

Zoho (CRM) Integration

Reference and Deployment Guide

Version 1.0

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About This Document

This chapter contains the following information:

- Audience
- Revision History
- Document conventions
- Document feedback
- Contact Information
- Terms and definitions

Audience

This document is intended for CCSP administrators, which want to deploy and/or customize Zoho Integration module for TouchPoint.

Revision History

Rev	Date	Comments
1.0	2 July 2024	Initial release

Document conventions

This document uses the following text formats and notation conventions.

Text format

Bold text indicates a button, field, link, option name, or similar function requiring an action.

Italicized text indicates new terms, directory paths, or references to external documents.

Text in this font indicates code.

Notes and cautions

Icons used throughout this document identify additional details or special conditions.



Note

Provides additional information or describes special circumstances.



Caution

Warns of user actions that may cause system failure or irreversible conditions.



Stop

Describes actions that you should only perform under the supervision of Enghouse Customer Support.

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Terms and definitions

This guide uses the following acronyms.

Term	Definition
CSSP	Contact Center: Service Provider
PS	Professional Services
Zoho	Zoho CRM and related products
TP	TouchPoint

1: Overview of Zoho CRM Integration module

Overview

This document describes the deployment steps for the Zoho CRMFramework package.

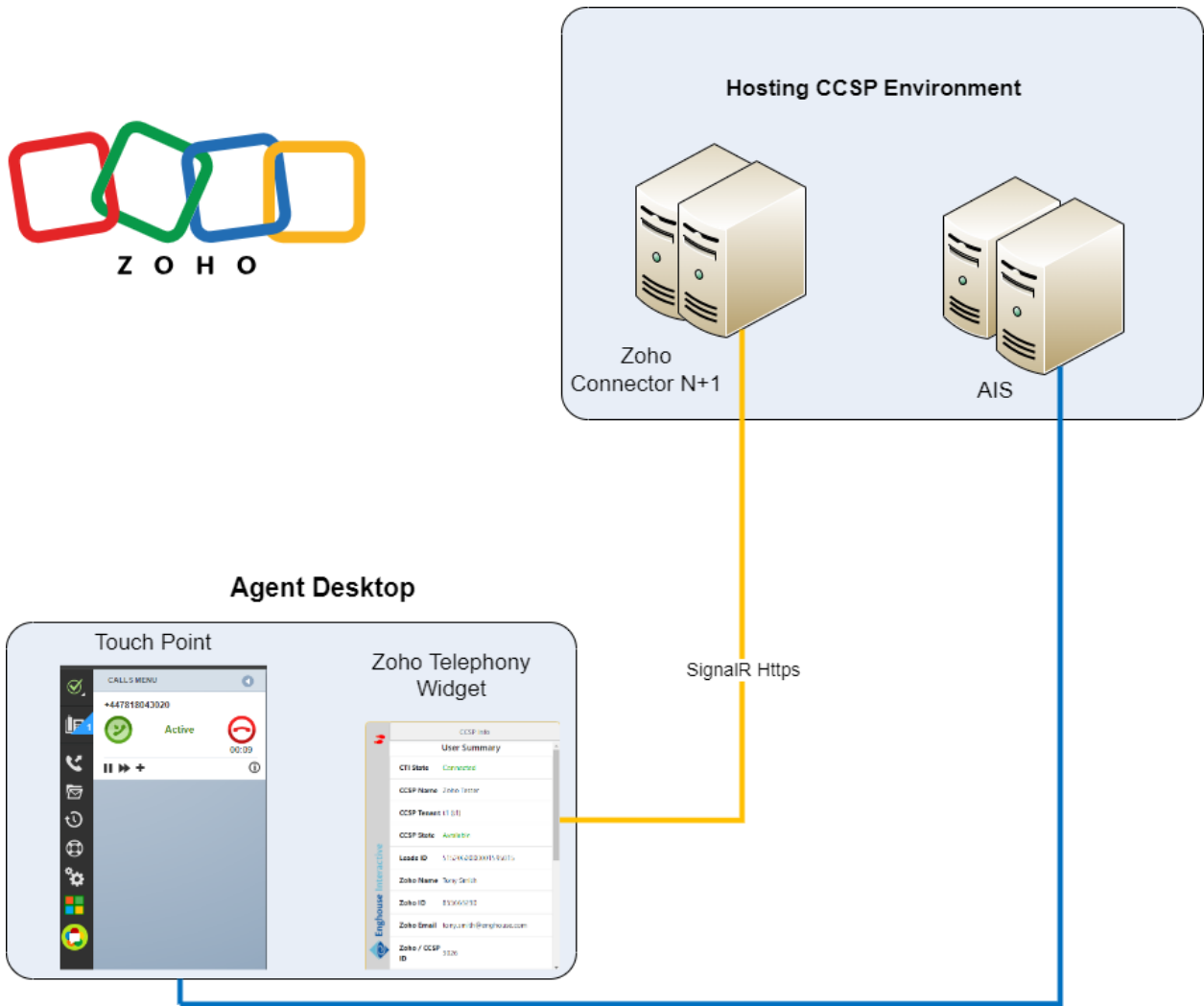
The package includes 4 components:

- PS.CTConnectSvc - windows service, that will serve as connecting point between CCSP and Zoho
- ConnectorDB – database additions, used by service
- TouchPoint gadget – to extend TP functionality and allow communication with Zoho via Zoho API
- Dynamics CIF / Zoho Connector – has configurations to serve either Dynamics CIF or Zoho application pages, here we are just focused on Zoho
- Zoho Component – Enghouse extension to provide telephony and custom activity module to record calls against

Components architecture

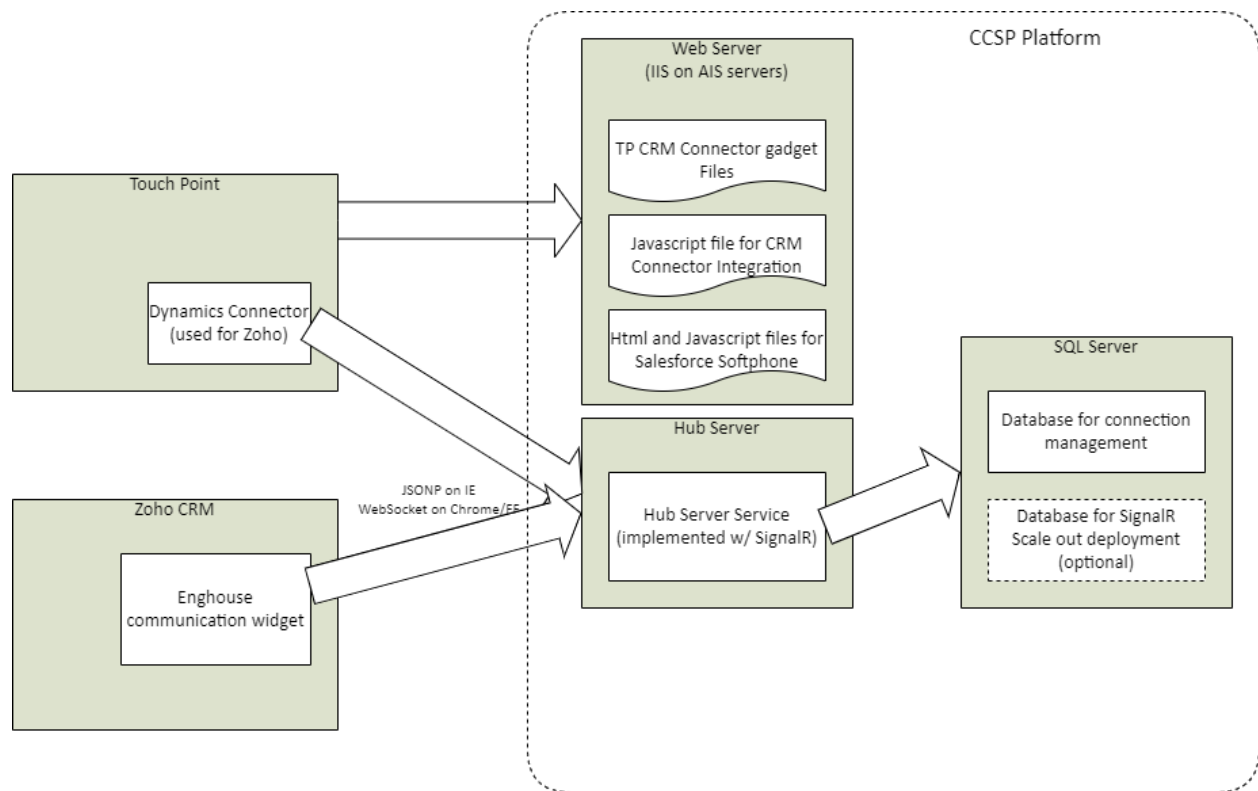
Following diagrams represents three components of our integration:

