

# Customer Site Requirements for inContact WFO 16.2

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## Introduction

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### Audience

This document is written for customers and prospective customers interested in using inContact WFO. Readers should have a basic level of familiarity with general networking and their organization's LAN, their organization's PBX, the business rules in their contact center(s), usage of a PC and its peripherals, and the Windows operating system.

### Goals

The goal of this document is to provide knowledge and reference information necessary to install and maintain an inContact WFO system in an organization's IT environment.

**Note:**

This document is NOT intended as a specific system or network design document, nor is it designed to educate the reader on contact center concepts or best practices.

### Assumptions

This document assumes the reader has access to an inContact WFO Sales Engineer, Project Manager, or other resource to assist in applying this information to the reader's environment.

### Need-to-Knows

inContact WFO is a robust platform with multiple modules that can be used alone or in any combination with each other. These modules include:

- inContact Call Recording
- inContact Screen Recording
- inContact Quality Management
- inContact Workforce Management v2
- inContact Speech Analytics
- inContact Survey
- inContact Desktop Analytics

This document covers requirements for inContact WFO systems that include one or more of the following: inContact Call Recording, inContact Screen Recording, inContact Quality Management, inContact WFM v2 and inContact Desktop Analytics.

inContact Survey and inContact Speech Analytics have requirements in addition to those listed here.

Depending on the PBX integration, there may also be additional hardware, software, and licensing requirements for call recording. Consult your inContact WFO representative for customer integration guides and inContact WFO license information.

## Server Requirements

### Warning:

The specific hardware and system software required for your implementation is determined by inContact WFO Sales Engineering during the discovery and system design process. No system hardware or software should be purchased or requisitioned until the final system design document is complete.

## Hardware Requirements

Hardware requirements are affected by the specific inContact WFO components used, the number of concurrent users in the system, the number of agents being recorded, the design of your telephony network, the average call volume and duration, and the length of time you wish to retain recordings.

Generally speaking, servers can be either physical or virtual. However, some recording integrations require physical servers; see the Overview topic or customer guide for your integration.

## ADDITIONAL CONSIDERATIONS

The following general guidelines apply to all inContact WFO systems:

- 32-bit servers are no longer supported due to the requirements of supported operating systems, with one exception (see [Software Requirements](#)).
- Call recording, screen recording, and quality management can run on the same server. Depending on your contact center and IT architecture, multiple servers may be recommended.
- inContact Speech Analytics requires a separate, dedicated server. Depending on how your organization plans to use inContact Speech Analytics, multiple dedicated servers may be recommended.
- inContact WFO supports virtual server(s) for most modules. Some recording integrations require a physical server.
- inContact recommends that servers have a minimum of 6 GB of RAM and a quad-core processor. Any server that hosts **RabbitMQ** must have at least 6 GB of RAM.

## Software Requirements

inContact WFO has been tested with and supports the following software environment for system servers:

- **Operating System** – Windows Server 2008 R2/2012/2012 R2. Integration with Avaya using IP Office requires a recording server running a 32-bit Windows operating system. See the *Customer Guide to Avaya IP Office Integrations* for details. inContact Speech Analytics requires Windows Server 2008 R2.

- **Database** – Microsoft SQL Server 2008 R2 SP1 with SQL Server Reporting Services (Standard, Data-center, Enterprise, and Express with Advanced Services editions). Microsoft SQL Server 2012 SP1 (Enterprise, Standard, and Express editions). Microsoft SQL Server 2014 (Enterprise and Standard editions). If the system includes only inContact WFM v2, SQL is not required.

**Note:**

inContact Speech Analytics is not supported on SQL Express.

- **Web Server** – Microsoft Internet Information Services v7.0, 7.5, with ASP.NET 4.0 Extensions; v8.5 with ASP.NET 4.5 Extensions
- **Protocols** – IPv4

## Prerequisites

**Note:**

This section does not apply if the system includes only inContact WFM v2.

inContact WFO requires a number of prerequisites to operate successfully. These prerequisites are installed by the inContact WFO installation team, and include:

- .NET Framework v3.5, v4.0, v4.5.1, and v4.5.2
- Microsoft Visual C++ Runtime v8.0.50727.4053 (for more detail on this software, see knowledgebase article 973544 on Microsoft's support site)
- Microsoft PowerShell v2.0 or greater (for more detail on this software, see knowledgebase article 968929 on Microsoft's support site)
- Windows Installer v4.5 or greater
- Microsoft Report Viewer Redistributable 2008, 2010, and 2012 (for more detail on this software, see knowledgebase article 971119 on Microsoft's support site)

## Licensing

inContact WFO Sales Engineering explains licensing requirements during the sales process. If SSL is used in the network, a certificate file must be purchased from a third-party vendor (such as VeriSign). SSL is recommended for Hybrid and inContact WFM v2-only systems.

