



# **Avaya Aura® Call Center Elite Multichannel Microsoft Dynamics CRM Integration Implementation Guide**

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# Contents

<b>Chapter 1: Introduction.....</b>	<b>6</b>
Overview .....	6
<i>Microsoft Dynamics CRM Gui Plug-in.....</i>	6
<i>Microsoft Dynamics CRM Svc Plugin .....</i>	6
<i>Microsoft Dynamics CRM Phonebook Synchronizer .....</i>	6
Licensing .....	6
Installation .....	7
<i>Pre-requisite.....</i>	7
<i>Microsoft Dynamics CRM Server 2011 ISV Customization .....</i>	8
<i>Microsoft Dynamics CRM Server 2013/2015 Customization .....</i>	9
<i>Microsoft Dynamics CRM Server Callout (Phonebook Synchronizer).....</i>	9
<i>MS CRM Gui Plug-in.....</i>	11
<i>MS CRM Svc Plug-in .....</i>	11
<b>Chapter 2: Configuration .....</b>	<b>13</b>
Microsoft Dynamics CRM Phonebook Synchronizer .....	13
MS CRM Gui Plug-in .....	13
MS CRM Svc Plug-in.....	15
<b>Chapter 3: Files .....</b>	<b>18</b>
Microsoft Dynamics CRM Server ISV Customization Files .....	18
Microsoft Dynamics CRM Server Callout (Phonebook Synchronizer) Files.....	19
MS CRM Gui Plugin Files .....	20
MS CRM Svc Plugin Files.....	20
<b>Chapter 4: Operation.....</b>	<b>22</b>
Make Call from Microsoft Dynamics CRM.....	22
<i>Dial from Account.....</i>	23
<i>Dial from Contact .....</i>	24
<i>Dial from CampaignResponse .....</i>	25
<i>Dial from Invoice .....</i>	26
<i>Dial from Lead.....</i>	27
<i>Dial from PhoneCall .....</i>	28
<i>Dial from Quote .....</i>	29
<i>Dial from SystemUser .....</i>	30
Inbound Contact Identification .....	32
<i>Contact Database Search.....</i>	33
<i>Microsoft Dynamics CRM Webservice Search .....</i>	35
<i>Screenpop Search Result .....</i>	35
Synchronization .....	38

Directory .....	39
Receive Microsoft Dynamics CRM Activities.....	40
Call Center Elite Multichannel Rules.....	41
<b>Chapter 5: Rules Reference .....</b>	<b>43</b>
Return Events.....	43
<i>MSCRM.Create</i> .....	43
<i>MSCRM.Lookup</i> .....	44
<i>MSCRM.Retrieve</i> .....	45
<i>MSCRM.Screenpop</i> .....	45
Events .....	46
<i>MSCRM.CreateCompleted</i> .....	46
<i>MSCRM.LookupCompleted</i> .....	46
<i>MSCRM.RetrieveCompleted</i> .....	47
<i>MSCRM.Appointment.ActivityDelivered</i> .....	48
<i>MSCRM.CampaignActivity.ActivityDelivered</i> .....	48
<i>MSCRM.CampaignResponse.ActivityDelivered</i> .....	49
<i>MSCRM.Case.IncidentDelivered</i> .....	49
<i>MSCRM.Email.ActivityDelivered</i> .....	49
<i>MSCRM.Fax.ActivityDelivered</i> .....	50
<i>MSCRM.Letter.ActivityDelivered</i> .....	50
<i>MSCRM.PhoneCall.ActivityDelivered</i> .....	51
<i>MSCRM.ServiceActivity.ActivityDelivered</i> .....	51
<i>MSCRM.Task.ActivityDelivered</i> .....	52

# Chapter 1: Introduction

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## Overview

The Advanced Microsoft Dynamics CRM Connector fully utilizes the plug-in framework architecture of Call Center Elite Multichannel, delivering enhancements as well as totally new concepts.

There are three parts to the Advanced Microsoft Dynamics CRM Connector.

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### Microsoft Dynamics CRM Gui Plug-in

This plug-in to Call Center Elite Multichannel Desktop provides rules functionality to create, look up or screen pop Microsoft Dynamics CRM entities. It enables you to dial from Accounts, Contacts, Phone Call, Campaign Response and System User entities. It also allows you to deliver Microsoft Dynamics CRM activities to your call center agents.

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### Microsoft Dynamics CRM Svc Plugin

This plug-in to Preview Contact Media Store distributes Microsoft Dynamics CRM activities to agents as Call Center Elite Multichannel work items. Work items are blended with Avaya Communication Manager's ACD traffic, which already encompasses the technologies of fair and efficient distribution.

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### Microsoft Dynamics CRM Phonebook Synchronizer

This provides real-time updates of Microsoft Dynamics CRM Accounts and Microsoft Dynamics CRM Contacts to EMC Contact Database.

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## Licensing

The Advanced Microsoft Dynamics CRM Connector requires the following EMC licenses:

License	Type	Required
CCEM MS-CRM 6.0	Per site license	Mandatory
CCEM MultiMedia 6.0	Per user license	Mandatory. Enables Microsoft Dynamics CRM activities to be work flowed via Call Center Elite Multichannel.
CCEM IClarity 4.0	Per user license	Optional. Enables VoIP technology on a standard PC.

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# Installation

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## Pre-requisite

1. Before you start installation, please go through following link which might be useful in your configuration:

[http://blogs.msdn.com/b/niran\\_belliappa/archive/2013/11/05/step-by-step-installing-dynamics-crm-2013-on-windows-server-2012.aspx](http://blogs.msdn.com/b/niran_belliappa/archive/2013/11/05/step-by-step-installing-dynamics-crm-2013-on-windows-server-2012.aspx)

Important highlights from above web page:

- a. SQL server installation with default user rights. [Recommended]
  - b. Install MSCRM2011/13/15 with domain user.
  - c. The following components must be installed and running on the computer where Microsoft Dynamics CRM 2013 Server will be installed:
    - Services
    - Indexing Service (Windows Server 2008)\ Windows Search (Windows Server 2012)
    - IIS Admin
    - World Wide Web Publishing
    - Windows Data Access Components (MDAC) 6.0  
(This is the default version of MDAC with Windows Server 2008.)
    - Microsoft ASP.NET (Must be registered, but does not have to be running.)
2. When you open Microsoft Dynamics CRM, you are prompted for your user name and password for the CRM startup screen. If user wants to save user credential for this screen so that next time it will login to Microsoft Dynamics CRM automatically without asking user credentials then Microsoft has provided internet explorer security settings in the following link.  
<https://support.microsoft.com/en-us/kb/892666>
  3. There is no need for CRM users to have administrative privileges over the domain. Therefore, all CRM user accounts should be restricted to Domain Users membership. User Administrator which is “Built-in account for administering the computer/domain” should never be used to run CRM.

For best practices from Microsoft

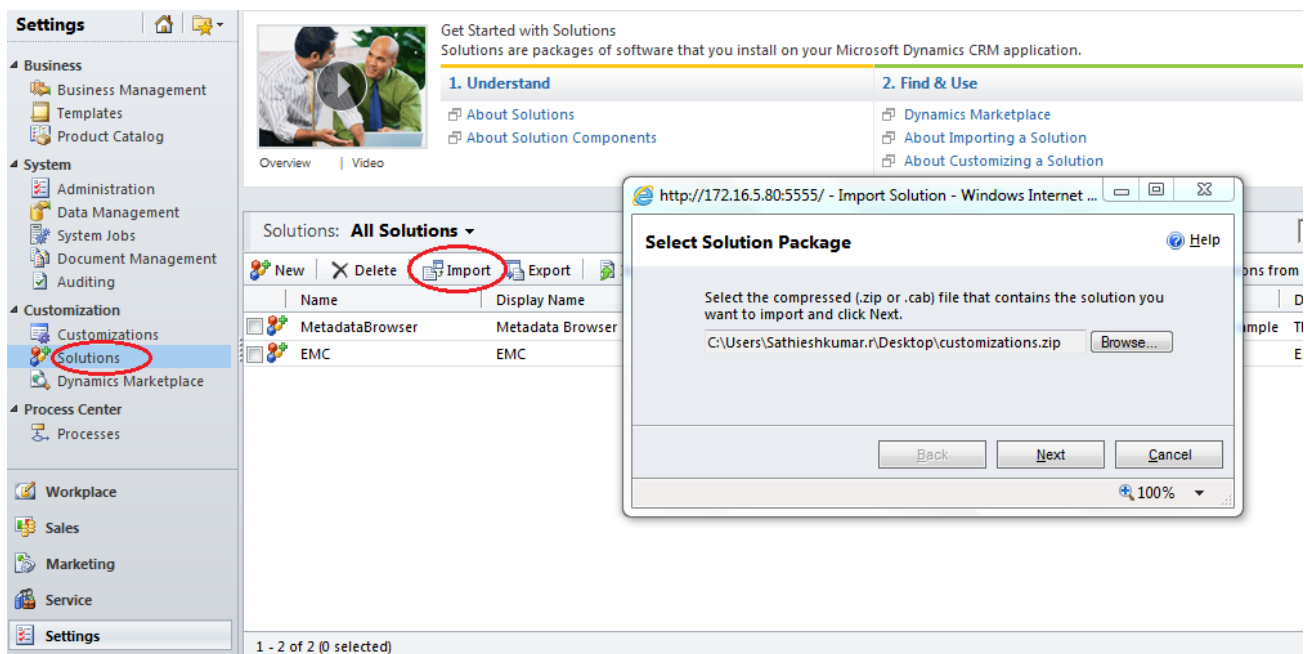
[https://technet.microsoft.com/en-us/library/hh699744\(v=crm.6\).aspx](https://technet.microsoft.com/en-us/library/hh699744(v=crm.6).aspx)

4. Other Pre-Requisites
  - Windows Identity Foundation 3.5
    - o Windows 2012 – Go to server Manager and select “Windows Identity Foundation 3.5” module and install.
    - o Other servers – Download WindowsIdentityFoundation-SDK-3.5.msi from Microsoft site and install
    - o Install it on both EMC Desktop and Server.
  - Restart the machine if required.
  - Ensure that EMC and CRM Server times are in sync. [Time zone and clock].

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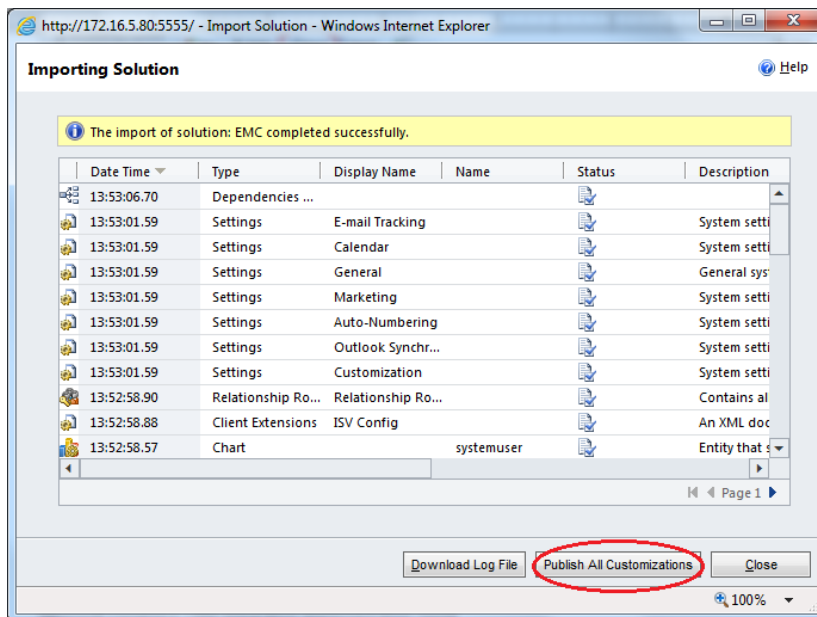
## Microsoft Dynamics CRM Server 2011 ISV Customization

1. Launch the Microsoft Dynamics CRM 2011 in internet explorer.
2. Navigate to Settings → Customization. Backup your customizations by exporting it (if required).
3. Copy all files except Customizations.zip from [DVD\Utilities\Microsoft Dynamics CRM Server Customizations\Microsoft Dynamics CRM 2011 ISV Customizations] to [C:\Program Files\Microsoft Dynamics CRM\CRMWeb\\_Resources] in your Microsoft Dynamics CRM Server.
4. Goto Settings → Customization → Solutions. Import the customizations by uploading the Customizations.zip located in [DVD\Utilities\Microsoft Dynamics CRM Server Customizations\Microsoft Dynamics CRM 2011 ISV Customizations].
5. Press Next to complete the import.



6. Publish the imported customizations.





## Microsoft Dynamics CRM Server 2013/2015 Customization

Customization steps for Dynamic CRM 2013/2015 are same as Dynamics CRM 2011 customization.

Simply follow the steps provided for Dynamics CRM 2011 except that in step 4, need to pick the respective customization.zip from Dynamics CRM 2013/2015 customization folders.

## Microsoft Dynamics CRM Server Callout (Phonebook Synchronizer)

### Real-time Synchronizer

This procedure is only required if you wish to synchronize Microsoft Dynamics CRM account and contact entities to Avaya Call Center Elite Multichannel Contact Database.