1. Service deployed on premises of customer
2. TouchPoint gadget installed in TP instances
3. Zoho installed and configured
4. IIS web application (softphone) installed on CCSP Web servers



Communications between all components done using SignalR technology, allowing instantaneous message exchange. Zoho loads and trusts the CCSP CIF application via URL to the IIS softphone application located on web servers, providing the softphone CRM accessibility.

1: Overview of Zoho CRM Integration module



2: Installation Summary

This section explains new installation and update process, please refer to a needed one.

New Installation

Installation file contains following folders:

- SQL
- PS.CTConnectSvcInstaller
- TouchPoint
- DynamicsCIF

Installation proceeded in following order:

1. SQL scripts execution
2. XMLInterpreter adjustments
3. Deployment of CTConnect service (service that will connect TP and Zoho)
4. Creation of DynamicsConnector gadget in TouchPoint and it's configuration
5. Installation of Dynamics CIF (Zoho) IIS softphone installation
6. Installation of extension in Zoho and it's configuration

This guide will thoroughly follow all the steps with detailed information on each.

Requirements

Before installation, following requirements should be met:



Caution

Since Zoho is working via https, it is **mandatory** that TouchPoint will use https as well. Please refer to [Appendix C: Enabling HTTPS](#).

Zoho Integration Service

Each Zoho Integration service should be installed on a Win2k8 R2(CCSP 6.1.x) or Win2012 r2 (CCSP 7.x) 64-bit virtual server configured with IIS7 and .Net 4.6, 4GB RAM.

Each server need to be part of CCSP domain and have an access to SQL Server where ConnectorDB will be deployed.

CCSP syslog service need to be installed on each server, for more information please see [Appendix A: CCSP syslog](#).

Dynamics CIF (Zoho) IIS application

The Dynamics CIF (Zoho) softphone application is a .NET Core 8 solution running under IIS – to facilitate this the NET Core Hosting Bundle must be installed:

<https://dotnet.microsoft.com/permalink/dotnetcore-current-windows-runtime-bundle-installer>

ConnectorDB

SQL Server 2008 R2 or later is required. Recommended to use existing CCSP SQL Environment.

Client side requirements

Evergreen browsers such as Chrome and Firefox supported.

3: DB deployment

Order of DB deployment

1. Create a new DB called ConnectorDB; recommended to co-exist instance like HistDB or in a new instance.
2. Execute following scripts on ConnectorDB:
 1. CSTA_Tables.sql
 2. CSTA_StoredProcedures.sql
 3. SF_Tables.sql
 4. SF_StoredProcedures.sql
 5. CSTA_Updates.sql

**Note**

For the maintenance of Connector DB, please refer to [Appendix B: ConnectorDB Maintenance](#)

4: CTConnect Service Installation and XML Interpreter adjustment

XML Interpreter adjustments

In order to adjust XMLInterpreter to use with Zoho, perform the following steps:

1. Export XMLInterpreter from WebAdministrator.
2. Create Backup of XMLInterpreter file.
3. Search in XMLInterpreter file for the following section:

```
if (g_LoggingWithSyslogEnabled = TRUE) then
    'Call LogEvent("InitializeGlobals", "INFO: SYSLOG Logging Enabled,
TempDir=" & g_TempPath)
else
    'Call LogEvent("InitializeGlobals", "INFO: SYSLOG Logging  -- N O T --
Enabled")
end if
```

4. Add after this section:

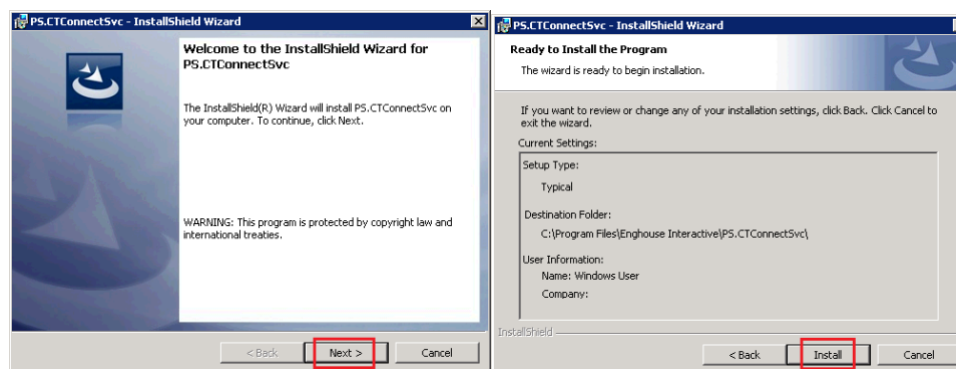
```
' CTC - to get the original call-id which initiated transfer-to-system.
If calldata.option("__OriginatingCallID__") = "" Then
calldata.option("__OriginatingCallID__") = "0x" & CosmoCall.CallId
End If
```

Pre-Installation

- Install 2010_vcrist_x64 from PS.CTConnectSvcInstaller\VSRuntime installation folder.
- Copy ipworks4.dll from PS.CTConnectSvcInstaller installation folder to C:\Windows\SysWOW64
- Enable HTTPS protocol. (See [Enabling HTTPS for PS.CTConnectSvc.exe](#))

Installation

Run setup.exe from PS.CTConnectSvcInstaller folder:



After setup is finished, run cmd as Administrator and execute the following command:

```
regsvr32 "C:\Program Files\EnghouseInteractive\PS.CTConnectSvc\PS.CSTACom.dll"
```

Configure PS.CTConnectSvc service to start automatically, as following:

Name	Description	Status	Startup Type	Log On As
PS.CTConnectSvc	Enghouse CTConnect Se...	Running	Automatic	svccosmocal@DN12.LOC

Configuration

Update PS.CTConnect.exe.config file in folder where you've installed the service. Following configuration parameters are **required to be configured before first run**:

- **LicenseCustomerName** – part of the license file name that located in the service folder, for example: PS.CTConnectSvc_EnghouseLab221.lic.

This is populated when a system-wide license is to be used, otherwise leave blank when per-tenant licensing is to be used.



Note

If it's your first installation and you don't have license file yet, contact PS team to get one.



Note

Additional tenant licenses can simply be placed alongside existing tenant licenses (or replace them for updates) and these will be active within 5 minutes without needing to restart the Service.