## PC Requirements

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The following requirements apply to workstations using the inContact WFO Web Portal, the inContact WFM v1 Web Portal, the inContact WFM v2 Workstation or Portal sites, or any combination of these, as well as those running On-Demand, inContact Screen Recording, or inContact Desktop Analytics client applications.

## Software Requirements

inContact WFO has been tested with and is supported for:

- **Operating Systems** – Windows 7, Windows 8.0 (8.1), and Windows 10 (the Microsoft Edge browser included with Windows 10 is still being tested and is not yet supported)
- **Web Browsers** – Internet Explorer v11, Firefox ESR 31 and ESR 38. inContact WFM v2 also supports Google Chrome.

The inContact WFO Web Player uses Microsoft Silverlight functionality. As of Google Chrome v45, Silverlight is no longer supported. Silverlight continues to be fully supported by Internet Explorer and Mozilla Firefox. Users should take these factors into account when choosing a web browser.

If your web browser standard is Google Chrome (in other words, Internet Explorer or Firefox are not options), please see your sales or support representative about potential early use of the inContact WFO HTML5 Interaction Player. Note that the HTML5 **Recorded Interactions** list does not yet support live monitoring, nor does it support Microsoft browsers (such as Internet Explorer and Edge).

Users who play call recordings, screen recordings, or both also need:

- Microsoft Silverlight browser plug-in v5.0.61118.0 or higher

If your deployment includes inContact Desktop Analytics, a proprietary client application must be installed on each PC used by recorded agents. This PC must also run:

- .NET Framework v4.5.2

If your deployment includes screen recording, a proprietary client application must be installed on each PC to be recorded. This PC must also run:

- .NET Framework v4.0

If your deployment includes on-demand recording, a proprietary client application must be installed on each PC used agents with record-on-demand capability. This PC must also run:

- .NET Framework v2.0 (this version is not included by default with Windows 8.1 but can be enabled via the Windows Control Panel)

## Hardware Requirements

The minimum workstation specifications for users who simply view information in a web portal are:

- 2.0 GHz Processor
- 1 GB RAM
- 50 MB hard drive space
- 1280 X 800 (minimum screen resolution at 16-bit color depth)

Users who monitor calls, screen activity, or both; who perform quality evaluations; and who in general use the web portals more heavily will normally benefit from more powerful PCs. For these users, inContact recommends:

- 3Ghz or 1.6Ghz dual core
- 2 GB RAM
- 50 MB hard drive space
- 1280 X 1024 or higher screen resolution at 16-bit color depth

## Virtual Desktop Infrastructure (VDI) Support

inContact WFO supports the following virtual desktop systems:

- Microsoft Terminal Services
- Citrix XenDesktop
- VMWare View

inContact WFO does not support Citrix XenApp in application streaming mode for any applications. However, if the endpoint launching the XenApp client is a Windows PC, the inContact Screen Recording client will capture the streamed application windows *if* the client is running on the Windows PC itself.

**Note:**

VDI does not affect call recording.

## MAJOR CONSIDERATIONS

Each application instance in use will consume resources on the customer's VDI. The following table provides some general guidelines regarding resource usage for each inContact WFO application or module; however, inContact strongly recommends testing needed resources by deploying desired applications and modules to a limited number of users and evaluating resource utilization in your specific environment.



inContact WFO Module	Estimated Resource Usage
inContact Screen Recording Client	RAM: 50-250MB, CPU: 1-5% per instance (highly dependent on screen resolution and activity)
On-Demand Client	RAM: 50MB, CPU: 0-2% per instance
Web Player (browser-based Silverlight application)	RAM: 50-500MB, CPU: 1-10% per instance (highly dependent on number of records returned by user queries and size of audio/video files being played)
inContact Desktop Analytics Client	Resource usage can vary greatly depending on the type and number of applications being monitored, which scripts are being used, and so on. Requires testing in customer's environment to determine specifics.

The inContact WFO **Web Player** is a full audio/video media player built using Microsoft Silverlight. The application may play back data recorded in full HD (in other words, at resolutions greater than 1080p) and the size of the recordings may be significant.

Each VDI vendor has specific caveats and limitations regarding performance for media playback, and most have specific considerations for Silverlight-based media players, especially if the endpoint is a thin or zero client. Consult your vendor for specific information regarding your deployed products.

**Note:**

Microsoft offers a publicly-available Silverlight media player demo application you can use for initial performance testing. Visit Microsoft's [iis.net](http://iis.net) website and search for IIS Smooth Streaming.