Some major benefits of synchronization:

- You can use the Directory plugin to search and open Microsoft Dynamics CRM accounts and contacts.
- Smart SQL searching procedures built into Avaya Call Center Elite Multichannel allow searches to correctly find matches even when phone numbers are stored in human friendly format e.g. + 64 (9) 4770500. When searching Microsoft Dynamics CRM Webservices

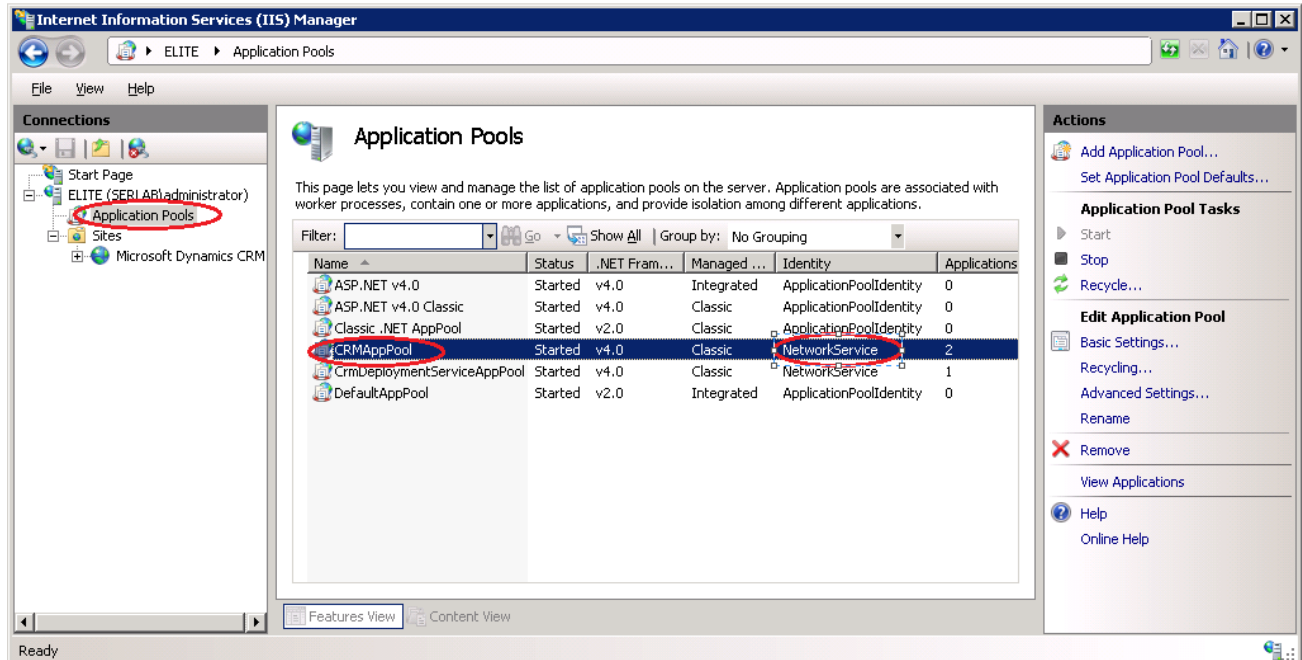
directly, the phone numbers in Microsoft Dynamics CRM must be stored exactly as the ANI (or at least containing) of an incoming work item.

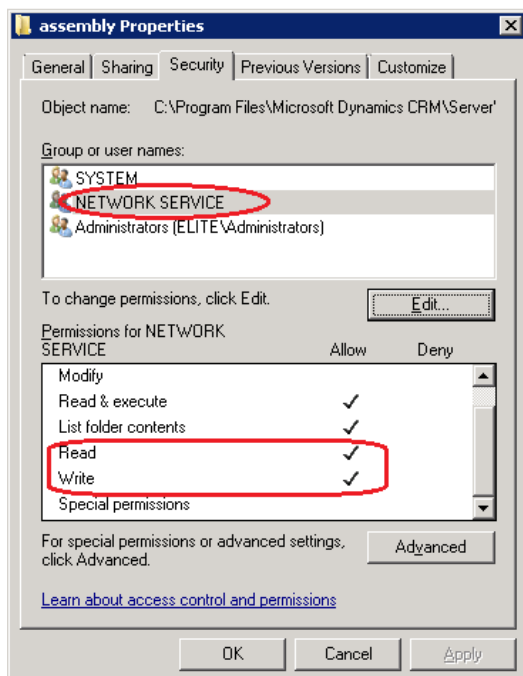
### Configuration:

1. Copy all files from [DVD\Utilities\Microsoft Dynamics CRM Server Customizations\Realtime Phonebook Synchronizer] to the assembly folder.

The default installation folder is [C:\Program Files\Microsoft Dynamics CRM\Server\bin\assembly].

2. Check the identity IIS uses to run Microsoft Dynamics CRM and grant write permission to the assembly folder. This is to allow the Realtime Synchronizer to be able to create log files.





3. Modify the Database connection string found in the [ASMSCRMPhonebookSynchronizer.ini] configuration file (refer to Configuration chapter below), then restart IIS with IISRESET command.

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## MS CRM Gui Plug-in

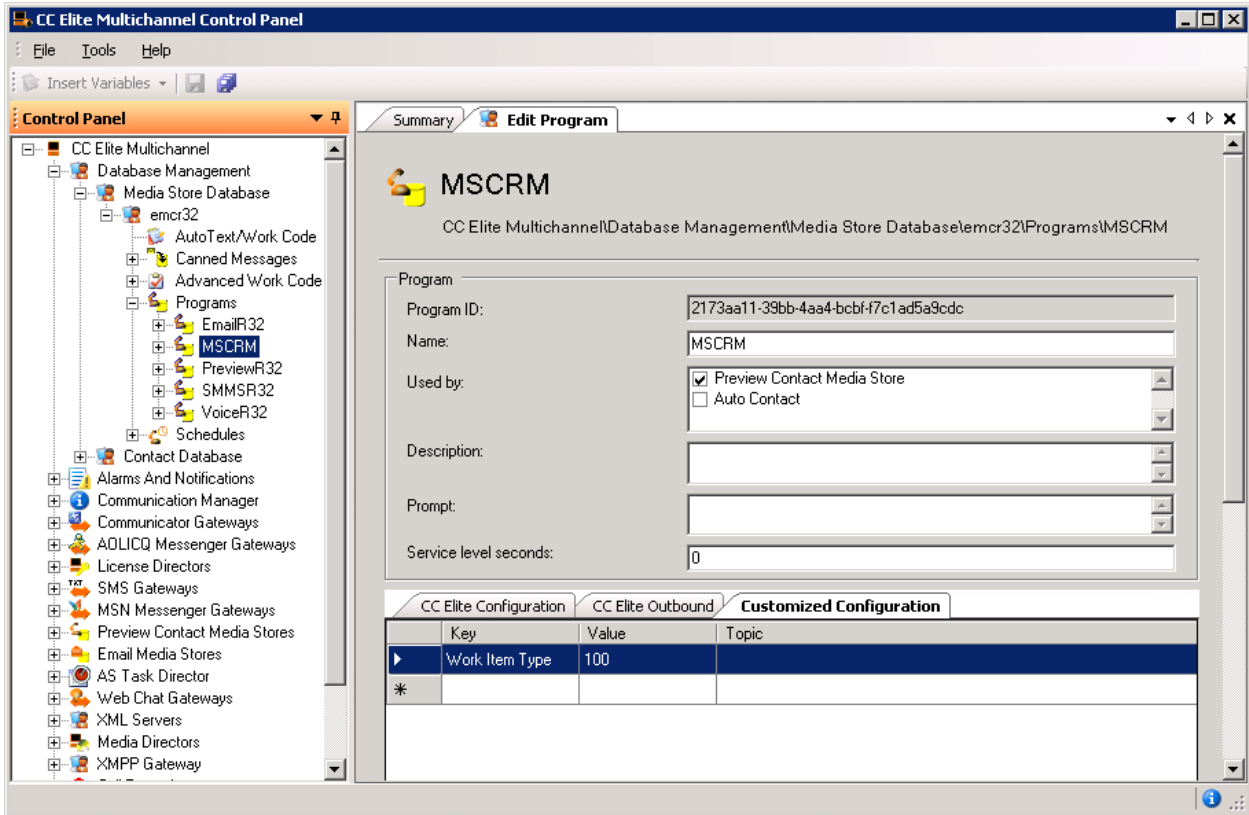
MS CRM Gui Plug-in is installed as part of Call Center Elite Multichannel Desktop. You can enable the MS CRM Gui Plug-in by uncommenting the Microsoft Dynamics CRM section, that is, by deleting semicolon to uncomment line from ASGUIHost.ini file.

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## MS CRM Svc Plug-in

MS CRM Svc Plug-in is installed as part of Preview Contact Media Store. Simply enable the MS CRM Svc Plug-in by uncommenting the Microsoft Dynamics CRM section, that is, by deleting semicolon to uncomment line from ASPreviewContactMediaStore.ini file.

Create a Program via Control Panel which will be used exclusively for routing Microsoft Dynamics CRM activities. Add a Customized Configuration 'Work Item Type'. Set this value to be above 100. This will allow Microsoft Dynamics CRM activities to be correctly identified and handled by the MS CRM Gui Plugin when delivered to EMC Desktop.



# Chapter 2: Configuration

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## Microsoft Dynamics CRM Phonebook Synchronizer

Locate the file 'ASMSCRMPhonebookSynchronizer.ini' in the [C:\Program Files\Microsoft Dynamics CRM\Server\bin\assembly] folder of your Microsoft Dynamics CRM server.

Name	Default Value	Description
AS Contact Database Connection String	Data Source=yourservername;Initial Catalog=ASContact;User Id=ASContact;Password=CCEUser0;	EMC ASContact SQL Database Connection String

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## MS CRM Gui Plug-in

Locate the file 'ASGUIHost.in' in the [C:\Program Files\Avaya\Avaya Aura CC Elite Multichannel\Desktop\CC Elite Multichannel Desktop] folder of your Call Center Elite Multichannel desktop. Uncomment lines by removing semi colons.

Name	Default Value	Description
Assembly File Name	ASMSCRMGuiPlugin.dll	Specifies assembly file name of this plugin.
Enable Error Logging	True	Enable Microsoft Dynamics CRM Plugin logging.
Microsoft Dynamics CRM Server Name	<a href="http://yourservername:5555">http://yourservername:5555</a>	Computername of the Microsoft Dynamics CRM Server.
Microsoft Dynamics CRM Organization Name	YourOrganizationName	Organization name of the Microsoft Dynamics CRM Server.
Microsoft Dynamics CRM Organization Service URL	<a href="http://yourservername:5555/YourOrganizationName/XRMServices/2011/Organization.svc">http://yourservername:5555/YourOrganizationName/XRMServices/2011/Organization.svc</a>	URL of the Microsoft Dynamics CRM OrganizationService.
Microsoft Dynamics CRM DiscoveryService URL	<a href="http://yourservername:5555/xrmservices/2011/discovery.svc">http://yourservername:5555/xrmservices/2011/discovery.svc</a>	URL of the Microsoft Dynamics CRM Discoveryservice.

<b>Name</b>	<b>Default Value</b>	<b>Description</b>
Microsoft Dynamics CRM Login Use Default Credentials	True	Login to Microsoft Dynamics CRM Webservices using the same username and password already used to login to windows. Or specifically enter user details.
Microsoft Dynamics CRM Login User Name		Username to login to Microsoft Dynamics CRM Webservices.
Microsoft Dynamics CRM Login User Password		Password to login to Microsoft Dynamics CRM Webservices
Microsoft Dynamics CRM Domain Name		Windows Domain of the Microsoft Dynamics CRM Server.
Microsoft Dynamics CRM Start Page	loader.aspx	First Microsoft Dynamics CRM page launched in a tab when EMC Desktop starts.
Inbound Contact Identification	1	Action to take when inbound work items arrive. 0=Disable, 1=Lookup Contact Database, 2=Lookup Microsoft Dynamics CRM Directly.
Inbound Email Enabled	True	Enable inbound identification for Email channel.
Inbound Preview Contact Enabled	True	Enable inbound identification for Preview Contact channel.
Inbound Simple Messaging Enabled	True	Enable inbound identification for SimpleMessaging channel.
Inbound Voice Enabled	True	Enable inbound identification for Voice channel.
Contact Database Lookup No Match Action	2	Action to take when no matches were found. 0=Do Nothing, 1=Pop New Account, 2=Pop New Contact.
Contact Database Lookup Single Match Action	1	Action to take when a single match is found. 0=Do Nothing, 1=Pop Match.
Contact Database Lookup Multiple Match Action	1	Action to take when multiple matches were found. 0=Do Nothing, 1=Prompt User To Select, 2=Pop All Matches.

Name	Default Value	Description
Microsoft Dynamics CRM Account Lookup Fields	telephone1,telephone2,emailaddresses1	Comma delimited list of Microsoft Dynamics CRM Account fields to include in the Lookup.
Microsoft Dynamics CRM Account Lookup No Match Action	2	Action to take when no matches were found. 0=Do Nothing, 1=Pop New Account, 2=Pop New Contact.
Microsoft Dynamics CRM Account Lookup Single Match Action	1	Action to take when a single match is found. 0=Do Nothing, 1=Pop Match.
Microsoft Dynamics CRM Account Lookup Multiple Match Action	1	Action to take when multiple matches were found. 0=Do Nothing, 1=Prompt User To Select, 2=Pop All Matches.
Microsoft Dynamics CRM Contact Lookup Fields	telephone1,telephone2,mobilephone,emailaddress1	Comma delimited list of Microsoft Dynamics CRM Contact fields to include in the Lookup.
Microsoft Dynamics CRM Contact Lookup No Match Action	2	Action to take when no matches were found. 0=Do Nothing, 1=Pop New Account, 2=Pop New Contact.
Microsoft Dynamics CRM Contact Lookup Single Match Action	1	Action to take when a single match is found. 0=Do Nothing, 1=Pop Match.
Microsoft Dynamics CRM Contact Lookup Multiple Match Action	1	Action to take when multiple matches were found. 0=Do Nothing, 1=Prompt User To Select, 2=Pop All Matches.

## MS CRM Svc Plug-in

Locate the file 'ASPreviewContactMediaStore.ini' in the [C:\Program Files\Avaya\Avaya Aura CC Elite Multichannel\Server\Media Stores\Preview Contact Media Store] folder of your Call Center Elite Multichannel server. Uncomment lines by removing semi colons.

Name	Default Value	Description
------	---------------	-------------

Name	Default Value	Description
Assembly File Name	ASMSCRMSvcPlugin.dll	Specifies assembly file name of this plugin.
Enable Error Logging	True	Enable MS CRM Plugin logging.
MS CRM Login User Name		Username to login to Microsoft Dynamics CRM Webservices.
MS CRM Login User Password		Password to login to Microsoft Dynamics CRM Webservices
MS CRM Domain Name		Windows Domain of the Microsoft Dynamics CRM Server.
Microsoft Dynamics CRM Organization Service URL	<a href="http://yourservername:5555/YourOrganizationName/XRMServices/2011/Organization.svc">http://yourservername:5555/YourOrganizationName/XRMServices/2011/Organization.svc</a>	URL of the Microsoft Dynamics CRM OrganizationService.
Microsoft Dynamics CRM Discovery Service URL	<a href="http://yourservername:5555/xrmservices/2011/discovery.svc">http://yourservername:5555/xrmservices/2011/discovery.svc</a>	URL of the Microsoft Dynamics CRM Discoveryservice.
MS CRM Organization Name	YourOrganizationName	Organization name of the Microsoft Dynamics CRM Server.
MS CRM Web Service Reconnect Interval	300	Reconnect interval in seconds when connection/access to Microsoft Dynamics CRM Web Service has failed.
MS CRM Public Queues Workflowed Via EMC	MSCRMPublicQueueName:EMCPreviewContactProgramId, MSCRMPublicQueueName:EMCPreviewContactProgramId	Comma then colon separated list of Microsoft Dynamics CRM public queues and Call Center Elite Multichannel ProgramIds. MSCRMPublicQueueName is the Queue name as defined in Microsoft Dynamics CRM. EMCPreviewContactProgramId can be found in the Media Store Database\ServerName\Programs\Program sub node in EMC Control Panel. Place this GUID after the colon for the specified queue.
MS CRM Public Queues Check Interval	300	Polling interval of Microsoft Dynamics CRM public queues, in seconds.
Service Restart	300	This configuration is required for



Name	Default Value	Description
Synchronization Wait Interval		<p>situations where the Preview Contact Media Store had to restart with Microsoft Dynamics CRM work items already created and yet to be cleared.</p> <p>By allowing the MS CRM Svc Plugin to wait during this interval on startup, it can recalibrate based on events from the Preview Contact Media Store the previous Microsoft Dynamics CRM work items that are remaining.</p> <p><b>Note:</b> You must set Media Director queue parameter "Maximum Queued Work Items" to a size larger than the remaining work items in the database. Recommended setting would be more than 100 by default or even larger as this only affects Media Director. Remember there is a separate parameter called "Maximum Queued Phantom Calls". This affects ACM and AES licensing.</p>

**Note 1:** If you are intending to change the port number after the fact, refer to the knowledgebase article: How to update the Microsoft Dynamics CRM Web site port after you install Microsoft Dynamics CRM 4.0/2011 (<http://support.microsoft.com/kb/947423>).