Note

System-wide licenses do not have AgentsCount/UPN features, tenant licenses do (this is the easiest way of identifying them)

- **SignalRBindAddress** – SignalR binding address (HTTPS)
- **ConfigDB** – Connection string to CCSP configuration DB.
- **ConnectorDB** – Connection string to the database created during [3: DB deployment](#). Initial catalog should be set at 'ConnectorDB'
- **SignalRScaleOutDB** – configure connection to the DB for scale out. For N+1 Scale out configuration, please refer to [N+1 scale out configuration](#). Leave this connectionString empty if you are not using N+1 architecture.
- **UseAuthorization** – use authorization (basic authentication) while using rest API functions

- **AuthorizationConfig** – location of json file that contains passwords for basic authentication.
please refer to [Appendix 3: Rest API](#) in CRM Connector deployment guide in order to get more information about it.

Example .config file

```
<appSettings>
  <!-- 4 - error, 7-info, 8-Debug -->
  <add key="Verbosity" value="7"/>
  <!-- Whether or not logging to DbgView is enabled. Should be turned off in the production
environment. -->
  <add key="EnableDebugLog" value="false"/>

  <add key="CSTAListenPort" value="8888"/>
  <add key="LicenseCustomerName" value="EnghouseLab221"/>

  <add key="SignalRBindAddress" value="https://*/ hubservice"/>

  <add key="UseAuthorization" value="false"/>
  <add key="AuthorizationConfig" value=".\\Authorization.json" />

  <!-- event pooling expire time in ms when sf client is not available. 0 or negative value
indicates that pooling disabled. -->
  <add key="AgentEventPoolExpirationInterval" value="1000"/>
</appSettings>
<connectionStrings>
  <add name="ConfigDB" connectionString="data source =SQLSERVER; Initial Catalog =
CosmoCall;Integrated Security=SSPI; Connection Timeout=60;"
providerName="System.Data.SqlClient"/>
  <add name="ConnectorDB" connectionString="data source =SQLSERVER; Initial Catalog =
ConnectorDB;Integrated Security=SSPI; Connection Timeout=60;"
providerName="System.Data.SqlClient"/>
  <add name="SignalRScaleOutDB" connectionString="" providerName="System.Data.SqlClient"/>
</connectionStrings>
```

N+1 scale out configuration

For N+1 (or scale out), we use the scale out mechanism of SQL Server (explained here: <http://www.asp.net/signalr/overview/performance/scaleout-with-sql-server>).

For the basic scale out setup, please follow next steps:

1. On the SQL Server, create an empty DB. You can give the database any name. You don't need to create any tables in the database; the backplane will create the necessary tables.
 - DB size: around 100MB should be enough.
 - Database recovery model: simple.
2. In `PS.CTConnectSvc.exe.config`, set the connection string for the scale out DB you created, to the `connectionString` attribute in the **SignalRScaleOutDB** key.

3. As for the connection from clients to the hub server (CTConnect Connection Service) URL, you configure load-balancing (cheapest is DNS-RR) for the hub server URL, and set it to the configuration for both TP side and the Softphone side.
 - Hub server URL for TP client:
 - **SignalRIntegration.serverUrl** in IntegrationSignalr.js
 - Hub server URL for Zoho Softphone
 - **CTCServerName** parameter in the call center definition file. (See CTC Server Information section)

5: TouchPoint gadget installation

This section related to installation of TouchPoint gadget in CCSP 7+.



Stop

Please consult PS team if you have other PS gadgets installed, before proceeding.

This section relates to common points in installation of TP gadget for versions 7.2+.

1. Backup exist TouchPoint folder and copy the content of TouchPoint from installation folder into exists TP folder.
2. Add contents of

TouchPoint\Content\translations\PS.DynamicsConnector.en-us.xml file to English and default translation files in folder \TouchPoint\Content\translations\ on every touchpoint. Paste contents before `</CosmoAgentStrings>` tag e.g.:

```
<string name="CTC_LoggingMessage" English="Message" Translation="Message"/>
</CosmoAgentStrings>
</root>
```

3. For what media types of call and in what timing (Ringing or InCall) the screen pop at Zoho CRM Softphone to happen, configure `SignalRIntegration.eventFilter.callDataFilter` (around line#31 to #47), in
TouchPoint\App\gadgets\ps.dynamicsconnector\IntegrationSignalr.js

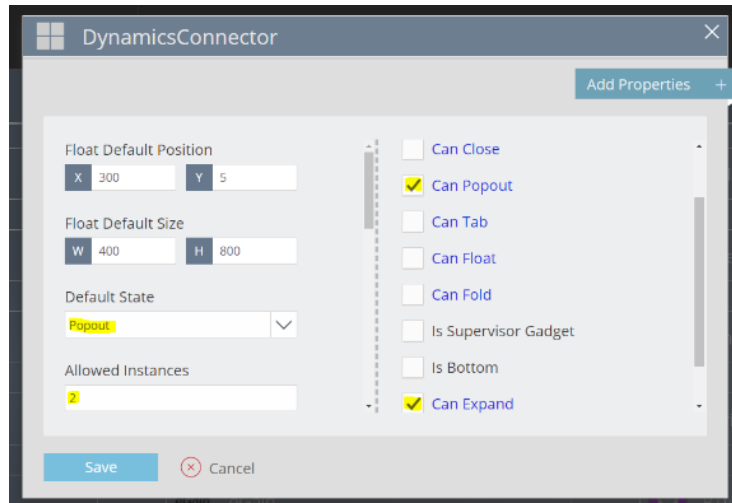
In example below screen will pop on first event (ringing) for any call type ('*:*')

```
SignalRIntegration.eventFilter.callDataFilter = {
  'toSend' : function(mediaType, direction, state) {
    --- omitted code ---
  },

  // 'mediaType-direction': 'NewCall', 'InCall', 'XferConf', etc.
  // '*': 'InCall,XferConf', // for all the media type when in-call and xfer/conf.
  '*': '*: ',

  // 'VOIP-Incoming': 'InCall,Transfer',
  // 'VOIP-Predictive': 'InCall,Transfer',
  // 'VOIP-Preview': 'InCall,Transfer',
  // 'Chat-Incoming': 'InCall,Transfer'
};
```

4. In Admin Point create new gadget named 'DynamicsConnector', it's case sensitive.
5. Configure created gadget as following:



- 1.
2. **Target URL:** App/gadgets/ps.dynamicsconnector/sf.html
Icon: TouchPoint\App\gadgets\ps.dynamicsconnector\CRM.png
SelectedIcon: TouchPoint\App\gadgets\ps.dynamicsconnector\CRM_h.png
3. **Controller URL:** App/gadgets/PS.DynamicsConnector/initSF_fGadget.js
4. **CRMConnectorSvcAddress** ('Add properties' -> new 'string' property):
URL of your installed CTC service, such as <https://localhost/hubservice/signalr>

When agent assigned with DynamicsConnector gadget signs in and connects to CTC service they will see an icon with green background like this:



...and if issues connecting it will be red with error count like this:



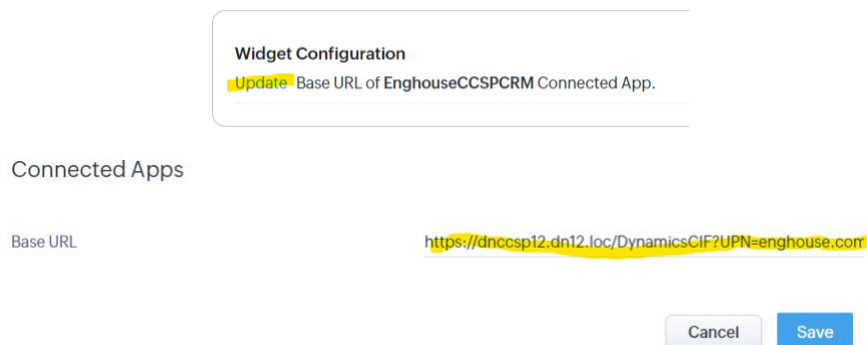
..on subsequent connection success it will be green once again.