# Environmental Requirements

## Port Information for Premises inContact WFO

### SERVER AND FIREWALL PORTS

The following table lists the ports used by various services in inContact WFO. Some ports are used by more than one service (for example, any service that communicates with SQL uses TCP port 1433). Depending on the system design created by your inContact WFO Sales Engineer, these ports may need to be opened on system server (s) and network firewalls to allow communication between inContact WFO modules and services. Talk to your inContact WFO installation team if you need to make adjustments due to port conflicts.

Process	Port	Transport	Direction	Description
API Server	5620	TCP	Inbound	Listener for connections and commands from internal (CTI Core, Web Media Server, On-Demand, etc.) and third-party clients (default)
	5621	TCP	Inbound	Listener for event notifications (such as call started, call stopped, and so forth) from internal (CTI Core, Web Media Server, On-Demand, etc.) and third-party clients (default)
	2012	TCP	Inbound	Listener HTTP API Interface
	1433	TCP	Outbound	SQL Connection
Archiver	445	TCP	Outbound	CIFS file operations
	1433	TCP	Outbound	SQL Connection

CTI Core	5685	TCP	Inbound	Inter-core communication
	5685	TCP	Outbound	Inter-core communication
	445	TCP	Outbound	CIFS file operations
	5630	TCP	Outbound	Communication/Streaming to Web Media Server
	5633	TCP	Outbound	Control messages to Screen Capture Server
	6620	TCP	Inbound	API control message listener
	1433	TCP	Outbound	SQL Connection
	2013	HTTP	Inbound	Info Broker Listen Port
	xxx	?	?	Integration Specific port usage (detailed in corresponding integration guide)
RabbitMQ	5672	TCP	Inbound	Communication port for messaging using the RabbitMQ service bus
Comet Daemon	6505	TCP	Inbound	Listens for service status from client loaders and Web Server
	6505	TCP	Outbound	Client loader status messages to master
	1433	TCP	Outbound	SQL Connection
Info Broker	50817	TCP	Inbound	Used to communicate with Cores, Screen Capture Server

Logger Service	5638	TCP	Inbound	Log message listener
	162	UDP	Outbound	SNMP Management messages
	25	TCP	Outbound	SMTP messages
	1433	TCP	Outbound	SQL Connection
Service Manager	1024	TCP	Inbound	Listens for authorization from the Web Portal
Transcoder	445	TCP	Outbound	CIFS file operations
	1433	TCP	Outbound	SQL Connection
Web Media Service	5630	TCP	Inbound	Control messages and a/v streams from CTI Cores
	4510	TCP	Inbound	Connections from Silverlight client players
	1433	TCP	Outbound	SQL Connection
	943	TCP	Inbound	Silverlight cross domain policy listener
	2015	TCP	Inbound	HTTP Listener
	445	TCP	Outbound	CIFS file operations
Speech Analytics	445	TCP	Outbound	CIFS file operations
	1433	TCP	Outbound	SQL Connection
Desktop Analytics Script Server	5634	TCP	Inbound	Listens for connections from Desktop Analytics clients

On-Demand	2007	TCP	Inbound	Listener for connections from On-Demand Clients
	5620	TCP	Outbound	Connection to API Service for recording control and event messages
	1433	TCP	Outbound	SQL Connection
Screen Recording	5633	TCP	Inbound	Listener for Screen Recording (SR) Client connections and SR to CTI Core communication
	445	TCP	Outbound	CIFS file operations
	1433	TCP	Outbound	SQL Connection
	2014	TCP	Inbound	HTTP Listener
inContact WFO Web Portal	80	TCP	Inbound	HTTP services for inContact WFO Web Portal (default). If inContact WFM v1 is also used, a second port will be required for its Web Portal (for example, 8080).
inContact Survey	5060	UDP/TCP	Inbound	SIP trunk listener from customer PBX. The CTI Core module also uses port 5060. If Survey and Core are on the same server, Survey must be configured to use a different port.

## PC AND FIREWALL PORTS

The following table lists the ports used by client applications in inContact WFO. Depending on the applications used in your implementation, these ports may need to be opened on user workstations and network firewalls to allow communication between system server(s) and end users. Talk to your inContact WFO installation team if you need to make adjustments due to port conflicts.

Process	Port	Transport	Direction	Description
CometDaemon & Service Manager	6505	TCP	Inbound & Outbound	Allows administrator access to Service Manager from client systems and receives messages from CometDaemon.
inContact Desktop Analytics Client	5620	TCP	Outbound	Desktop Analytics client API connection for sending function calls
On-Demand Client	2007	TCP	Outbound	Connection to On-Demand Server for recording control and event status messages
inContact Screen Recording Client	5633	TCP	Outbound	Connection to Screen Recording Server for video streaming and status messages
Web Player	4510	TCP	Outbound	Connection to Web Media Server for playback
	943	TCP	Outbound	Connection to Web Media Server for policy file (Silverlight)

## 64-Bit Compatibility

inContact WFO uses or integrates with a variety of third-party applications. This software is independently certified by any respective manufacturers in regard to 64-bit compatibility. Most manufacturers have minimum version requirements for compatibility.

