open the Connections folder, and then click Rdp-Tcp.
   
   Note: Rdp-TCP is used for Terminal Services/Remote Desktop permissions, not for Citrix. When Citrix is installed, an entry will appear labeled ICA-Tcp. This is the entry that needs to be modified to allow users to connect. This should have already been handled by the Citrix installation process.

8. On the Actions menu, click Properties.

9. On the Permissions tab, add the users or groups who you want to have permissions to this Windows NT Terminal Server.

Startup profile settings

Interaction Desktop automatically creates a default profile for a user the first time he or she logs in. The profile, named Default.I3Client by default, contains the user, encrypted password, and other settings to use for future logins. The settings in the profile are based on data specified in the Startup Configuration Editor. For a description of the Startup Configuration Editor, see the Interaction Desktop Online Help.

In a Citrix environment, all instances of Interaction Desktop run on the Citrix server rather than the users’ workstations. This means that the *.I3Client file is located on the Citrix server. When a specific instance of Interaction Desktop is launched, Interaction Desktop needs to know where on the Citrix server to find that user’s profile file.

Note the following:

- Interaction Desktop detects whether the user is running in a Citrix environment and disables certain features, such as the Activate existing instance and Confirm multiple instances options in the Startup Configuration Editor.
- If <this computer> is specified in the Station Type field of the Startup Configuration Editor, the %CLIENTNAME% variable is used to display the local PC name instead of the Citrix server name as was shown previously.
- Environment variables are supported in the .I3Client profile file.

**The profile location**

In a Citrix environment, profile settings are saved, by default, in this folder on the Citrix server:
\Documents and Settings\user.name\ApplicationData\Interactive Intelligence\InteractionClient\Profiles

**Passing the workstation name to the profile**

There are two methods you can use to pass the workstation name to the profile.

**Method 1**

To ensure that the .I3Client file that is loaded is specific to the user who is logged into the local workstation:

3. In the Citrix management console, select the Interaction Desktop application → properties → application → location → command line arguments.

4. Enter the equivalent of the following:
   "C:\Program Files\Interaction Desktop\InteractionDesktop.exe"
   "%userprofile%\Application Data\Interactive Intelligence\InteractionClient\Profiles\default.I3Client"

This command line entry specifies the location of Interaction Desktop on the Citrix server. It also specifies one command line parameter indicating the location of the *.I3Client file that will be used when Interaction Desktop launches.

Notice that the specified environment variable is: '%userprofile%'

**Method 2**

Follow these steps:

1. On the Citrix server, create a folder, such as C:\myI3ClientFolder.
   The folder will hold an .I3Client file for each agent workstation on the network.

2. In the folder you created in the previous step, create an .I3Client file for each workstation on the network.
   The name of each file should be: '\(machinename\).i3client'
   Refer to an existing default.I3Client file for syntax information.

**Notes:**

- The .I3Client file should specify to use Windows login authentication:
  ‘WindowsLoginAuthentication=True’

- The .I3Client file should specify the name of the workstation:
  ‘Workstation=(machinename)’
  Or, if you prefer to use an environment variable: ‘Workstation=%CLIENTNAME%’

3. In the Citrix management console, select the Interaction Desktop application → properties → application → location → command line arguments, and then enter the equivalent of the following:
   "C:\Program Files\Interaction Desktop\InteractionDesktop.exe"
   "C:\myI3ClientFolder>\%CLIENTNAME%.I3Client"
Troubleshooting guidelines

There are multiple troubleshooting paths one can take when an application isn’t running correctly through Citrix or Terminal Services. The following are some troubleshooting suggestions. This list is not meant to be an exhaustive troubleshooting procedure or strategy.

1. **Verify other applications, besides the CIC client-side applications, will run under your Citrix environment.** For example, try running notepad.exe. If this is a new Citrix environment, trying other applications may give you insight into publishing applications and the Citrix clients.

2. **Verify that the application can run successfully at the Citrix application server, outside of Citrix.**

   For example, if you have installed Interaction Desktop and it won’t start for a Citrix user:
   A. Go to the physical Citrix application server where Interaction Desktop was installed.
   B. Run the desktop shortcut or the application shortcut from the Start > Programs menu.

   If Interaction Desktop does not run from the Citrix application server, determine the cause of the problem from this point.

3. **If the Interaction Desktop is not launching for the Citrix user, check the permissions on the Citrix application server.** Domain users must have full permissions in the folder where the Interaction Desktop was installed (e.g., C:\Program Files\Interactive Intelligence). From the console of the Citrix server, click Programs, point to Administrative Tools, and then click Local Security Policy. Expand the Local Policies node, and then expand the User Rights Assignments node. Grant the user group or individual user both of the following rights:
   - Create Global Objects
   - Create Permanent Shared Objects

4. **If Interactive Intelligence Support recommends tracing on Interaction Desktop, the Interactive Intelligence tracing utility must be published and deployed for the user, just as any other Citrix deployed application.**

5. **Running with roaming network profiles should not adversely affect the CIC client-side applications.** An issue has been discovered in which a user who does not deliberately exit Interaction Desktop but logs off of the workstation is not able to log on to Interaction Desktop at a different workstation. If this is the case, the Citrix Administrator may need to terminate CIC client-side applications from the Citrix XenApp console. Further investigation and testing is planned regarding this issue.

6. **If you’re not getting sound through your speakers or the sound quality is poor,** keep in mind that audio quality is controlled through Citrix policies. You may need to adjust the setting for the maximum amount of bandwidth for client audio mapping, or the client device sound quality setting.

7. **If the Interaction Supervisor with Historical Reporting and/or Interaction Report assistant licensing is not able to run reports in an Oracle environment,** there can be many possible items to check. In the past, we found that the path to the Interaction Supervisor application (e.g. C:\Program Files\Interactive Intelligence) needed to be added to the PATH environment variable on the Citrix application server. This may or may not fix the issue. The network user ID that will be used to run the reports at the client workstation must be a local administrator on the
Citrix application server. If reports will not be used, no global local machine permissions are required.

8. Many of our customers run Interaction Desktop remotely in a Citrix environment. This is encouraged if your client users are truly remote users. However, running the client remotely (select this option from the login dialog for Interaction Desktop) is not a requirement to deploy the applications through Citrix. Running Interaction Desktop remotely in any environment should be a deliberate choice and not just left up to the user’s discretion.
## Change Log

The following items have changed since the IC 3.0 GA release.

<table>
<thead>
<tr>
<th>Change</th>
<th>Date</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>November 4, 2011</td>
<td></td>
<td>Updated for 4.0 initial release.</td>
</tr>
<tr>
<td>August 28, 2014</td>
<td></td>
<td>Updated documentation to reflect changes required in the transition from version 4.0 SU# to CIC 2015 R1, such as updates to product version numbers, system requirements, installation procedures, references to Interactive Intelligence Product Information site URLs, and copyright and trademark information.</td>
</tr>
<tr>
<td>September 29, 2015</td>
<td></td>
<td>Updated documentation to reflect the addition of two CIC client applications, Interaction Desktop and Interaction Connect and the removal of Interaction Client .NET Edition. Removed references to support for Interaction Fax, as it is not supported in Citrix and Terminal Services.</td>
</tr>
<tr>
<td>December 8, 2015</td>
<td></td>
<td>Added information about the –disableSplashScreen command line argument.</td>
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