6: Dynamics CIF (Zoho) softphone installation

Zoho

Obtain the latest installation URL from Enghouse to deploy the softphone Extension – this may be used to Install or Upgrade the Enghouse telephony Extension.

On installation/upgrade of the Extension will be a Widget Configuration section with Update link, this should be set to the URL of the IIS softphone application (DynamicsCIF), with the UPN parameter set to the value of the configuration in the IIS application's appSettings.json UPN that Zoho is configured for the tenant:



Widget Configuration

Update Base URL of EnghouseCCSPCRM Connected App.

Connected Apps

Base URL `https://dnccsp12.dn12.loc/DynamicsCIF?UPN=enghouse.com`

Cancel Save



Note

In Zoho this URL is set from the **Setup->Apps->Marketplace->All**, navigate to the **Installed** tab and select the **Configure** option of the **EnghouseCCSPASG** widget – here you should update the **Base URL** to:

`https://{FQDN}/DynamicsCIF?UPN={tenant UPN}&base=unused`

In the Enterprise CRMPlus edition of Zoho Call activities can be recorded to a custom module – this is set in the AppSettings.json for the tenant in “ConnectorData” setting, there are 3 options here:

1. Empty – call recording is disabled
2. Calls – non-Enterprise Zoho standard Calls module recorded to at end of call
3. <module-name> - the name of the Enterprise CRMPlus custom module to use.

The custom module should have these fields:

- CCSPCallID – Single Line – the call ID from CCSP
- Direction – Single Line – the call direction
- DNIS – Single Line – the call DNIS
- Subject – Single Line – the summary of the call (will be set to mandatory Name field too)
- MediaType – Pick List – VOIP / Email / Chat / Other (default value)

- From – Single Line – who the call was from
- To – Single Line – who the call was to
- PhoneNumber – Single Line – the caller's phone number if available
- WrapupName – Single Line – the name of the call wrap-up chosen by agent
- WrapupComment – Single Line – the optional note of the call wrap-up entered by agent
- DurationMins – Number – the call duration in minutes
- StartTime – DateTime – the call start time
- EndTime – DateTime – the call end time
- Recording – URL – the recording URL (may not exist)

Additional to these, entities can be linked to the call - e.g. when an inbound call search matched, or an outbound call was instigated from an entity's click-to-dial button. Each entity in Zoho requires its own Lookup field, the naming convention expected for the Lookup field is "RelatesTo" followed by the entity type starting with an upper-case letter, e.g. "RelatesToContacts" should be defined as a Lookup type to the Contacts entity, "RelatesToLeads" should be a lookup type to the Leads entity, etc.

In the example custom module activity below, the custom Module has been named "CCSPCallActivity" and the Inbound VOIP call resulted in a search of a found Contact and linked to it:

CCSPCallActivity Information

Name	[Incoming] VOIP Call 03/07/2024, 11:23:17	CCSPCallActivity Owner	Tony Smith
Created By	Tony Smith Wed, 3 Jul 2024 11:23 AM	Modified By	Tony Smith Wed, 3 Jul 2024 11:23 AM
DNIS	3129	Subject	[Incoming] VOIP Call 03/07/2024, 11:23:17
Direction	Incoming	MediaType	VOIP
From	+447818043020	To	3129
PhoneNumber	+447818043020 	Queue	Sales
WrapupName	Contact made	WrapupComment	testing relatetocontact
StartTime	Jul 3, 2024 11:23 AM	EndTime	Jul 3, 2024 11:23 AM
DurationMins	0	Recording	https://dnccsp12.dn12.loc/Replay/#/recording/0x308112e10090000d
CCSPCallID	0x308112e10090000d	RelatesToLeads	—
RelatesToContacts	Contact 2		

In this following example of a non-Enterprise standard Zoho CRM Calls record, it is linked to a Sales Lead and puts any extra call data that does not fit into the standard Calls fields into the Description field (standard Zoho Calls "Voice Recording" field expects an audio URL, CCSP has its own Replay media playback as the URL and not a direct recording URL, so is not put into that standard field):

Call From	Tony Smith
Related To	—
Call Type	Inbound
Call Start Time	Jul 29, 2024 10:35 PM
Call Duration	00:00
Call To	Tony Smith
Subject	[Incoming] VOIP Call 29/07/2024, 22:35:39
Created By	Tony Smith Mon, 29 Jul 2024 10:35 PM
Modified By	Tony Smith Mon, 29 Jul 2024 10:43 PM
Voice Recording	—
Telephony External ID	0x308112e101c3000d

Reason For Incoming Call	
Description	Queue: Sales Wrap-up Name: Contact made Wrap-up Comment: Test with a recording Media Type: VOIP Replay: https://dnccsp12.dn12.loc/Replay/#/recording/0x308112e101c3000d

Softphone

On Web servers copy DynamicsCIF folder then create dynamicsCIF web application for it. It will serve the pages presented in Zoho, sending and receiving the CTI interactions via the PS.CTConnectSvc to keep synchronized with the TouchPoint agent, and sending/receiving Zoho interactions to keep synchronized with Zoho CRM.

The web application is a .NET Core 8 solution, requiring that IIS has the Core Hosting bundle applied:

<https://dotnet.microsoft.com/permalink/dotnetcore-current-windows-runtime-bundle-installer>

Application Pool

The Application Pool for the application requires “No Managed Code” for the .NET CLR Version:

Advanced Settings	
⌵ (General)	
.NET CLR Version	No Managed Code
Enable 32-Bit Applications	True
Managed Pipeline Mode	Integrated

AppSettings.json

This file controls the tenant-specific variations for the Zoho softphone – under the “Dynamics” section is a “Tenants” sub-section where each tenant has their own sub-section. The configurations for Zoho are:

- UPN – identifies the tenant (by their UPN suffix), passed in the URL from Zoho
- TP_Url – the Touchpoint URL. If empty the TouchPoint tab is not displayed
- Replay_Url – the URL of Replay, used to set the call playback URL in the Zoho Activity record created at the end of the call
- CTI_Url – the URL of the PS.CTConnectSvc SignalR service
- CTI_ReconnectInterval – the time between CTI SignalR reconnect attempts
- CTI_MaxReconnectAttempts – the maximum attempts to reconnect to CTI SignalR
- TraceLength – the maximum number of entries in the Trace Tab – if 0 the Trace is disabled
- TraceLevel – the lowest level of logging in the Trace tab (TRACE / DEBUG / INFO / WARN / ERROR).
- TraceLengthServer – if >0, in the event of warning or more severe log occurring then up-to this number of log entries (at all levels) will be sent to the server. This setting does not depend on the TraceLevel or TraceLength settings.
- CCLabel – used to set the contact-center label in the softphone
- CRMLabel – used to change displayed field labels from default “Dynamics” (set to “Zoho”)
- ConnectorJs – the path to the Zoho integration library:
ZohoCRM.js
- ConnectorJsDependency – the path to the Zoho integration dependency library:
/DynamicsCIF/js/ZohoEmbeddedAppSDK.min.js
- PanelSizeWH – the width/height of the expanded softphone panel to maximum of 390x500, e.g.:
{~width~::~390~, ~height~::~500~}
- ConnectorData – the name of the activity to record calls against:
 - Empty – call recording is disabled
 - Calls – non-Enterprise Zoho standard Calls module recorded to at end of call
 - <module-name> - the name of the Enterprise CRMPlus custom module to use.
- IDUserField – this is the name of the Zoho user field with the value that corresponds to the CCSP agent ID. This is the link between the Zoho user and the CCSP agent. In Enterprise CRMPlus Zoho you can add custom fields and use this configuration to link them, in standard Zoho CRM you typically use an unused field like “fax”
- SearchEntityChat* – for chat calls, this is the Zoho Entity type to search for
- SearchQueryChat* – for chat calls, this is the criteria search query (if omitted a regular generic search is performed)
- SearchEntityEmail* – for email calls, this is the Zoho Entity type to search for
- SearchQueryEmail* – for email calls, this is the criteria search query (if omitted a regular generic search is performed)
- SearchEntityVoice* – for voice calls, this is the Zoho Entity type to search for
- SearchQueryVoice* – for voice calls, this is the criteria search query (if omitted a regular generic search is performed)
- RegexpToRemoveFromCallerNumbers - Regexp to remove from caller numbers.
- EventSummaryUser – a CSV of Zoho User values to include on the Summary tab
- EventSummaryOP – a CSV of CCSP Optional Parameter values to include on the Summary tab
- RecordActivityIncoming – set to “true” to record Activity record at end of Incoming calls