To assist you in planning your implementation, inContact has compiled the following matrix to list known compatibility for third-party systems with inContact WFO running on 64-bit Windows Server 2008 R2 or Windows Server 2012 R2. Only the integrations listed below have specific compatibility requirements. Those not listed are considered generally compatible at this time.

Vendor	Integration	Software	Compatibility
AudioCodes	DP/DT/LD/NGX	SmartWORKS	Requires version 5.4 or higher
AudioCodes	DP/DT/LD/NGX	SmartWORKS	Windows 2012 requires version 5.9 or higher
Avaya	TSAPI	TSAPI Client 6.2	Windows 2008 requires AES version 5.2 or later. Windows 2012 requires AES/TSAPI Client 6.3.3 or later.
CACE	All VOIP Integrations	WinPcap library	Requires version 4.1.2 or later
Cisco	TAPI-BiB	TAPI Service Provider	Windows 2012 requires Cisco TSP Client v10.0 or later.
Cisco	JTAPI-BiB	JTAPI Service Provider	Not supported with Windows 2012.
ShoreTel	TAPI-Wav and TAPI-VOIP	Remote Server Software	Windows 2008 requires ShoreTel version 11 or later. Windows 2012 R2 requires v14.2.19.42.8801.0 or later.

## Antivirus Software

Antivirus exclusions should be configured in any system where antivirus scanning is installed. The guidelines below are provided to assist with ensuring the reliability and performance of your inContact WFO system, while still providing for a secure environment. A lack of exclusions can cause system performance issues and possibly contribute to service outages.

These guidelines apply to both memory resident and on-demand scanning.

### GENERAL CONSIDERATIONS

These exclusion guidelines are product-specific. For applications not specifically listed, it is often necessary to determine exclusions on a case-by-case basis. This section provides guidance in this area.

Files should typically be excluded based on the following criteria:

- **Locked Files** – The files are permanently locked open by a legitimate server process. Examples of these are databases such as DHCP and SQL Server, as well as files such as the Windows Pagefile.
- **Large Files** – The files are manipulated often by a legitimate server process and are typically large in size. Examples of these are copying CD/DVD images (.iso) and Virtual Machine Files (.vhd). In addition, operations may include offline maintenance on Virtual Machine Files and Exchange Server databases.
- **Temporary Files** – A large number of temporary files are written to disk by a legitimate server process.



## EXCLUSION GUIDELINES

The table below lists the recommended exclusions for each inContact WFO service or application. Any paths or ports shown in this document are the installation defaults only. Actual paths or ports may vary depending on configuration options set during installation.

Service/Application	Process	File, Extension, or TCP/IP Port	Default Folder
Logger	cc_log-gerservice.exe	*.log	C:\Program Files\CallCopy\Logs\
CTI Core	cc_cticore.exe	*.cca, *.wav, *.vox, *.vox8, *.xml	C:\default_rec
Transcoder	cc_Transcoder.exe	*.cca, *.vid, *.wav, *.vox, *.vox8, *.csa, *.ccp	C:\temp\Transcoder-temp
inContact Speech Analytics	cc_analytics.exe	*.wav, *.idx	
inContact Screen Recording	cc_screenscapserver.exe	*.vid	C:\temp\

## COMMON FILE TYPES

Most antivirus products attempt to remove or quarantine file types that they cannot identify. The table below lists many of the common file types associated with inContact WFO.

File Type	Description
.cav	inContact WFO Proprietary combined audio/video format generated only when a file is exported. Requires a special player to view.
.cca	Raw recorded audio that has not yet been transcoded; typically deleted after transcoding and compressed into .wav.

.ccp	Waveform that accompanies playback in the Web Player. Does NOT contain book-marks – those are inserted at time of playback via stored database records. Black-outs are represented in the waveform as flat segments with no audio present.
.csa	inContact WFO stereo audio; lowest file size of the supported audio formats.
.idx	<b>inContact Speech Analytics only:</b> phonetic index of the recorded call created and used by the analytics engine. This is an Aurix proprietary format.
.log	Log files where system activities and errors are recorded. Useful in troubleshooting system issues.
.vid	Screen capture data for playback.
.vox	Compressed audio format for playback. Higher quality than .wav, but also larger file size. Primarily a legacy format.
.vox8	Compressed audio format for playback. Higher quality than .wav, but also larger file size. Primarily a legacy format.
.wav	Compressed audio format for playback.
.xml	Used to store call metadata or API responses to clients.