**Note 2:** The default port number for new websites with Microsoft Dynamics CRM installation is 5555 but this can be changed during the installation for Microsoft Dynamics CRM. Refer to Network ports used for Microsoft Dynamics CRM 4.0/2011 ([http://rc.crm.dynamics.com/rc/regcont/en\\_us/op/articles/crmports.aspx](http://rc.crm.dynamics.com/rc/regcont/en_us/op/articles/crmports.aspx)) that contains useful information for configuring your network. There is also a Microsoft Dynamics CRM implementation guide at <http://go.microsoft.com/fwlink/?LinkID=104413>.

**Note 3:** Ensure that yourservername is a fully qualified name if Microsoft Dynamics CRM is located on a different domain.

**Note 4:** If specifying login user name as domain name\user name causes the application to fail to connect, try using user name without the domain name\ value.

# Chapter 3: Files

## Microsoft Dynamics CRM Server ISV Customization Files

File	Version	Description
customizations.zip	NA	<p>A zip file which contains three XML files [Content_Types].xml, solution.xml and customizations.xml.</p> <p>These configuration files which add telephony dial buttons to the following Microsoft Dynamics CRM entities for Microsoft Dynamics CRM 2011.</p> <ul style="list-style-type: none"><li>• account</li><li>• contact</li><li>• campaignresponse</li><li>• invoice</li><li>• lead</li><li>• phonecall</li><li>• quote</li><li>• salesorder</li><li>• systemuser</li></ul>
AvayaMSCRMt.gif	NA	<ul style="list-style-type: none"><li>• Background picture of the web page which opens when you make an outbound call from Microsoft Dynamics CRM web pages.</li></ul>
ico_16_137.gif	NA	A phone icon which is used in the Toolbars of Microsoft Dynamics CRM to represent outbound dial functionality.
address1_telephone1.htm	NA	HTML file which is triggered when an outbound call is made to using the address1_telephone1 field.
address1_telephone2.htm	NA	HTML file which is triggered when an outbound call is made to using the address1_telephone2 field.
billto_telephone.htm	NA	HTML file which is triggered when an outbound call is made to using the billto_telephone field.
homephone.htm	NA	HTML file which is triggered when an outbound call is made to using the homephone field.
mobilephone.htm	NA	HTML file which is triggered when an outbound call is made to using the mobilephone field.

File	Version	Description
phonenum.htm	NA	HTML file which is triggered when an outbound call is made to using the phonenum field.
shipto_telephone.htm	NA	HTML file which is triggered when an outbound call is made to using the shipto _telephone2 field.
telephone1.htm	NA	HTML file which is triggered when an outbound call is made to using the telephone1 field.
telephone2.htm	NA	HTML file which is triggered when an outbound call is made to using the telephone2 field.
<i>telephone.htm</i>	<i>NA</i>	HTML file which is triggered when an outbound call is made to using the telephone field.
*File dates represent last modified.		

## Microsoft Dynamics CRM Server Callout (Phonebook Synchronizer) Files

File	Version	Description
callout.config.xml	NA	XML configuration file which adds assembly ASMSCRMPhonebookSynchronizer.dll to be triggered when changes to occur the to the following Microsoft Dynamics CRM entities. <ul style="list-style-type: none"> <li>• account</li> <li>• contact</li> </ul>
ASMSCRMPhonebookSynchronizer.dll	6.4.0.0	Main Microsoft Dynamics CRM Call-out assembly file. This assembly is response for sending real-time updates to EMC Contact Database.
ASMSCRMPhonebookSynchronizer.ini	NA	Configuration file for ASMSCRMPhonebookSynchronizer.dll. Required configuration is the EMC Contact Database Connection String. AS Contact Database Connection String = Data Source=ohltl;Initial Catalog=ASContact;User Id=ASContact;Password=CCEUser0;

## MS CRM Gui Plugin Files

File	Version	Description
ASMSCRMGuiPlugin.dll	6.4.0.0	Main EMC Desktop plug-in assembly file.
ASMSCRMGuiPlugin.XmlSerializers.dll	6.4.0.0	The XML serialization assembly for ASMSCRMGuiPlugin.dll. It can improve the performance of clients that use XML Web service proxies to communicate with servers because the serialization process will not incur a performance hit when the type is loaded the first time.
<i>WindowsMessageRelayer.exe</i>	6.4.0.0	<p>Required for the MS CRM Plugin to receive windows messages to make outbound calls. The WindowsMessageRelayer.exe is triggered by clicking dial buttons within Microsoft Dynamics CRM web pages. The following registry entries are required for this file to be triggered from Microsoft Dynamics CRM web pages.</p> <ul style="list-style-type: none"> <li>• [HKEY_CLASSES_ROOT\ASTelephony]</li> <li>• @="URL:Agile Software Telephony Protocol"</li> <li>• "URL Protocol"=""</li> <li>• [HKEY_CLASSES_ROOT\ASTelephony\shell]</li> <li>• @="open"</li> <li>• [HKEY_CLASSES_ROOT\ASTelephony\shell\open]</li> <li>• @=""</li> <li>• [HKEY_CLASSES_ROOT\ASTelephony\shell\open\command]</li> <li>• @="\"C:\\Program Files\\Avaya\\Avaya Aura CC Elite Multichannel\\Desktop\\CC Elite Multichannel Desktop\\WindowsMessageRelayer.exe\" %1"</li> </ul>

\*File dates represent last modified.

## MS CRM Svc Plugin Files

File	Version	Description
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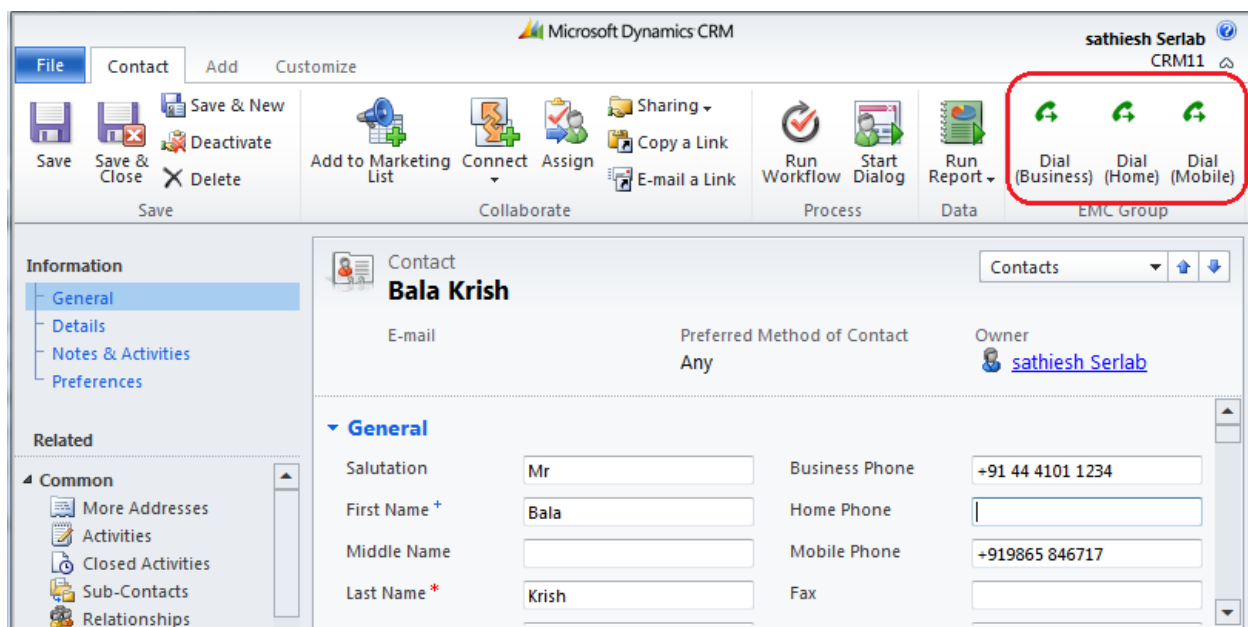
File	Version	Description
ASMSCRMSvcPlugin.dll	6.4.0.0	Main EMC Preview Contact Media Store plug-in assemblyfile.
<i>ASMSCRMSvcPlugin.XmlSerializers.dll</i>	6.4.0.0	The XML serialization assembly for ASMSCRMSvcPlugin.dll. It can improve the performance of clients that use XML Web service proxies to communicate with servers because the serialization process will not incur a performance hit when the type is loaded the first time.

\*File dates represent last modified.

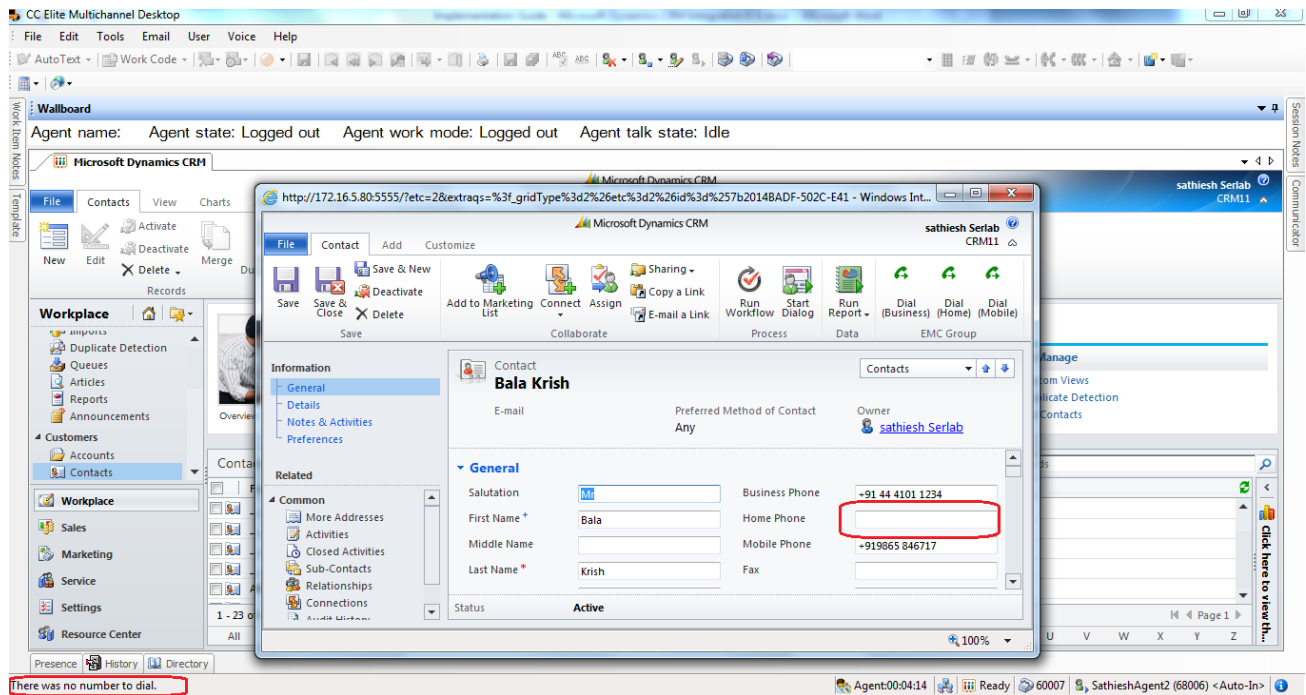
# Chapter 4: Operation

## Make Call from Microsoft Dynamics CRM

To make a call from Microsoft Dynamics CRM, Just press the Dial Button (Dial Main/Other/Mobile/Business/Office) on the CRM Ribbon. This will create an outbound work item in EMC Desktop and dial the number.

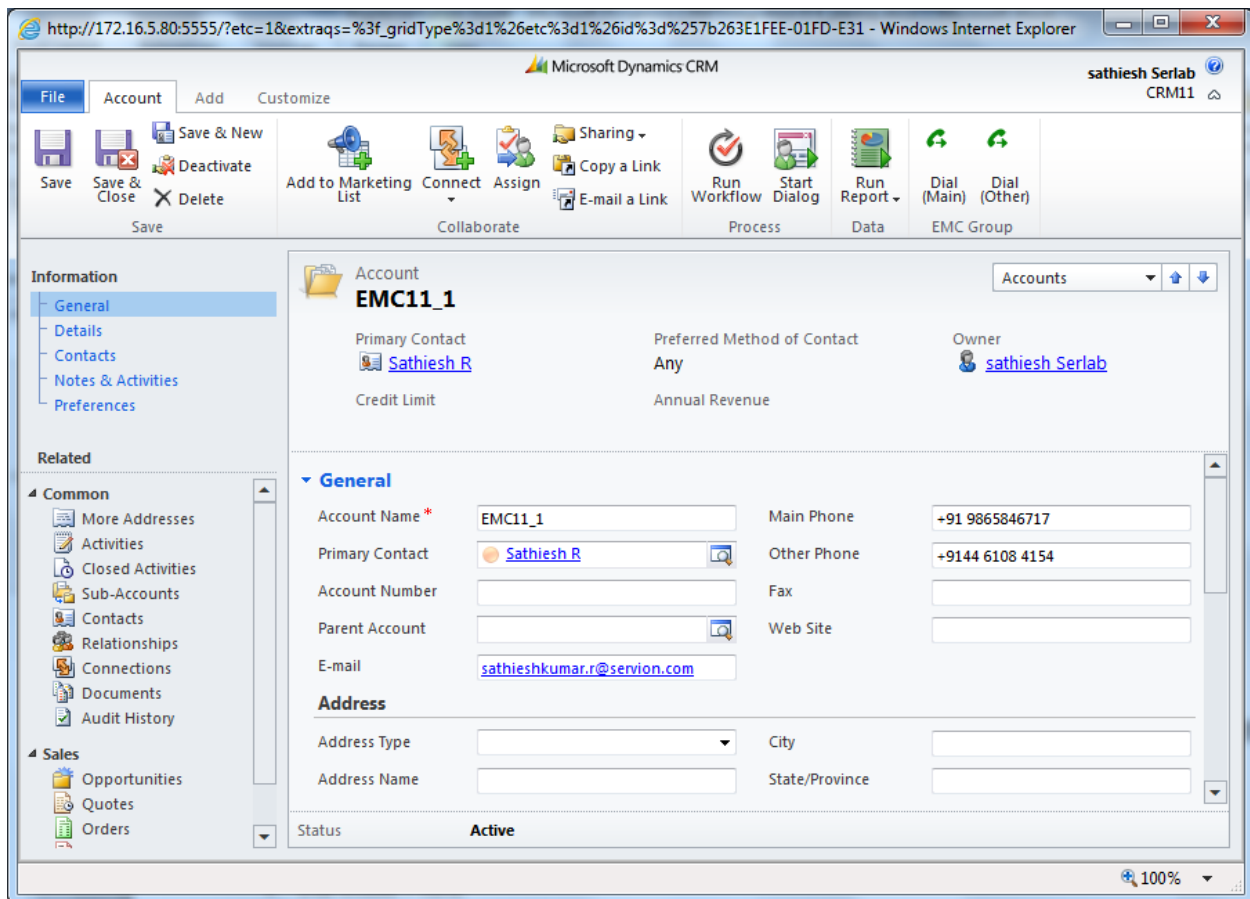


When an agent dials from an entity which does not have a phone number, then the EMC Desktop will display an error message “There was no number to dial” in its status bar.