- RecordActivityOutgoing – set to “true” to record Activity record at end of Outgoing calls
- AlertOnErrors – set to “true” to “toast” warnings and errors to the user. Fatal errors are always notified to the user.
- ConfirmDial – set to “true” to prompt the user to confirm before a Click2Dial operation is attempted
- EnableAudio – set to “true” to have the TouchPoint tab loaded with audio enabled, primarily for web-RTC
- Language – some of the “toast” dialog is configurable via a language-specific configuration file, e.g. “en” will utilize the “en.json” configuration
- AddRecordMenu – not yet implemented
- AddRecordJs – not yet implemented

* Search queries and entity names may be override in IVR scripts with these Optional Parameters:


- __CCSP_SearchOverride__ - overrides the search query (may include the substitution fields defined below)
- customerobjectid – sets the active entity ID
- customerobjectname – sets the active entity type

The [query syntax is Zoho’s own](#), as is the [Form Override](#), but dynamic substitution of values with call data is possible with these strings:

- {CallIdHex} – replaced with the call ID in hexadecimal
- {CallId} – replaced with the call ID
- {CallerANI} – replaced with the caller’s number
- {CallerDNIS} – replaced with the called number
- {CallerName} – replaced with the caller’s name
- {Direction} – replaced with the call direction
- {QueueName} – replaced with the call queue name
- {OP_xxx} – replaced with the Optional Parameter named xxx

User Configuration

Each CRM user (CCSP Agent) should have Enghouse CCSP ID assigned in Zoho to User's phone field which is configured in [AppSettings.json](#) in IDUserField parameter, e.g. if using a custom user field CCSPID:

Standard 

CREATE

Mobile	Phone	...
Website	URL	...
Fax	Phone	...
CCSPID	Single Line	...
Date of Birth	Date	...

First Name Tony

Last Name Smith

Email tony.smith@enghouse.com

Role Manager

Profile Administrator

Added By psDev Agent1 Sun, 16 Jun 2024 02:43 PM

Alias

Phone +447818043020

Mobile

Website

Fax

CCSPID 3026

Date of Birth

Address Information

Street

City

After login by Zoho user to relevant Unified Interface App should be opened right side panel.

In case of misconfiguration User Summary please check Zoho CCSP ID (configurable label) and CCSP State (Offline means not CCSP TouchPoint logged in with CCU Id assigned to Zoho CRM User):

CCSP Info	
User Summary	
CTI State	Disconnected
CCSP State	Offline
Zoho Name	Tony Smith
Zoho ID	855663230
Zoho Email	tony.smith@enghouse.com
Zoho / CCSP ID	3026
User status	active

7: Expected functionality and testing scenarios, common errors

Testing scenarios

Before trying and testing scenarios below, it is required to create some test entities, such as account, contact, etc.

Id	Scenario	Description
1.	States are updated, incoming calls are properly displayed	When softphone is opened and agent is logged in, when agent change its state, it should be displayed in softphone. When there's incoming call or chat, it's info should be displayed.
2.	Incoming call -> popup screen using CaseID(OP from designer)	In Zoho - Agent got the screen pop info related to CaseID
3.	Incoming call -> popup screen using CustomerObjectId and CustomerObjectName (OP from designer -> Zoho ID/type)	In Zoho - Agent got the screen pop info related to Zoho ID/type
4.	Incoming call -> popup screen using ANI	In Zoho - Agent got the screen pop info related CallerID (ANI)
5.	Incoming call -> popup screen -> A2A -> Transfer	In Zoho - Agent2 got the transferred call with screen pop info from Agent1
6.	Incoming call -> popup screen -> A2A -> Sync Button -> Transfer	In Zoho - Agent2 got the screen pop info from agent1 using sync button and then got the transferred from Agent1
7.	Incoming call -> popup screen -> TTS	In Zoho - Agent2 got TTS with screen pop info from Agent1 that transferred to system
8.	Incoming chat	Search should be performed by customer's name
9.	Incoming email	Search should be performed by email's from field
10.	Restart/Stop CTC service	TouchPoint reconnect to CTC service (CRM gadget change from red when down to blue when up)
11.	2 windows with the same agent are opened	If second window with the same softphone is opened, first should get an error identifying double login. Second window should behave normally - continue to get updates and receive calls.
12.	Click to dial	Phone number fields in Zoho should be clickable and place a call in TouchPoint.
13.	Call's log is saved as CCSPActivities	When WrapUp is finished, call log should be saved in the form of CCSPActivities related to entity opened on search OR number called on click-to-dial
14.	Call's log can't be related to current entity	When WrapUp is finished, but searched entity in Zoho is entity that doesn't support CCSPActivities or is unfound (such as another Activity) the activity is saved without linking.
15.	Call Card (TouchPoint's call panel) should disappear at certain events	To make easier access to Transfer, WrapUp and Callback, when these panels are opened in TouchPoint call's panel will collapse to left.

16.	customerobjectid customerobjectname	Define a search for a specific entity not related to the caller. Example steps: <ul style="list-style-type: none"> locate a Lead in Zoho unrelated to the caller set <i>customerobjectid</i> Optional Parameter to Lead ID set <i>customerobjectname</i> Optional Parameter to "Leads" call and verify that the Lead ID is displayed and no other search actions/results appear
17.	__CCSP_SearchOverride__ customerobjectname	Define a search not included in Call Center configuration in the "__CCSP_SearchOverride__" Optional Parameter and verify it is performed. Example steps: <ul style="list-style-type: none"> locate a Contact in Zoho unrelated to the caller and set a new OptionalParameter to it (e.g. <i>param_customerobjectid</i> as 4fd982d7-c5a8-eb11-b1ac-002248809546) set <i>customerobjectname</i> Optional Parameter to "Contacts" set <i>__CCSP_SearchOverride__</i> Optional Parameter in IVR, to use Zoho query syntax to override the default search for the ticket: (Customer_Object_Id>equals:{OP_param_customerobjectid}) call and verify that the Contact is displayed and no other search actions/results appear



Note

During testing it is advisable to have the Zoho Installation "Trace length" >0, e.g. 10000, and set the "Trace level" to DEBUG. Clicking the footprints icon in the top-left of the softphone will navigate to the Trace (logging) view, and at the bottom is a Download button to store these locally for subsequent/external review if needed. Warnings and more severe errors will automatically be sent to the IIS softphone application to record centrally too.