## Dial from Account

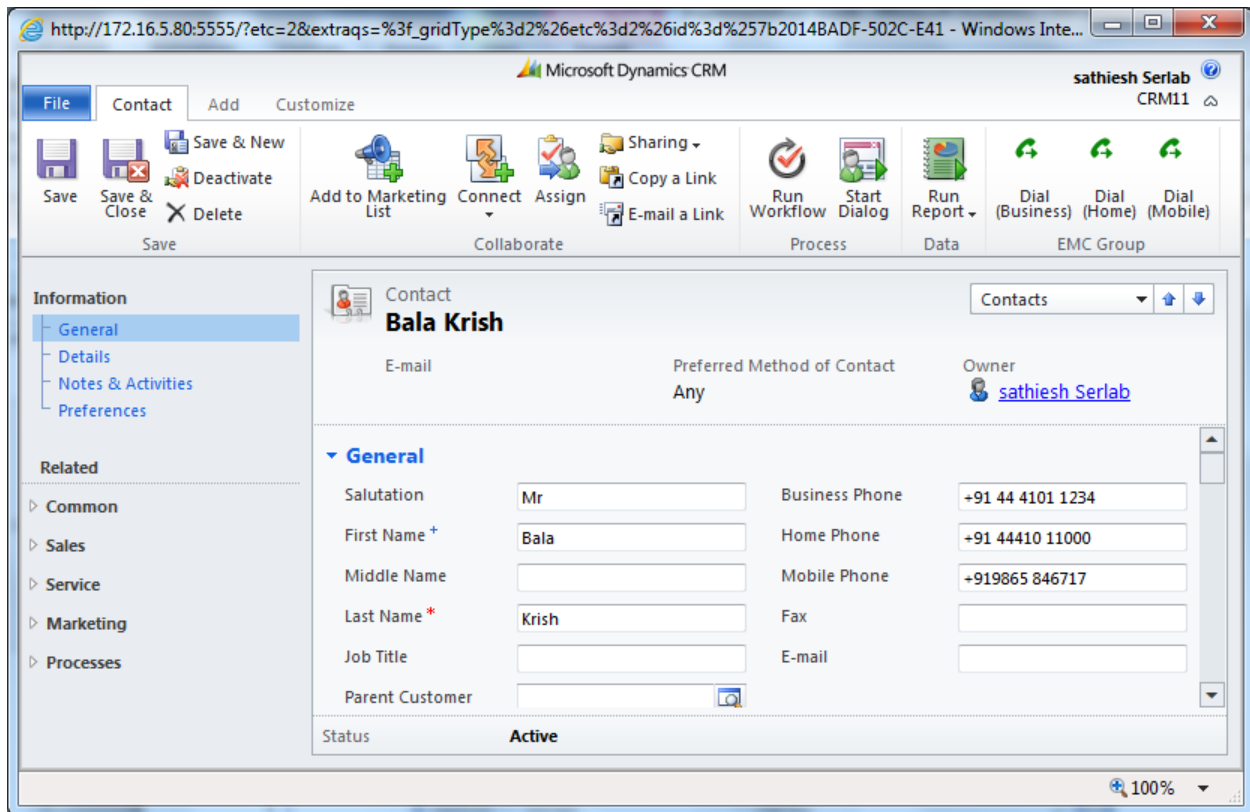
- Dial Main Phone
- Dial Other phone



## Dial from Contact

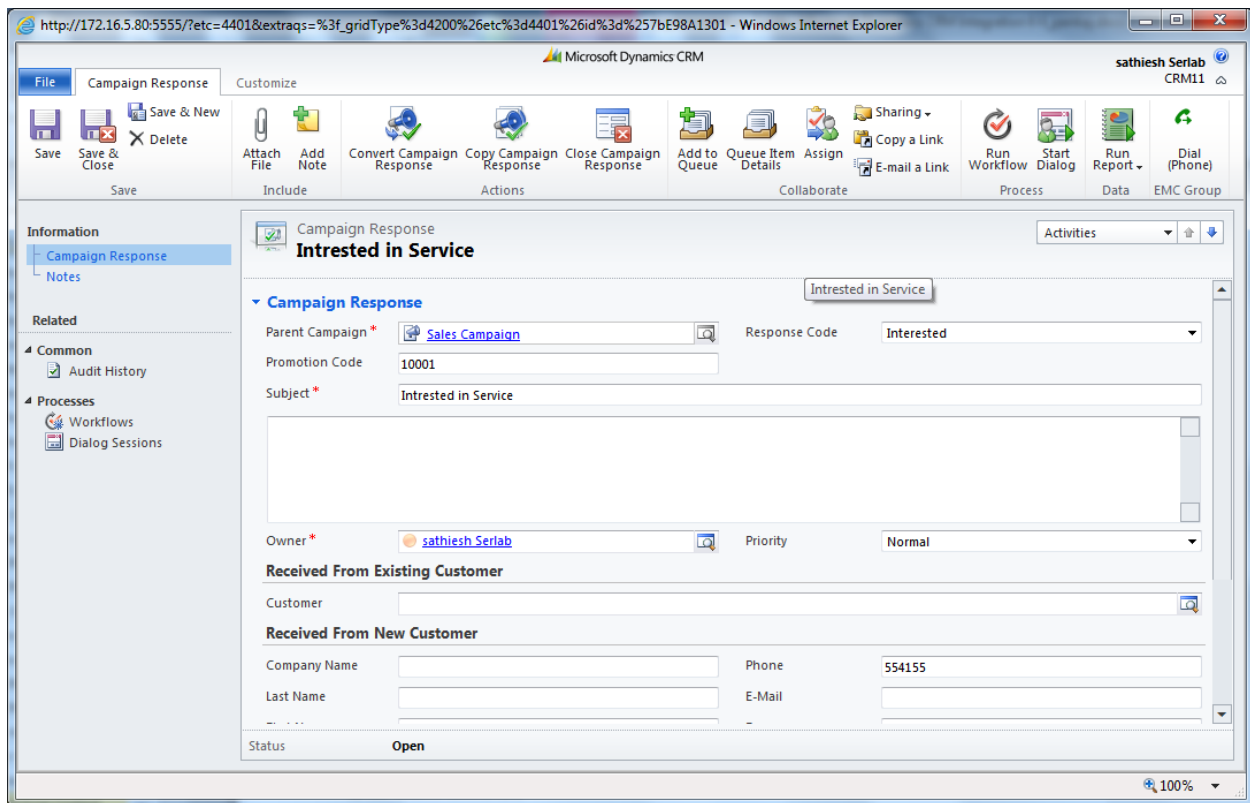
- Dial Business Phone
- Dial Home Phone
- Dial Mobile Phone





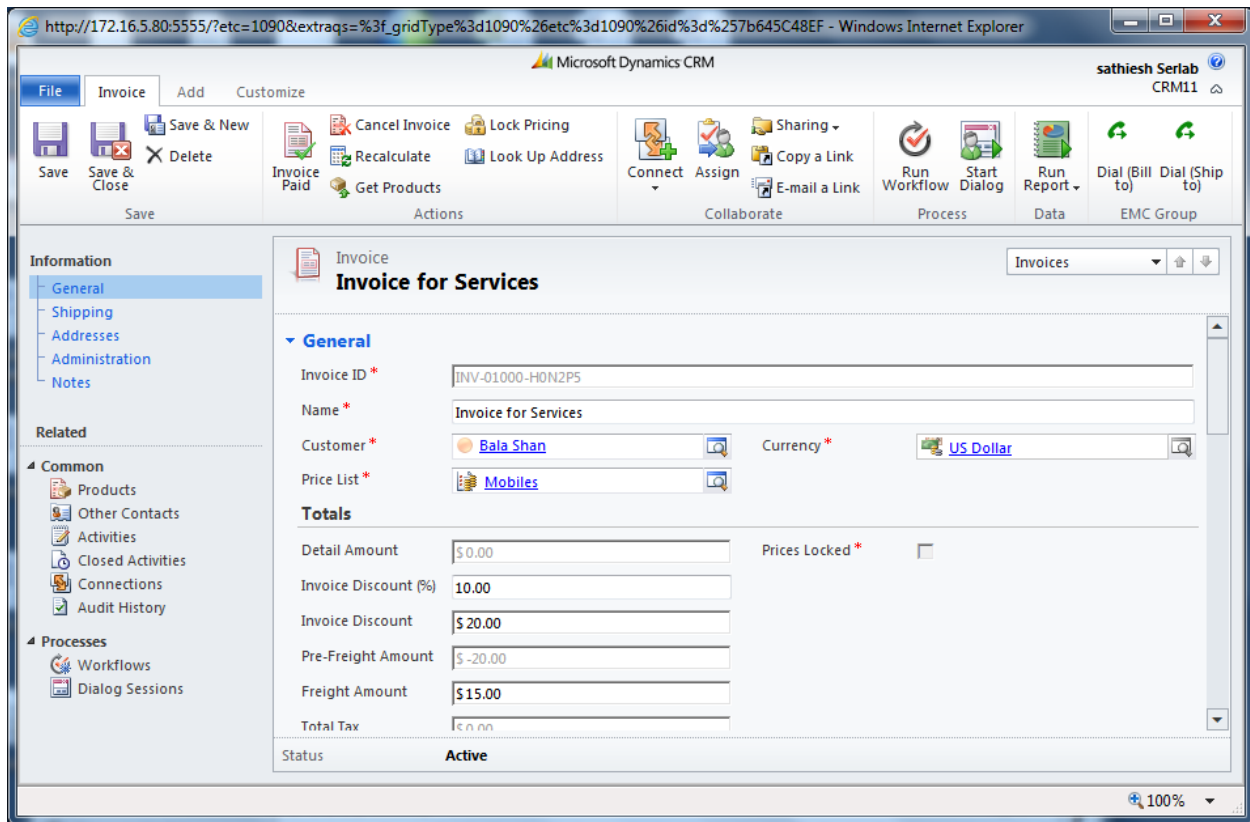
## Dial from CampaignResponse

- Dial Phone



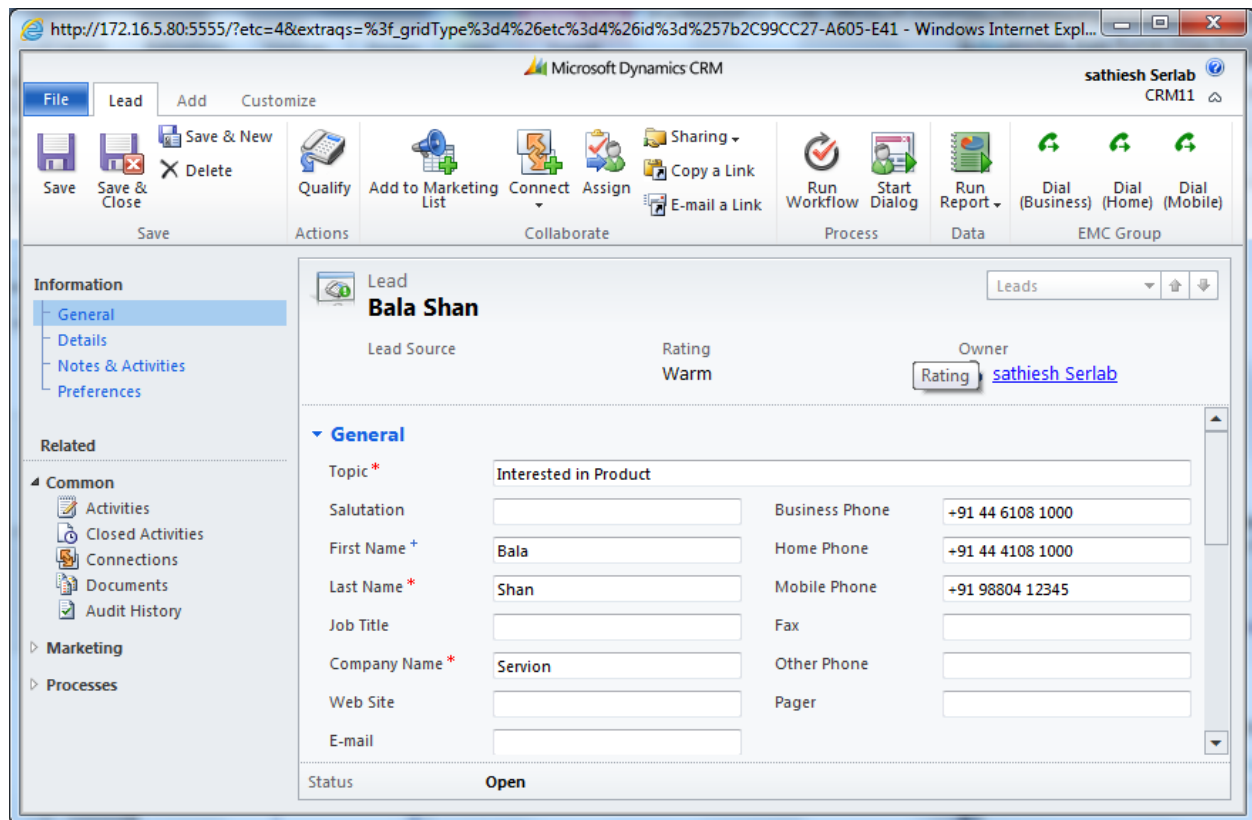
## Dial from Invoice

- Dial Bill-to Phone
- Dial Ship-to Phone



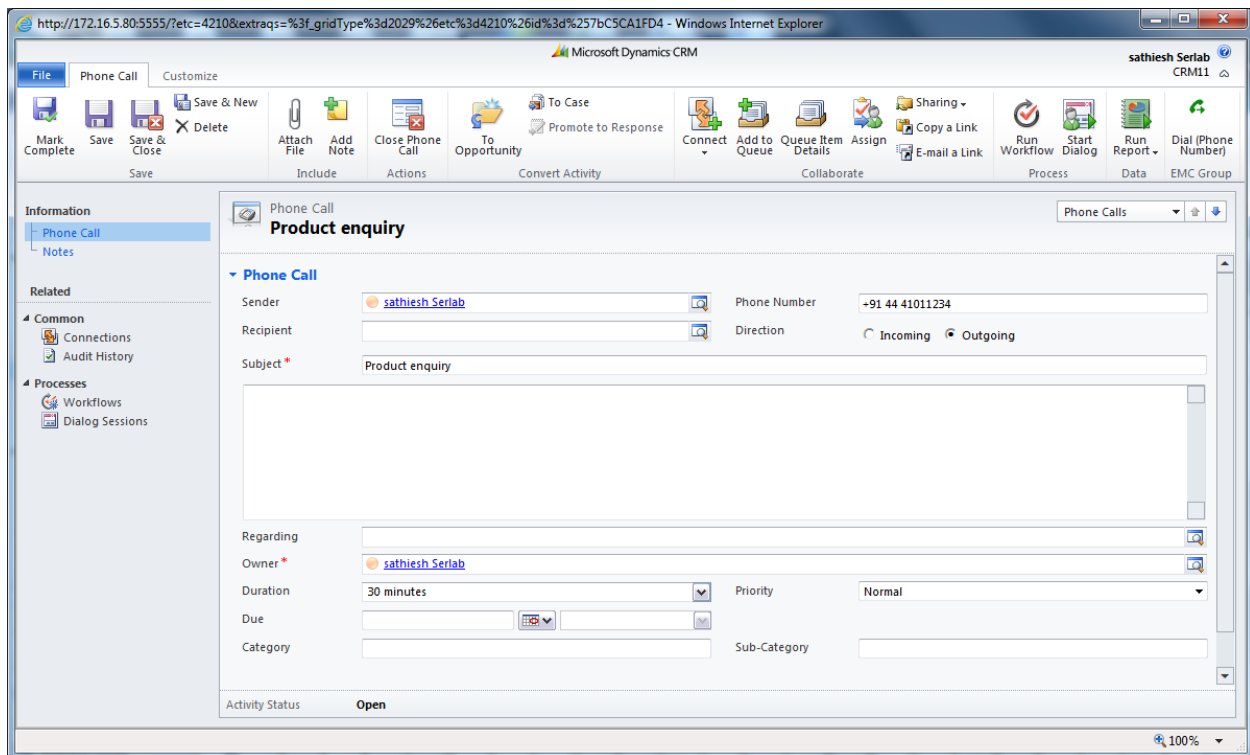
## Dial from Lead

- Dial Business Phone
- Dial Home Phone
- Dial Mobile Phone



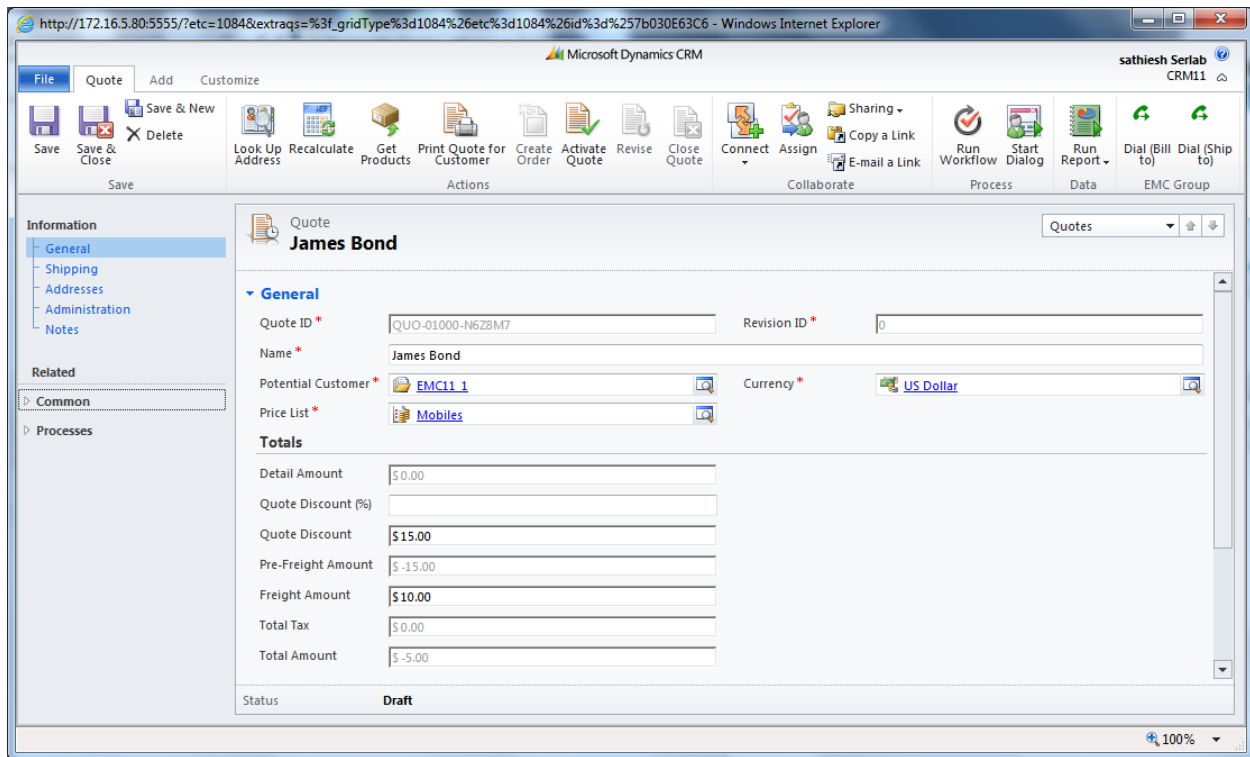
## Dial from PhoneCall

- Dial Phone



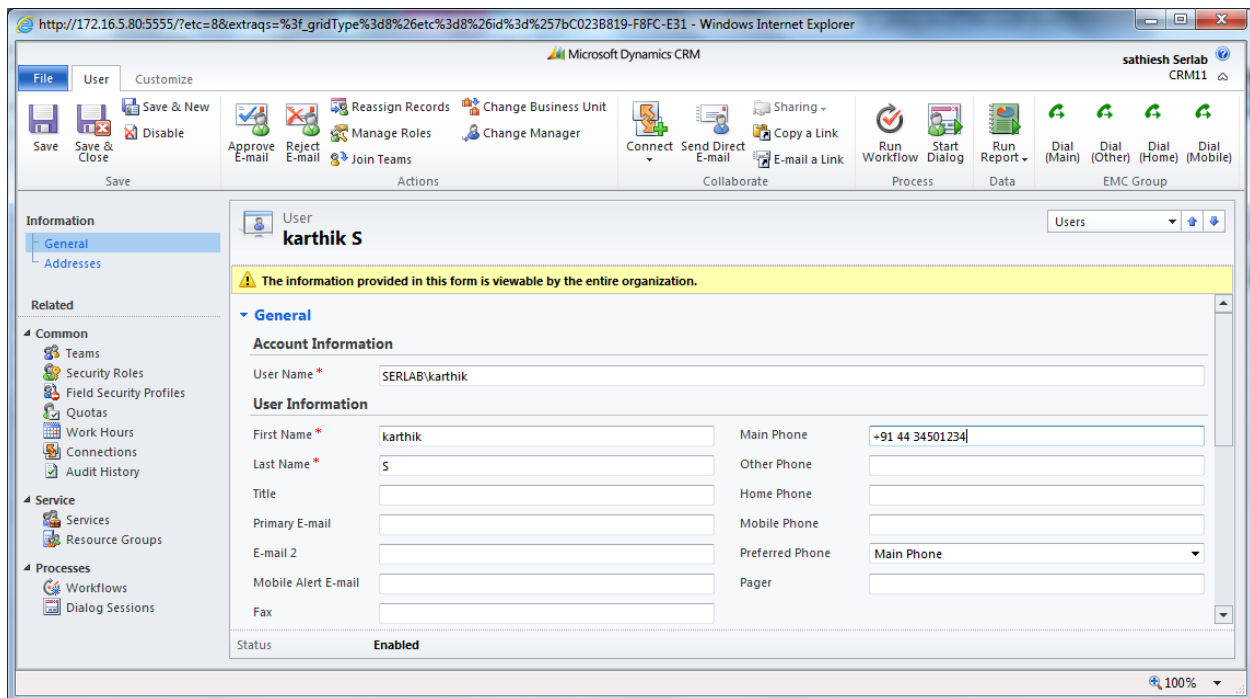
## Dial from Quote

- Dial Bill-to Phone
- Dial Ship-to Phone

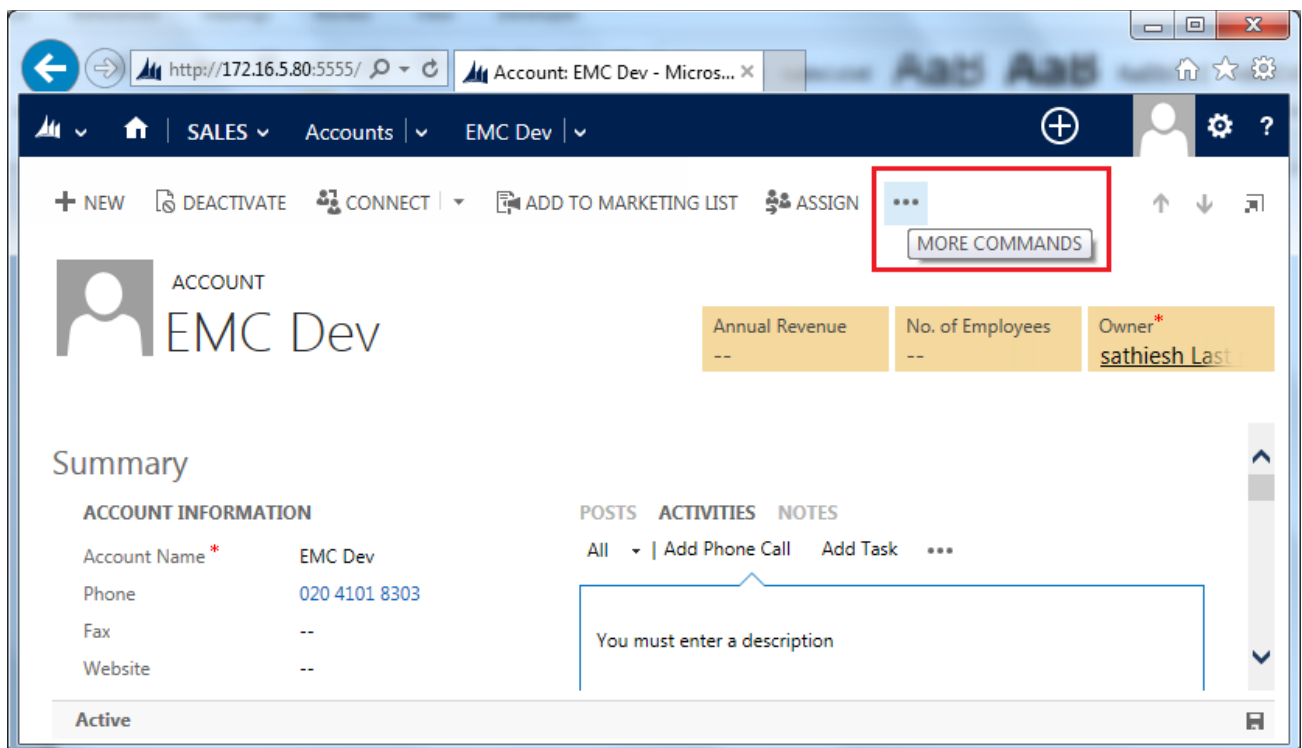


## Dial from SystemUser

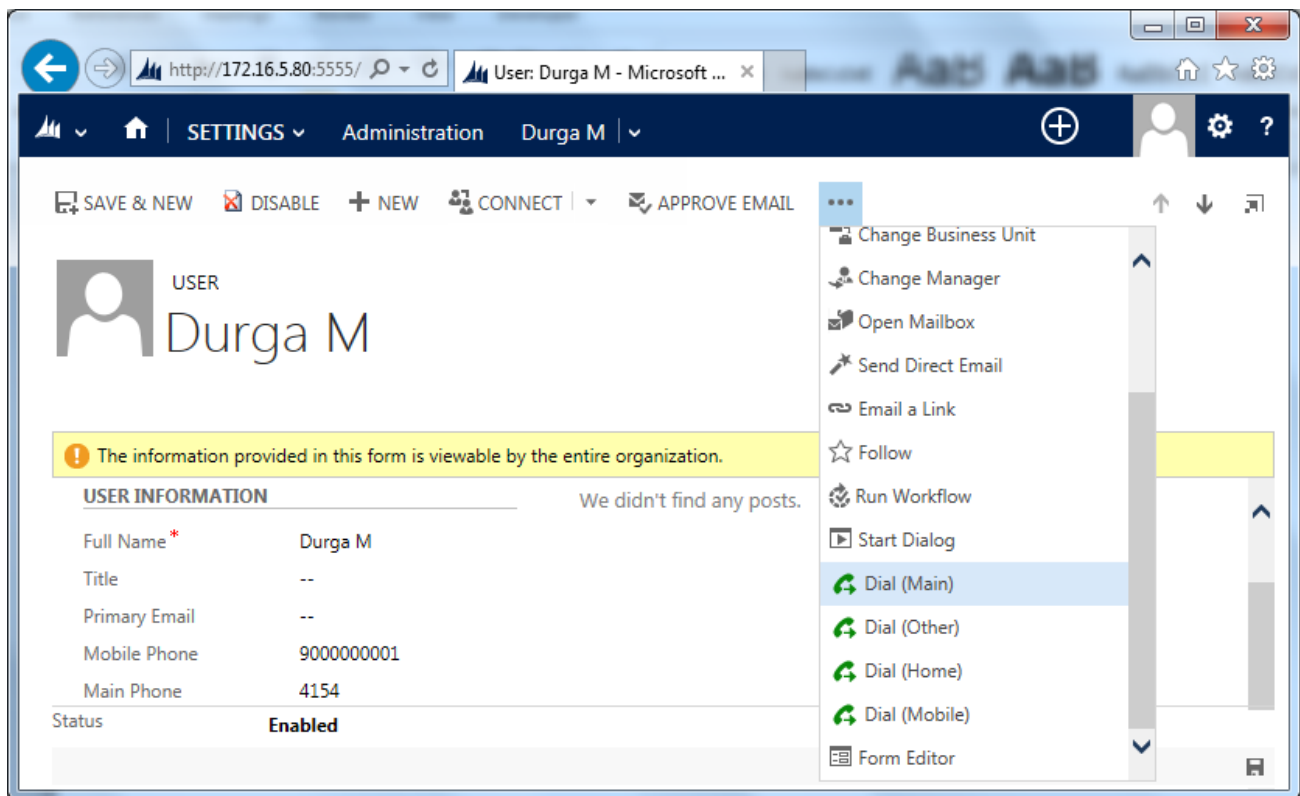
- Dial Main Phone
- Dial Other Phone
- Dial Home Phone
- Dial Mobile Phone



All make call option discussed above will be applicable for Dynamics CRM 2013/2015. The call buttons in dynamics CRM 2013/2015 will be displayed under “MORE COMMANDS” ellipsis (...) button.