The image shows two screenshots related to the Enghouse system. The left screenshot is from the 'Enghouse Cloud' interface, specifically the 'Trace' view. It shows two log entries: '15:17:46 CCSPAgentConnectionStatus DEBUG' and '15:17:46 preCCSPAgentConnectionStatus DEBUG isConnected=1'. The right screenshot is from the 'Enghouse Interactive' interface, showing a detailed log entry: '15:17:46 RequestedAgentInfoResponse: DEBUG resultCode: 200, requestID: , agentInfo:{object Object}'. Below the log entry, there are 'Download' and 'Clear' buttons.

Common Errors

#	Component	Error	Error Message	Error in TouchPoint	Reason
	CTConnectSvc Service	CTConnectSvc Service failed to start	2021-04-21 19:43:40.7258 [4] ERROR PS.CTConnectSvc.CTConnectMain.Start System.Exception License Issue - no licenseCustomerName defined and no valid tenant licenses.	Dynamics Connector 17:43:40: Hub reported error: Error during negotiation request. 17:43:40: Disconnected Error during negotiation request.	Missing license file
2.	CTConnectSvc Service	CTConnectSvc Service failed to start	2018-12-21 10:39:26.9260 [4] ERROR PS.CTConnectSvc.CTConnectMain.Start System.Exception License Issue - licenseCustomerName: EnghouseLab221 should not have UPN in license.	Dynamics Connector 10:39:26 Disconnected Error during negotiation request	<i>LicenseCustomerName</i> set to name of tenant license file rather than being blank to load as a tenant license (or pointing to the name of a system-wide license file rather than a tenant license file)
3.	Zoho Softphone	Content was blocked because it was not signed by a valid security certificate.	Content was blocked because it was not signed by a valid security certificate.		Missing Certificate on Agent Computer for server where from Softphone loaded
4.	Zoho Softphone	onConnectionError: Error during negotiation request.	onConnectionError: Error during negotiation request.		Could be Network connectivity issue to CTC Server Name, problem with CTConnectSvc Service, problem with Certificate on Agent Computer for server where CTConnectSvc Service running
5.	CRM connection error	Gadget indicates unable to connect for agent	2018-11-02 19:23:56.5317 [12] ERROR PS.CCSPTool.HubHelper.logException System.Exception Agent UPN (t1.com) is not licensed!	12:02:04:CTC_HubReportedError CCSPHub:OnConnected: Agent UPN (t1.com) is not licensed!	Tenant license used and Agent's UPN is not licensed for use
6.	CRM connection error	Gadget indicates unable to connect for agent	2018-11-02 18:53:44.5880 [19] ERROR PS.CCSPTool.HubHelper.logException System.Exception Licensed agents limit reached (10).	12:07:26:CTC_HubReportedError CCSPHub:OnConnected: Licensed agents limit reached (10>=10)	Tenant license used and maximum number of licensed agents already connected

Appendix A: CCSP syslog

CCSP syslog log

PS.CTConnectSvc uses CCSP syslogd logging. You can configure it to have a dedicated log file for PS.CTConnectSvc by adding an "local10.*" entry to `syslogd.conf`. Example of this setting below:

```
local10.*          c:\syslogd\ps_connectsvc.txt
```



Note

The log file path may vary by your system configuration, default is: `\Program Files (x86)\Common Files\CosmoCom\CosmoCall Universe`

If syslogd is not installed on the server, perform following steps:

6. Copy the `syslogd.exe` and `syslog.conf` files (from server that contain it) to `C:\Program Files (x86)\Common Files\CosmoCom\CosmoCall Universe\`
7. Copy `ipworks4.dll` from `C:\Windows\SysWOW64` (from server that contain it) to your server `C:\Windows\SysWOW64`
8. At the command prompt; enter from the location of `syslogd`: `syslogd -n -install`.
9. Syslog Service should be set to Automatic and needs to be started manually for the first time.

Syslog log level

PS.CTConnectSvc supports three verbosity levels:

Level	Description
4 – error	Logs only errors.
7 – info	Logs errors and initialization related info.
8 – debug	Logs errors, initialization related info and debug messages.



Note

Default level is 7 - info.

In order to change the verbosity, open the `PS.CTConnect.exe.config` file (located in the PS.CTConnectSvc service folder), change it to the desired level and restart the service.

```
<?xml version="1.0" encoding="utf-8"?>
<configuration>
  <appSettings>
```

```
<"add key ="Verbosity" value ="7">  
<-- 4-error, 7-info, 8-Debug --!>  
</appSettings>
```

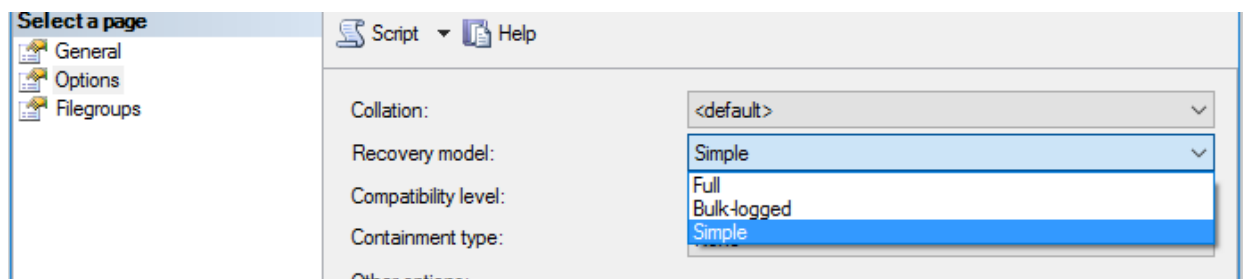
**Note**

These messages can be viewed using Windows Event Viewer, they are displayed under the source 'PS.CCSPTool'.

Appendix B: ConnectorDB Maintenance

ConnectorDB database model

In order to prevent excessive transaction log creation, please select 'Simple' recovery model, as following:



Periodical data removal for PageInfo records

For the Dynamics page transfer between two agents, we store the information about open pages in ConnectorDB. This information is saved at the time, when call is put on hold, then, when the transfer is complete we load this data and present pages to second agent.

In the current design, the page information records saved in the DB are not cleared automatically. In order to clear old page information records, creating and running a job which will be scheduled to run once a day is necessary.



Note

Page information is stored in **SF_CallIdKeyValueStore** table. In our design the table can hold not only page information data but any data required. However, now we only use it to store page information.

In order to create job and schedule it, please use a stored procedure, named spSF_CreatePurgeConnectorDbJob , which is created at the time of deployment.

This procedure has three input parameters shown in the table below:

Parameter name and type	Description
@timeToRun nvarchar(32)	Set when the job to run in HH:mm:ss or HH:mm. Examples Set 02:00: job will run 2am. Set 04:30: job will run at 4:30am. Set 06:30:30: job will run at 30 seconds after 6:30am.