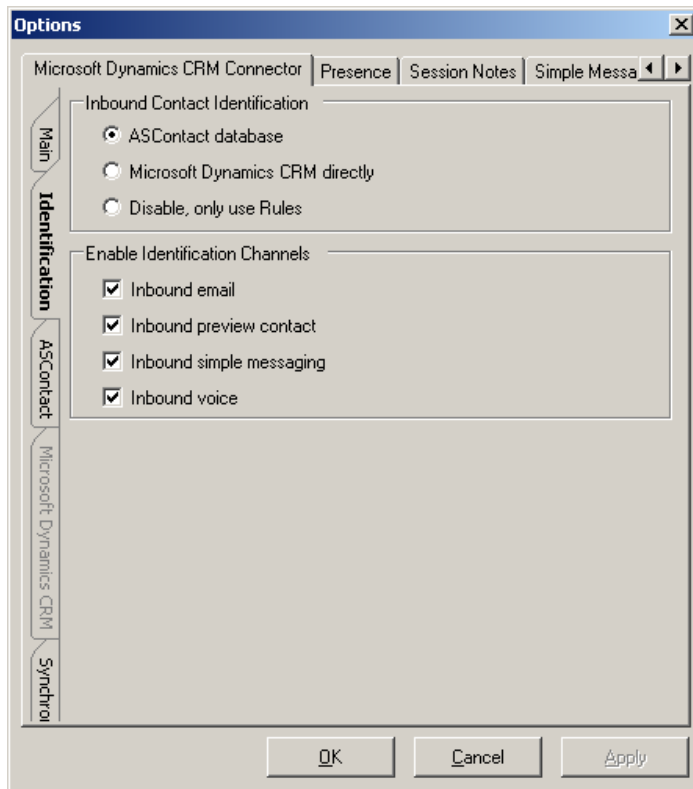


An example of make call option in Dynamics CRM 2013/2015 is shown below.



## Inbound Contact Identification





The following options are available when inbound work items arrive.

- Lookup contact database
- Lookup Microsoft Dynamics CRM Webservices directly
- Disable built-in lookup features. EMC Desktop Rules are still available.

You can specifically enable or disable each media channel.

- Email
- Preview Contact
- Simple Messaging
- Voice

---

## Contact Database Search

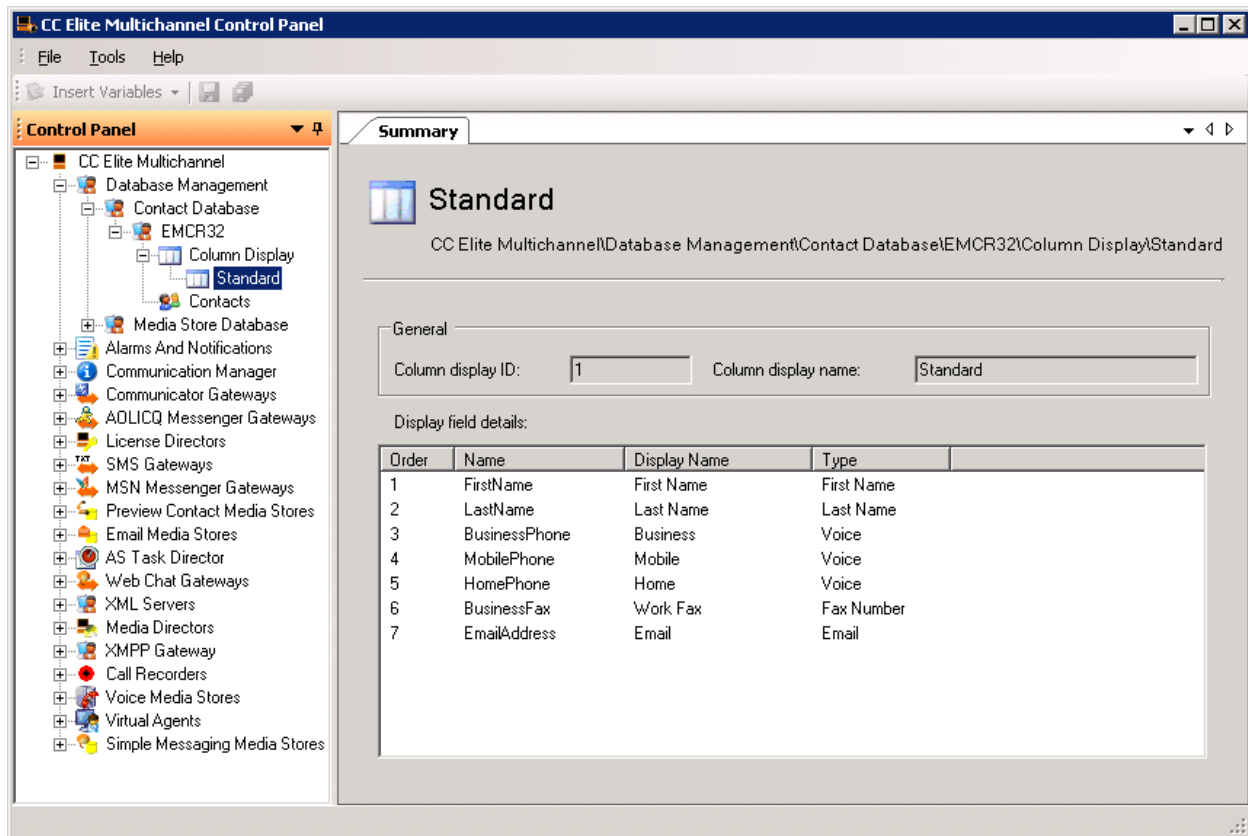
In order to search the Contact Database, Microsoft Dynamics CRM accounts and contacts must be synchronized. Refer to the Synchronization section for further details.

It is recommended to search on the Contact Database rather than directly searching Microsoft Dynamics CRM Webservices for the following reasons.

- Smart SQL searching procedures strip out non-numerics on-the-fly to allow searches to correctly find matches even when phone numbers are stored in human friendly format e.g. +64 (9) 4770500. When searching Microsoft Dynamics CRM Webservices directly,

the phone numbers in Microsoft Dynamics CRM must be stored exactly as the CLI (or at least containing) of an incoming work item.

- Performance benefits gained from searching SQL rather than Webservices can be crucial.
- You can use the Directory plugin to search and open Microsoft Dynamics CRM accounts and contacts.



The columns to include in the search are determined by the 'Type' of the column in your Column Display List.

### Email

- Columns of Type Email are searched.

### Preview Contact

- All phone number column Types are searched.

### Simple Messaging

- If the customer identifier is an email, columns of Type Email are searched
- If the customer identifier is a phone number, all phone number column Types are searched.

### Voice

- All phone number column Types are searched.

---

## Microsoft Dynamics CRM Webservice Search

The screenshot shows the 'Options' dialog box for the Microsoft Dynamics CRM Connector. It has tabs for 'Presence', 'Session Notes', and 'Simple Message'. The 'Main' tab is selected. On the left, there is a vertical navigation pane with 'Main', 'Identification', 'AsContact', 'Microsoft Dynamics CRM', and 'Synch'. The 'Microsoft Dynamics CRM' section is expanded. The dialog is divided into two main sections: 'Look up Microsoft Dynamics CRM account' and 'Look up Microsoft Dynamics CRM contact'. Each section has a list of fields to search by, a 'No match action' dropdown, a 'Single match action' dropdown, and a 'Multiple match action' dropdown. The 'Look up Microsoft Dynamics CRM account' section has a list of fields including 'telephone3', 'stockexchange', 'telephone1' (selected), 'telephone2', 'telephone3', 'territorycode', 'territorycodename', 'territoryid', and 'territoryiddsc'. The 'Look up Microsoft Dynamics CRM contact' section has a list of fields including 'emailaddress1', 'mobilephone', 'telephone1', and 'telephone2'. At the bottom, there are 'OK', 'Cancel', and 'Apply' buttons.

The following options are available when searching Microsoft Dynamics CRM.

- Search Microsoft Dynamics CRM account
- Search Microsoft Dynamics CRM contact

The columns to include in the search are selected from a list of available Microsoft Dynamics CRM attributes.

---

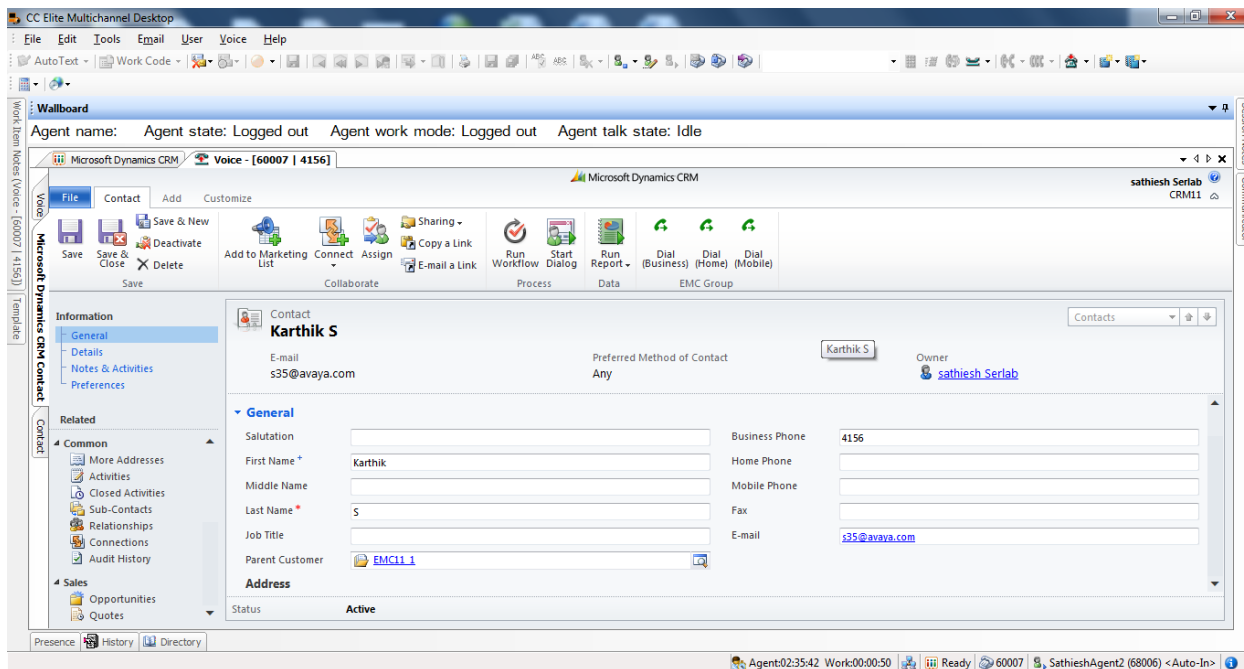
## Screenpop Search Result

The following options are available when the search is complete.

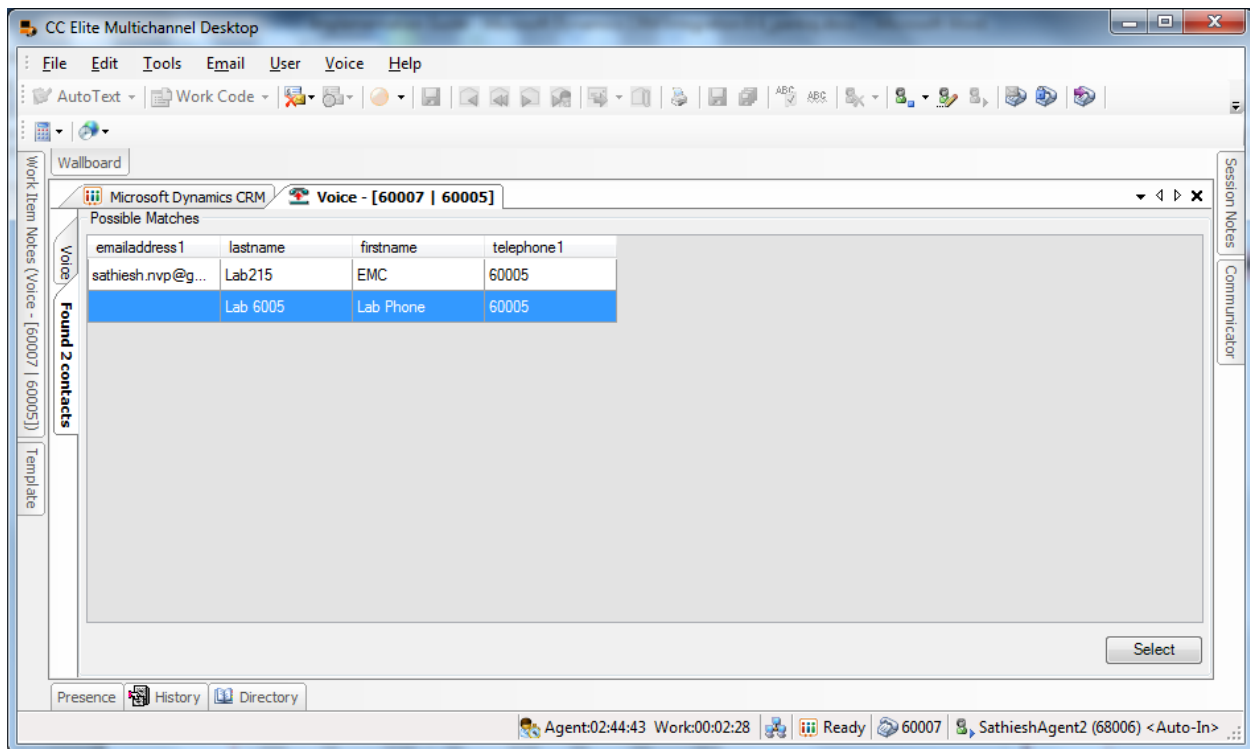
- When no matches were found:
  - Do nothing
  - Pop new account form
  - Pop new contact form
- When a single match was found:
  - Do nothing
  - Pop match

- When multiple matches were found
  - Do nothing
  - Prompt user to select from a list of matches
  - Pop all matches

The following illustrates a single match.



The following illustrates a multiple match list.



---

## Synchronization

You can synchronize all Microsoft Dynamics CRM accounts and contacts to Call Center Elite Multichannel Contact Database by perform the following:

1. Start Call Center Elite Multichannel Desktop.
2. Click **Tools > Options**.
3. On the Options dialog box, click the **Microsoft Dynamics CRM Connector** tab.
4. Click the **Synchronization** tab.
5. Click **Synchronize now**.

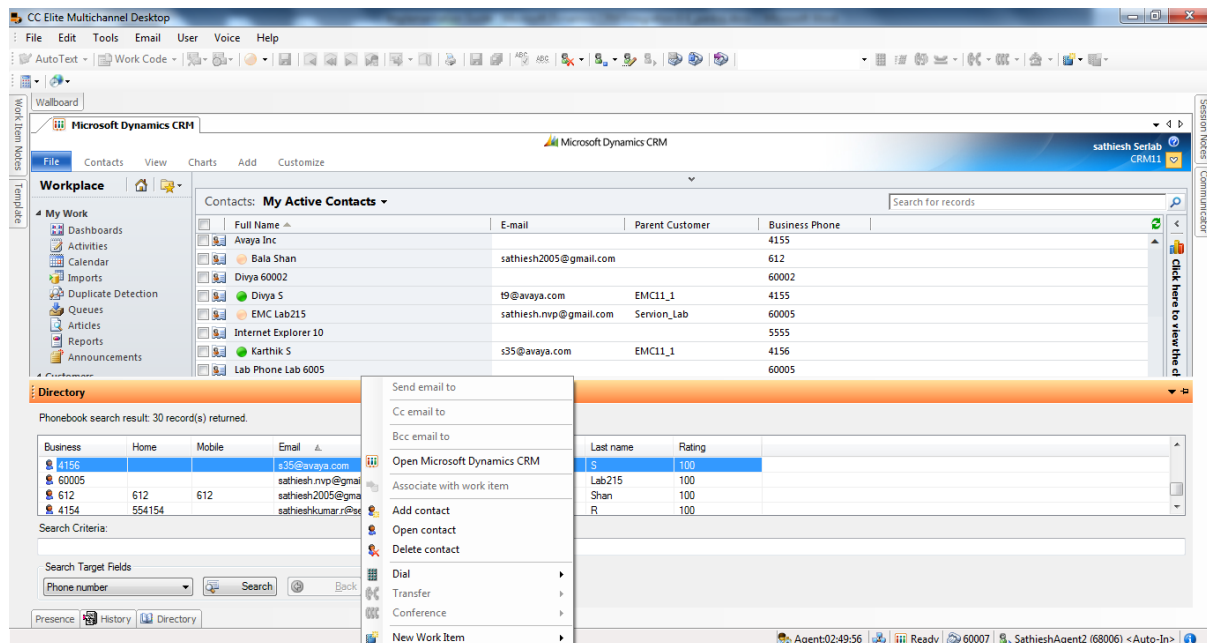
The system updates the contact details in the directory.

This process can take a long time depending on the number of records in Microsoft Dynamics CRM. For example, this process can take 20 minutes to synchronize 70000 records.

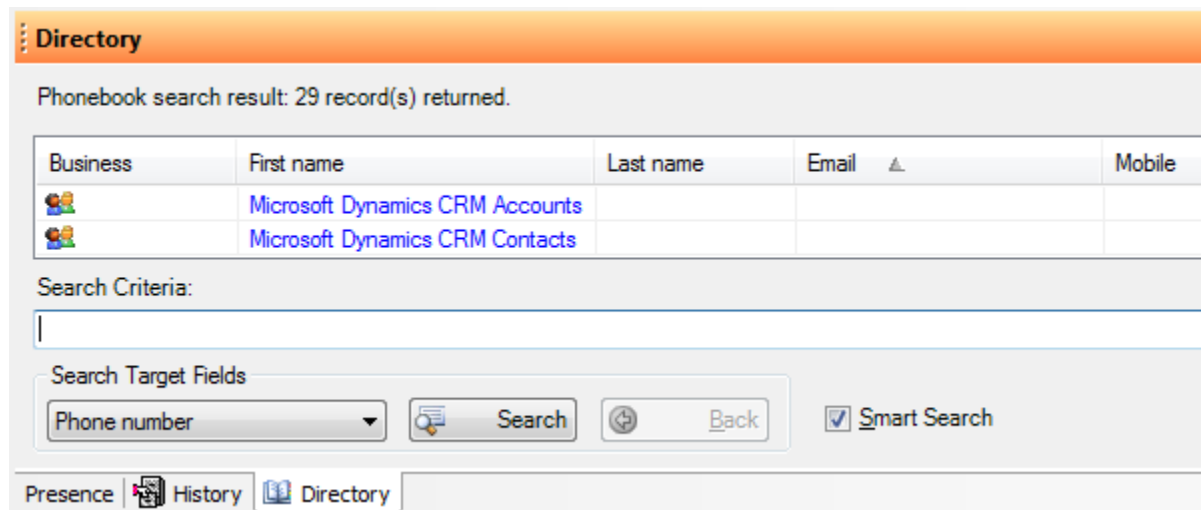
Once all Microsoft Dynamics CRM accounts and Microsoft Dynamics CRM contacts have been synchronized to EMC, further updates occur through the realtime phonebook synchronizer which is installed on the Microsoft Dynamics CRM Server. This component updates the Contact Database in realtime whenever a change in Microsoft Dynamics CRM accounts or Microsoft Dynamics CRM contacts are triggered by Microsoft Dynamics CRM via the Call-out model.

If call-out does not work, the link <http://support.microsoft.com/kb/933842> will assist with troubleshooting.

# Directory



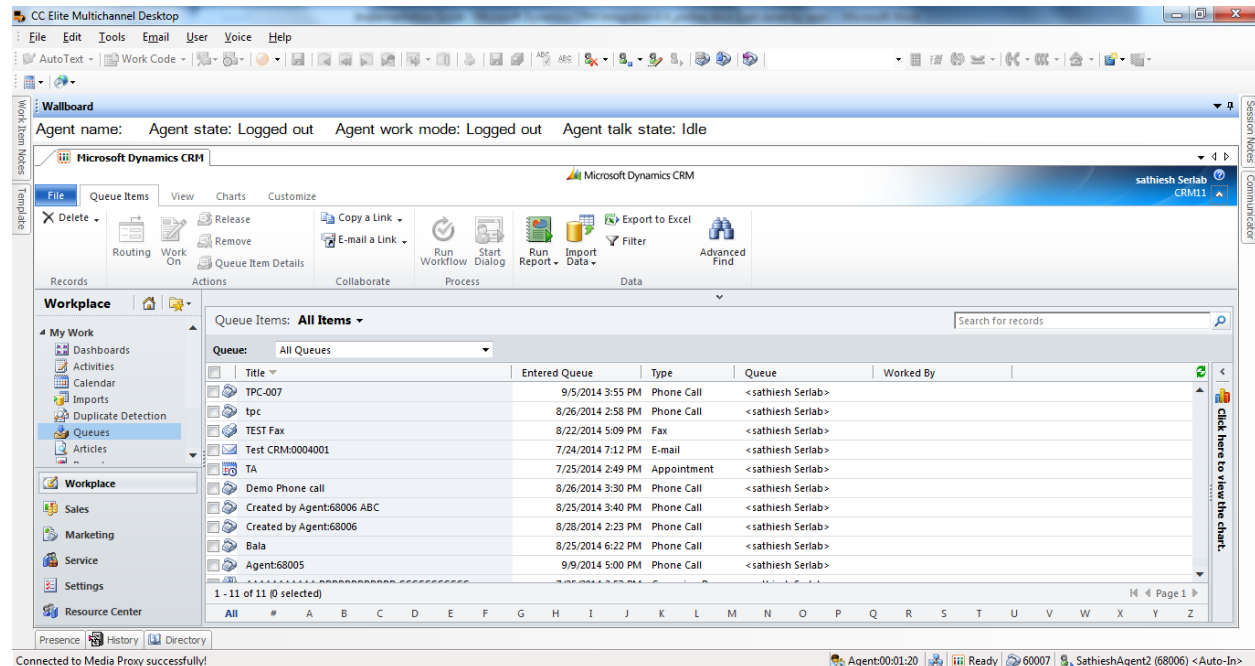
Once contacts are synchronized to EMC, the Directory plug-in can be used to search and open Microsoft Dynamics CRM accounts and Microsoft Dynamics CRM contacts as well enabling all the existing features of the Directory plug-in such as Call Dial and transfer for Microsoft Dynamics CRM records.



Microsoft Dynamics CRM Accounts are grouped as "Microsoft Dynamics CRM Accounts".  
Microsoft Dynamics CRM Contacts are grouped as "Microsoft Dynamics CRM Contacts".

# Receive Microsoft Dynamics CRM Activities

The following figure displays Microsoft Dynamics CRM activities awaiting assignment in a public queue called 'Support'.



Typically users will be trained to manually accept activities, or complicated work flow rules can be in place to appropriately assign work destined for a group or unit of business.

Call Center Elite Multichannel uses Avaya Communication Manager which already encompasses proven technologies to effectively, efficiently and fairly distribute Microsoft Dynamics CRM work according to your desired ACM call flows and skill.

The following Microsoft Dynamics CRM Activities can be work flowed via EMC.

- appointment
- campaign activity
- campaign response
- case (incident)
- email
- fax
- letter
- phone call
- service activity
- task

To work flow Microsoft Dynamics CRM activities, you must create a Preview Contact program and configure the MS CRM Svc Plugin. You can easily create Preview Contact programs using Call Center Elite Multichannel Control Panel. Once a Preview Contact program is created, write down

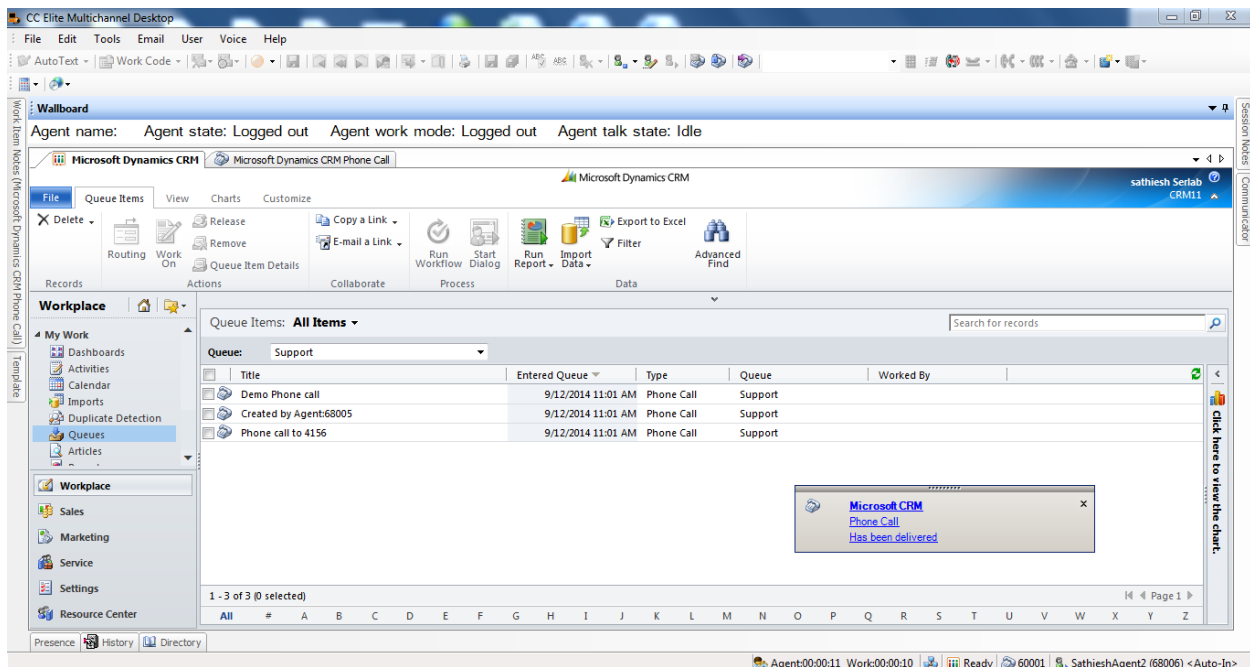


the **ProgramId**. In this example, if the Preview Contact program Id was 'ccd382cd-48af-4d75-80a6-3efa2a5793c7' the **MS CRM Public Queues Workflowed Via CCE** configuration value would be:

**MS CRM Public Queues Workflowed Via CCE** = Support:ccd382cd-48af-4d75-80a6-3efa2a5793c7

To work flow several queues, separate values with a coma.

The following screen shot shows a Microsoft Dynamics CRM phone call activity being delivered to Call Center Elite Multichannel Desktop. The handling and operation of a delivered Microsoft Dynamics CRM activity is similar to receiving a normal Call Center Elite Multichannel work item such as email, preview contact and simple messaging



## Call Center Elite Multichannel Rules

As well as the built-in static options of what to do when an incoming work item arrives, Call Center Elite Multichannel Desktop Rules allows you to create your own custom desktop automation tasks tailored to your environment and needs.

For a complete list of Microsoft Dynamics CRM Rules and Rules Events, refer to the Rules Reference section.

The following rule creates a Microsoft Dynamics CRM phone call when an inbound call is made. The second rule screen pops the newly created phone call.

- **Rule1** = When Voice.WIDelivered And Direction = Incoming Do ReturnEvent MSCRM.Create, entity=phonecall, attributes=phonenumber|directioncode|subject, values=%CallerDN%|false|Subject:%UII %, invokeld=Rule1 Then Continue

- **Rule2** = When MSCRM.CreateCompleted And invokeId=Rule1 Do ReturnEvent MSCRM.Screenpop, entity=%entity%, id=%id%,bringToFront=true Then Continue

# Chapter 5: Rules Reference

## Return Events

### MSCRM.Create

This return event is received from the Call Center Elite Multichannel Desktop Rules Plug-in by the MSCRMGuiPlugin and instructs the MSCRMGuiPlugin to create a new instance of a Microsoft Dynamics CRM entity.

The result can be accessed when MSCRMGuiPlugin completes creating the entity and triggers the MSCRM.CreateCompleted event.