@durationUnit nchar(1)	<p>Set 'd' (days), 'h' (hours), or 'm' (minutes) to specify the factor/unit for @retentionDuration parameter. Example (with combination of @retentionDuration);</p> <p>Set @durationUnit 'd' and @retentionDuration 30: records that stayed more than 30 days will be removed.</p> <p>Set @durationUnit 'h' and @retentionDuration 30: records that stayed more than 30 hours will be removed.</p> <p>Set @durationUnit 'm' and @retentionDuration 2160: records that stayed more than 2160 minutes (1.5 days) will be removed.</p>
@retentionDuration int	<p>Set the duration for the threshold of record removal how long stayed in the table. If @retentionDuration is NULL (unset), @durationUnit is ignored and the threshold for how long is set to 14 days (20160 minutes)</p>

When you run spSF_CreatePurgeConnectorDbJob with appropriate parameters, it will create a SQL Job with following name (where **dbName** is replaced with the database name of the Connector DB), and will be scheduled to run at the time you set by @timeToRun parameter;

CTC_ConnectorDB_PurgeDB_**dbName**_Job

When the job run and finished successfully, it will write it's log to Application Event Log as an Information, like this:

```
Error: 70000 Severity: 10 State: 1 CTC_ConnectorDB_PurgeDB_CustomViewDB_Job
-- finished successfully. Removed 0 records from SF_CallIdKeyValueStore
table, with retentionMinutes: 20160
```



Note

"Error: 7000" in the beginning of the message does not really indicate an error. It is due to xp_logevent we use in the stored procedure to write to Event Log

Appendix C: Enabling HTTPS

Enabling HTTPS for TouchPoint

In **IntegrationSignalr.js** file in gadget folder, configure serverUrl:

```
SignalRIntegration.serverUrl =  
'https://YOUR_SERVICE_HOST_NAME/hubservice/signalr';
```

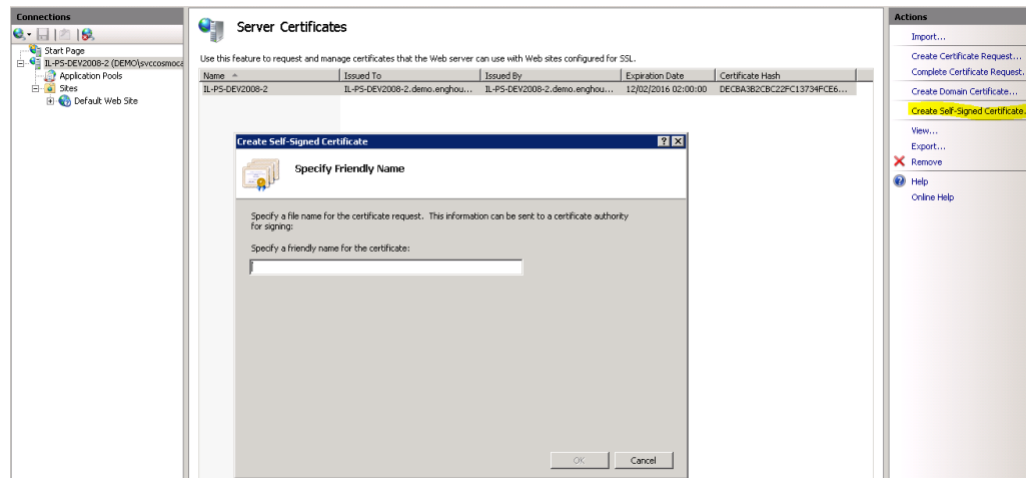
Where instead YOUR_SERVICE_HOST_NAME put actual host name of server, where service is installed.

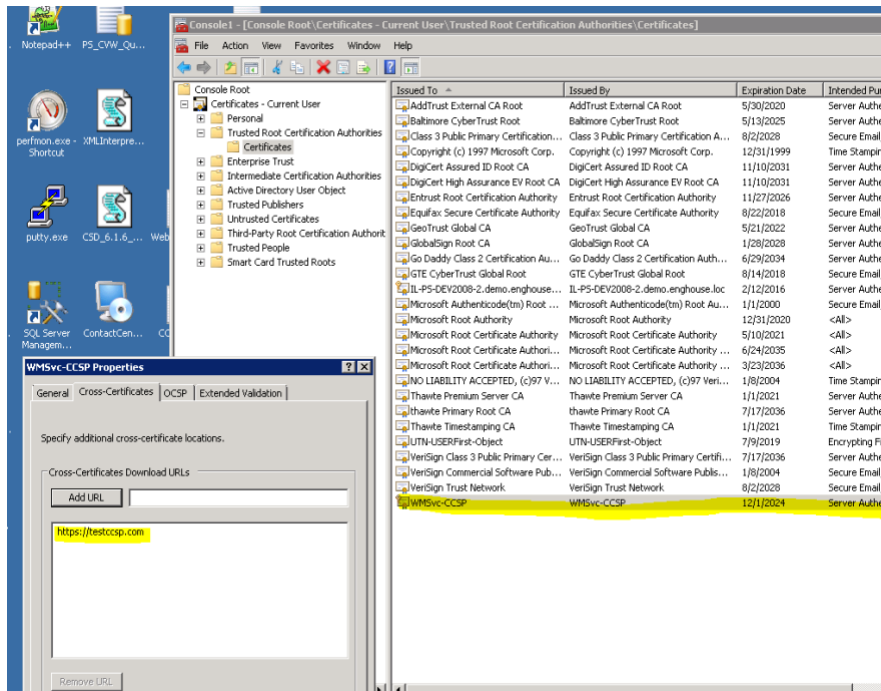
If https is not properly configured (or service is offline), following error will appear in TouchPoint:

```
15:22:54: Hub reported error: Error during negotiation request.  
15:22:54: Disconnected Error during negotiation request.
```