#### Syntax:

Do ReturnEvent MSCRM.Create, entity=account, attributes=telephone1|name, values=%CallerDN%|NewAccount, invokeId=Rule1 Then Continue

#### Supported parameters:

Parameter	Description
<b>entity</b>	MSCRM entity instance to create.
<b>attributes</b>	<p>A pipe delimited string of attributes to be set for this entity instance.</p> <p>For a complete list of attributes for each MSCRM Entity, refer to the MSCRM SDK or navigate to <a href="http://&lt;yourservername&gt;/sdk/list.aspx">http://&lt;yourservername&gt;/sdk/list.aspx</a>.</p> <p>The following example adds three attributes telephone1, telephone2 and telephone3 which are valid attributes for the contact entity.</p> <p>For example, telephone1 telephone2 telephone3.</p>
<b>values</b>	<p>A pipe delimited string of attribute values to be set for this entity instance.</p> <p>Must match the number of attributes specified in "Create Attributes" parameter.</p> <p>The following example sets values for the three attributes telephone1, telephone2 and telephone3</p> <p>For example, +64(9)4770641 +64(21)409965 +64(272)066082.</p>
<b>invokeId</b>	This invoke id is provided for additional filtering if

Parameter	Description
	required, incase rules start to get complicated and overlap each other. MSCRM Rules Event MSCRM.CreateCompleted includes this parameter.

## MSCRM.Lookup

This return event is received from the EMC Desktop rules by the MSCRMGuiPlugin and instructs the MSCRMGuiPlugin to query MSCRM's database adhering to the MSCRM SDK API.

The result of this Lookup can be accessed when MSCRMGuiPlugin completes its look up and triggers the MSCRM.LookupCompleted event.

### Syntax:

Do ReturnEvent MSCRM.Lookup, entity=contact, attributes=telephone1|telephone2|mobilephone, value=%CallerDN%,condition=1, returnMultiples=true, Invokeld=Rule1 Then Continue

### Supported parameters:

Parameter	Description
<b>entity</b>	MSCRM entity to Lookup.
<b>attributes</b>	<p>A pipe delimited string of attributes to lookup.</p> <p>For a complete list of attributes for each MSCRM Entity, refer to the MSCRM SDK or navigate to <a href="http://&lt;yourservername&gt;/sdk/list.aspx">http://&lt;yourservername&gt;/sdk/list.aspx</a>.</p> <p>The following example looks up three attributes telephone1, telephone2 and telephone3 which are valid attributes for the contact entity.</p> <p>For example, telephone1 telephone2 telephone3.</p>
<b>values</b>	The value to lookup. Can be fixed, will typically be one of parameters received from MSCRM trigger events.
<b>condition</b>	<p>Specifies the search condition, available options are:</p> <p>0=Exact, 1=LIKE</p>
<b>returnMultiples</b>	<p>Specifies whether MSCRM.LookupCompleted returns pipe delimited string of matches when multiple matches are found. If disabled only the first match will be returned.</p> <p>This is to cater for external applications who cannot understand pipe delimited string of ids when external applications are triggered on MSCRM.LookupCompleted.</p> <p>false=Disabled, true=Enabled</p>

Parameter	Description
<b>invokeld</b>	This invoke id is provided for additional filtering if required, incase rules start to get complicated and overlap each other. MSCRM Rules Event MSCRM.LookupCompleted includes this parameter.

---

## MSCRM.Retrieve

This return event is received from the EMC Desktop rules by the MSCRMGuiPlugin and instructs the MSCRMGuiPlugin to retrieve a MSCRM entity instance.

The result of this Retrieve can be accessed when MSCRMGuiPlugin completes its Retrieve and triggers the MSCRM.RetrieveCompleted event.

### Syntax:

Do ReturnEvent MSCRM.Retrieve, entity=contact, id=9A24C8F0-A258-DB11-BD2E-000C2928CAD3, Invokeld=Rule1 Then Continue

### Supported parameters:

Parameter	Description
<b>entity</b>	MSCRM entity to Retrieve.
<b>id</b>	The id of the entity instance to retrieve.
<b>invokeld</b>	This invoke id is provided for additional filtering if required, incase rules start to get complicated and overlap each other. MSCRM Rules Event MSCRM.RetrieveCompleted includes this parameter.

---

## MSCRM.Screenpop

This return event is received from the EMC Desktop rules by the MSCRMGuiPlugin and instructs the MSCRMGuiPlugin to screenpop a MSCRM entity instance.

### Syntax:

Do ReturnEvent MSCRM.Screenpop, entity=contact, id=9A24C8F0-A258-DB11-BD2E-000C2928CAD3, bringToFront=true Then Continue

### Supported parameters:

Parameter	Description
<b>entity</b>	MSCRM entity to screenpop.
<b>id</b>	The id of the entity instance to screenpop.
<b>bringToFront</b>	True or False. Whether to bring the screenpopped

Parameter	Description
	document window to the front or not.

## Events

### MSCRM.CreateCompleted

The MSCRMGuiPlugin fires this event to the EMC Desktop Rules when MSCRM.Create is completed.

**Syntax:**

When MSCRM.CreateCompleted And invokeld=Rule1 Do ReturnEvent MSCRM.Screenpop, entity=%entity%, id=%id%,bringToFront=true Then Continue

**Supported parameters:**

Parameter	Description
<b>entity</b>	MSCRM entity that has been created.
<b>id</b>	The id of the entity instance which has been created.
<b>invokeld</b>	This invoke id is provided for additional filtering if required, incase rules start to get complicated and overlap each other. MSCRM Rules Return Event MSCRM.Create includes this parameter.

### MSCRM.LookupCompleted

The MSCRMGuiPlugin fires this event to the EMC Desktop Rules when MSCRM.Lookup is completed.

**Syntax:**

When MSCRM.LookupCompleted And invokeld=Rule1 Do ReturnEvent MSCRM.Screenpop, entity=%entity%, id=%id%,bringToFront=true Then Continue

**Supported parameters:**

Parameter	Description
<b>entity</b>	Lookup has been completed on this MSCRM entity.
<b>id</b>	Unique identifier (GUID) of the resulting entity. When no match found, blank is returned. When multiple matches are found, a pipe delimited list is returned.

Parameter	Description
	1F8B6FC0-426A-4122-BAC2-A05B6071FC57 DFE86B44-26E2-4c4e-90C5-63DEC7603927  <b>Note:</b> If returnMultiples of return event MSCRM.Lookup was set to false (disabled), only one id will be returned even if multiple matches were found. This is to cater for external applications who cannot understand pipe delimited string of ids.
<b>invokeld</b>	This invoke id is provided for additional filtering if required, incase rules start to get complicated and overlap each other. MSCRM Rules Return Event MSCRM.Lookup includes this parameter.  Initially this parameter is limited to use in a static manner. Dynamically incrementing and associating the Invokeld may be desirable in future releases if required.
<b>matchCount</b>	Count of the number of matches.  For example, 0 or 1 or 2 etc.

## MSCRM.RetrieveCompleted

The MSCRMGuiPlugin fires this event to the EMC Desktop Rules when MSCRM.Retrieve is completed.

All attributes (including custom attributes) of the retrieved Microsoft Dynamics CRM entity instance are returned and made available.

### Syntax:

When MSCRM.RetrieveCompleted And invokeld=Rule1

### Supported parameters:

Parameter	Description
<b>entity</b>	Retrieve has been completed on this MSCRM entity.
<b>invokeld</b>	This invoke id is provided for additional filtering if required, incase rules start to get complicated and overlap each other. MSCRM Rules Return Event MSCRM.Retrieve includes this parameter.  Initially this parameter is limited to use in a static manner. Dynamically incrementing and associating the Invokeld may be desirable in future releases if required.
<b>All attributes of the Retrieved entity.</b>	The number of attributes will be different for each Microsoft Dynamics CRM entity.

Parameter	Description
	MSCRM.RetrieveCompleted Return Event will return all attributes including custom attributes of the retrieved entity instance.

---

## MSCRM.Appointment.ActivityDelivered

The MSCRMGuiPlugin fires this event to EMC Desktop Rules when a MSCRM appointment activity is delivered to the desktop.

All attributes (including custom attributes) of the MSCRM appointment activity are returned and made available.

### Syntax:

When MSCRM.Appointment.ActivityDelivered

### Supported parameters:

Parameter	Description
<b>All attributes of the of the MSCRM appointment activity (including custom attributes).</b>	The number of attributes can be different based on the customizations of your Microsoft Dynamics CRM implementation.

**Note:** For a full list of attributes for each entity, refer to the Microsoft Dynamics CRM Entity reference available at <http://YourMSCRMServer/sdk/list.aspx>.

---

## MSCRM.CampaignActivity.ActivityDelivered

The MSCRMGuiPlugin fires this event to EMC Desktop Rules when a MSCRM campaign activity is delivered to the desktop.

All attributes (including custom attributes) of the MSCRM campaign activity are returned and made available.

### Syntax:

When MSCRM.CampaignActivity.ActivityDelivered

### Supported parameters:

Parameter	Description
<b>All attributes of the of the MSCRM campaign activity (including custom attributes).</b>	The number of attributes can be different based on the customizations of your Microsoft Dynamics CRM implementation.

**Note:** For a full list of attributes for each entity, refer to the Microsoft Dynamics CRM Entity reference available at <http://YourMSCRMServer/sdk/list.aspx>.



---

## MSCRM.CampaignResponse.ActivityDelivered

The MSCRMGuiPlugin fires this event to EMC Desktop Rules when a MSCRM campaign response activity is delivered to the desktop.

All attributes (including custom attributes) of the MSCRM campaign response activity are returned and made available.

### Syntax:

When MSCRM.CampaignResponse.ActivityDelivered

### Supported parameters:

Parameter	Description
<b>All attributes of the of the MSCRM campaign response activity (including custom attributes).</b>	The number of attributes can be different based on the customizations of your Microsoft Dynamics CRM implementation.

**Note:** For a full list of attributes for each entity, refer to the Microsoft Dynamics CRM Entity reference available at <http://YourMSCRMServer/sdk/list.aspx>.

---

## MSCRM.Case.IncidentDelivered

The MSCRMGuiPlugin fires this event to EMC Desktop Rules when a MSCRM case incident is delivered to the desktop.

All attributes (including custom attributes) of the MSCRM case incident are returned and made available.

### Syntax:

When MSCRM.Case.IncidentDelivered

### Supported parameters:

Parameter	Description
<b>All attributes of the of the MSCRM case incident (including custom attributes).</b>	The number of attributes can be different based on the customizations of your Microsoft Dynamics CRM implementation.

**Note:** For a full list of attributes for each entity, refer to the Microsoft Dynamics CRM Entity reference available at <http://YourMSCRMServer/sdk/list.aspx>.

---

## MSCRM.Email.ActivityDelivered

The MSCRMGuiPlugin fires this event to EMC Desktop Rules when a MSCRM email activity is delivered to the desktop.

All attributes (including custom attributes) of the MSCRM email activity are returned and made available.

**Syntax:**

When MSCRM.Email.ActivityDelivered

**Supported parameters:**

Parameter	Description
<b>All attributes of the of the MSCRM email activity (including custom attributes).</b>	The number of attributes can be different based on the customizations of your Microsoft Dynamics CRM implementation.

**Note:** For a full list of attributes for each entity, refer to the Microsoft Dynamics CRM Entity reference available at <http://YourMSCRMServer/sdk/list.aspx>.

---

## MSCRM.Fax.ActivityDelivered

The MSCRMGuiPlugin fires this event to EMC Desktop Rules when a MSCRM fax activity is delivered to the desktop.

All attributes (including custom attributes) of the MSCRM fax activity are returned and made available.

**Syntax:**

When MSCRM.Fax.ActivityDelivered

**Supported parameters:**

Parameter	Description
<b>All attributes of the of the MSCRM fax activity (including custom attributes).</b>	The number of attributes can be different based on the customizations of your Microsoft Dynamics CRM implementation.

**Note:** For a full list of attributes for each entity, refer to the Microsoft Dynamics CRM Entity reference available at <http://YourMSCRMServer/sdk/list.aspx>.

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## MSCRM.Letter.ActivityDelivered

The MSCRMGuiPlugin fires this event to EMC Desktop Rules when a MSCRM letter activity is delivered to the desktop.

All attributes (including custom attributes) of the MSCRM letter activity are returned and made available.

**Syntax:**

When MSCRM.Letter.ActivityDelivered

**Supported parameters:**

Parameter	Description
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Parameter	Description
<b>All attributes of the of the MSCRM letter activity (including custom attributes).</b>	The number of attributes can be different based on the customizations of your Microsoft Dynamics CRM implementation.

**Note:** For a full list of attributes for each entity, refer to the Microsoft Dynamics CRM Entity reference available at <http://YourMSCRMServer/sdk/list.aspx>.

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## MSCRM.PhoneCall.ActivityDelivered

The MSCRMGuiPlugin fires this event to EMC Desktop Rules when a MSCRM phonecall activity is delivered to the desktop.

All attributes (including custom attributes) of the MSCRM phonecall activity are returned and made available.

### Syntax:

When MSCRM.PhoneCall.ActivityDelivered

### Supported parameters:

Parameter	Description
<b>All attributes of the of the MSCRM phonecall activity (including custom attributes).</b>	The number of attributes can be different based on the customizations of your Microsoft Dynamics CRM implementation.

**Note:** For a full list of attributes for each entity, refer to the Microsoft Dynamics CRM Entity reference available at <http://YourMSCRMServer/sdk/list.aspx>.

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## MSCRM.ServiceActivity.ActivityDelivered

The MSCRMGuiPlugin fires this event to EMC Desktop Rules when a MSCRM service activity is delivered to the desktop.

All attributes (including custom attributes) of the MSCRM service activity are returned and made available.

### Syntax:

When MSCRM.ServiceActivity.ActivityDelivered

### Supported parameters:

Parameter	Description
<b>All attributes of the of the MSCRM service activity (including custom attributes).</b>	The number of attributes can be different based on the customisations of your Microsoft Dynamics CRM implementation.

**Note:** For a full list of attributes for each entity, refer to the Microsoft Dynamics CRM Entity reference available at <http://YourMSCRMServer/sdk/list.aspx>.

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## MSCRM.Task.ActivityDelivered

The MSCRMGuiPlugin fires this event to EMC Desktop Rules when a MSCRM task activity is delivered to the desktop.

All attributes (including custom attributes) of the MSCRM task activity is returned and made available.

### Syntax:

When MSCRM.Task.ActivityDelivered

### Supported parameters:

Parameter	Description
<b>All attributes of the of the MSCRM task activity (including custom attributes).</b>	The number of attributes can be different based on the customisations of your Microsoft Dynamics CRM implementation.

**Note:** For a full list of attributes for each entity, refer to the Microsoft Dynamics CRM Entity reference available at <http://YourMSCRMServer/sdk/list.aspx>.