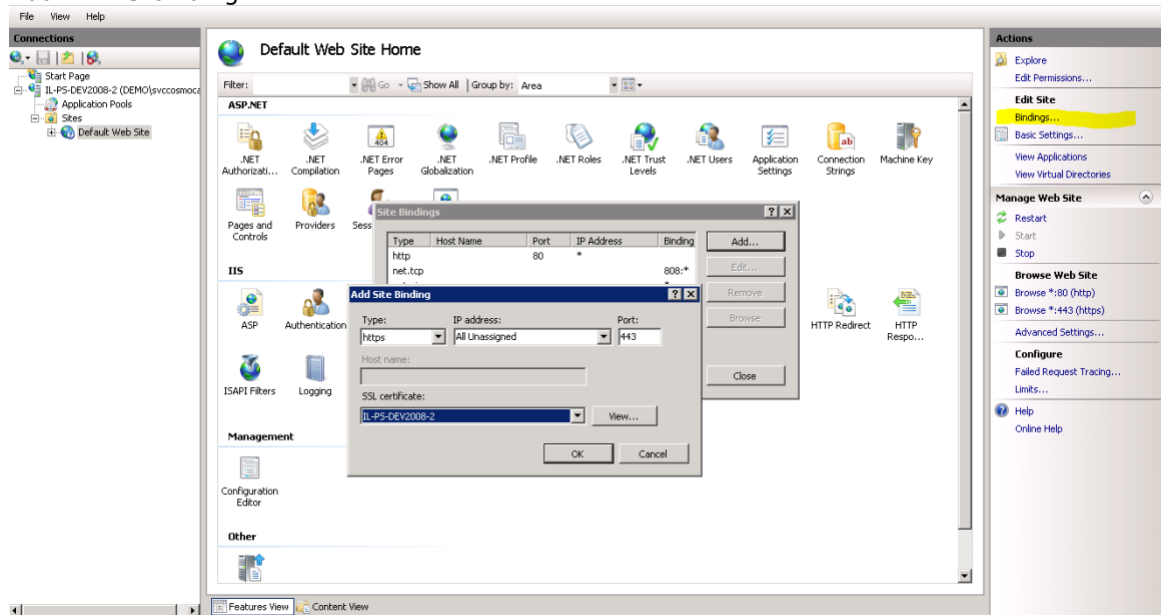
Enabling HTTPS for PS.CTConnectSvc.exe

1. Create Self-Signed Certificate in IIS



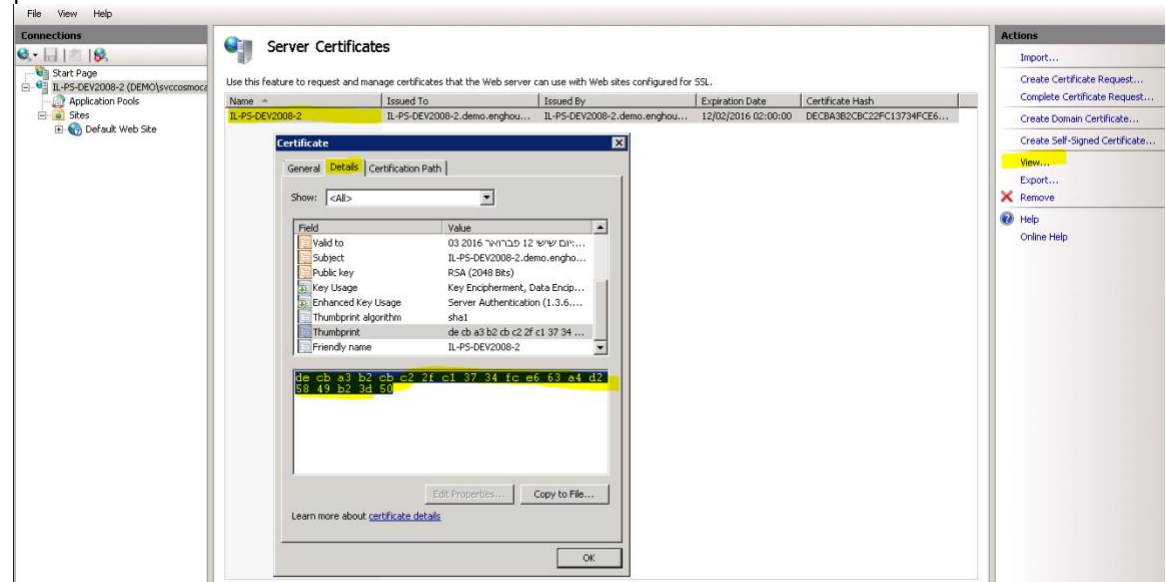


2. Add HTTPS binding



3. Assign certificate to application:

Prepare your certhash, take value of thumbprint without spaces, as shown in the next picture:



Replace certhash value to the value you saved in step one and run the following command in cmd as an Administrator:

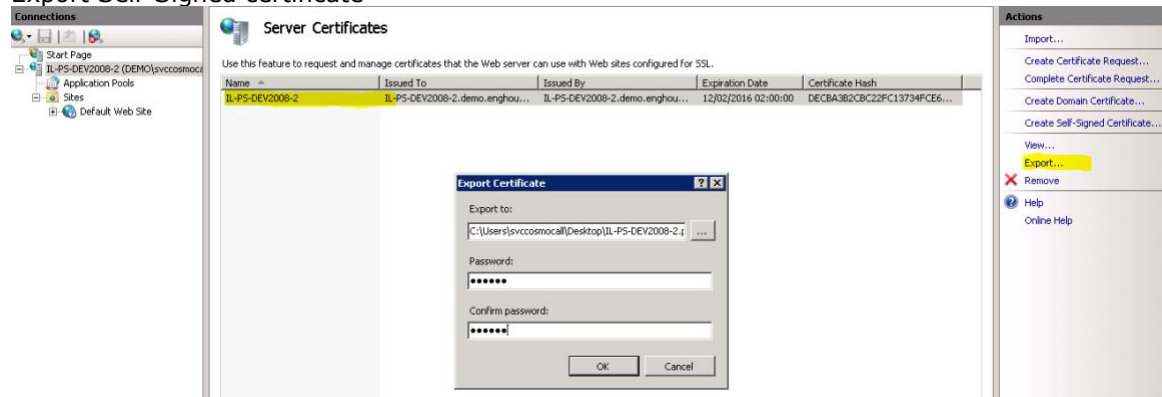
```
netsh http add sslcert iport=0.0.0.0:443 appid={12345678-db90-4b66-8b01-88f7af2e36bf} certhash=decba3b2cbc22fc13734fce663a4d25849b23d50
```



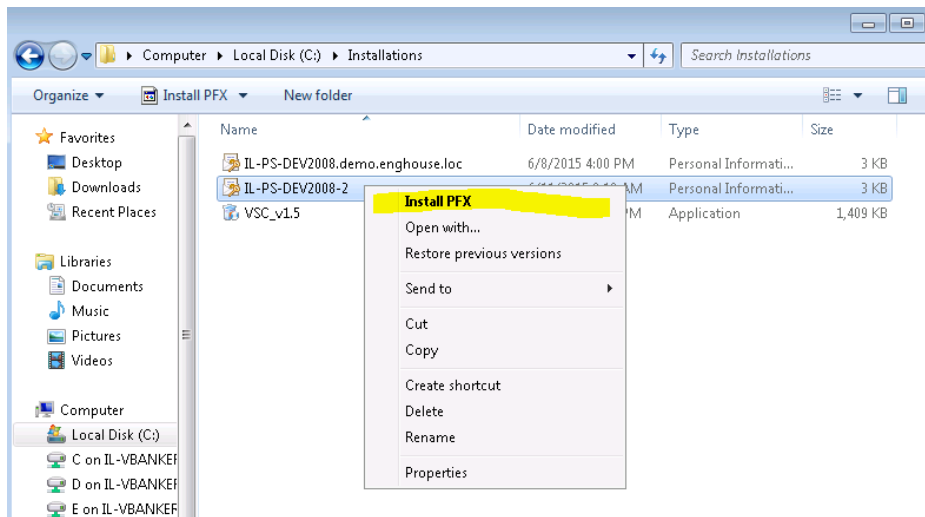
Note

If you already using https binding in IIS for CCSP, then you need to change the port in the netsh command above, in PS.CTConnectSvc web.config and in Dynamics [CTI Url](#) and TouchPoint configuration.

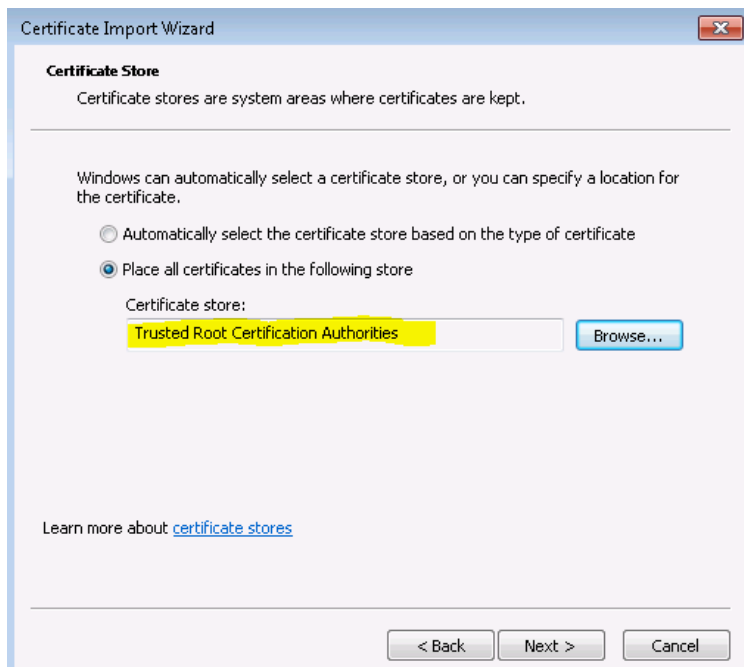
4. Export Self-Signed certificate



TouchPoint – certificate installation:



Into Trusted Root Certification Authorities:



Note

To disable IE's warning message 'The current web page is trying to open a site in your trusted sites list. Do you want to allow this?', needs to enable "Websites in less privileged web content zone can navigate into this zone." As following:

