RAP as a Service for Dynamics CRM

Prerequisites

Download the latest prerequisites from:
http://www.microsoft.com/en-us/download/details.aspx?id=34698

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Internet connectivity is needed to:

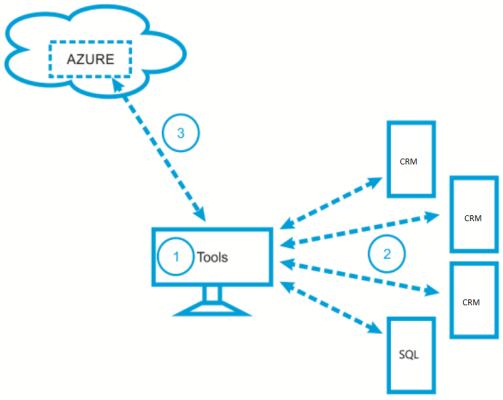
- *Access the Rap as a Service (RaaS) portal.*
- *Activate your account.*
- *Download the toolset.*
- *Submit data.*

Data submission to Microsoft online servers and displaying your results on the online portal uses encryption to help protect your data. Your data is analyzed using our RAP expert system.

How to prepare for your RAP as a Service for Dynamics CRM.

The *Tools* machine is used to connect to each of your Dynamics CRM servers and SQL servers in the Dynamics CRM Deployment and retrieves information from them, communicating over Remote Procedure Call (RPC), Server Message Block (SMB), and Distributed Component Object Model (DCOM).

Once the data is collected, the Tools machine is used to upload the data to the Microsoft Premier Services assessment app, which requires HTTPS connectivity to certain sites.



At a high level, your steps to success are:

1. **Install prerequisites** on your Tools machine and configure your environment
2. **Collect data** from your Dynamics CRM Servers
3. **Submit the data** to Microsoft Premier Services for assessment

A checklist of prerequisite actions follows. Each item links to any additional software required for the Tools machine, and detailed steps included later in this document.

Checklist

Please ensure the following items have been completed before accessing the RAP as a Service (RaaS) Portal for the first time and starting your engagement.

1. General Use

- ☐ A Microsoft Account is required to activate and sign in to the RaaS portal.
  If you do not have one already, you can create one at http://login.live.com
  - To learn more about Microsoft Accounts, see: http://windows.microsoft.com/en-US/windows-live/sign-in-what-is-microsoft-account
- ☐ Ensure access to https://services.premier.microsoft.com
- ☐ Ensure the Internet browser on the data collection machine has JavaScript enabled.
  Follow the steps listed at How to enable scripting in your browser.
  Internet Explorer 9, Internet Explorer 10 and Internet Explorer 11 are the supported browsers for this offering. Most other modern HTML5 based browsers will also work.
- ☐ The site https://ppas.uservoice.com provides access to the Support Forum and Knowledge

Base Articles for RAP as a Service (RaaS)

2. Activation

- ☐ Ensure access to http://corp.sts.microsoft.com
- ☐ Ensure access to http://live.com

3. Data Collection

a. Tools machine hardware and Operating System:
   - ☐ Server-class or high-end workstation machine running Windows Vista/Windows7/Windows8, or Windows Server 2008/Windows Server 2008 R2/Windows Server 2012.
     Note: Windows XP and Windows Server 2003 are not supported as Tools machines.
   - ☐ Minimum: 4GB RAM, 2Ghz dual-core processor and at least 5 GB of free disk space.
   - ☐ Joined to one of the domain of the Dynamics CRM environment to be assessed.
   - ☐ The IIS version on the tools machine must be equal or higher than the IIS version on the CRM servers.

b. Software for Tools machine:
   - ☐ Microsoft .NET Framework 4.0 or higher installed.
   - ☐ Windows PowerShell 2.0 or later installed
   - ☐ Log Parser 2.2 installed.
   - ☐ IIS Management Scripts and Tools installed
   - ☐ Tools machine must be up to date with no pending reboots required.

c. Account Rights:
   - ☐ Member of the local Administrators group on all servers in the Dynamics CRM environment and on the tools machine.
   - ☐ Administrator permissions to the Dynamics CRM SQL server instance.
   - ☐ Administrator access to all Dynamics CRM servers.
   - ☐ Member of the System Administrator role in Dynamics CRM.
   - ☐ Logged on with a domain account on the tools machine.
   - ☐ The domain account used to collect requires SQL sysadmin privileges on the database instance.

d. Additional Requirements for Windows Server 2008 Servers (and later):
   - ☐ Configure all Dynamics CRM server firewalls for “Remote Event Log Management” (Firewall rules are covered in the “Unrestricted network access to the target servers in the Dynamics CRM environment” section)

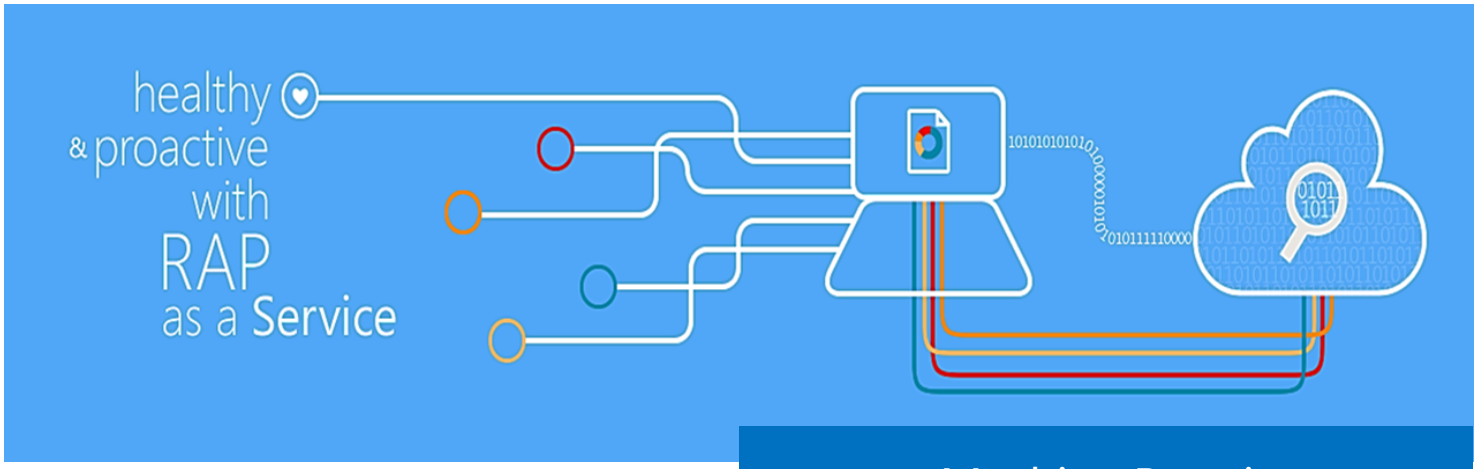
The Appendix Data Collection Methods details the methods used to collect data.

4. Submission

- ☐ Internet connectivity is required to submit the collected data to Microsoft.
- ☐ Ensure access to *.accesscontrol.windows.net
  this URL is used to authenticate the data submission before accepting it.

The rest of this document contains detailed information on the steps discussed above.

Once you have completed these prerequisites, you are ready to use the RAP as a Service Portal to begin your assessment.



Machine Requirements and Account Rights

1. Hardware and Software

Server-class or high-end workstation computer equipped with the following:

- Minimum single 2Ghz processor — Recommended dual-core/multi-core 2Ghz or higher processors.
- Minimum 4 GB RAM—Recommended 8 GB RAM.
- Minimum 5 GB of free disk space.
- Windows Vista, Windows 8, Windows 7, Windows Server 2012, or Windows Server 2008/Windows Server 2008 R2. Windows XP and Windows Server 2003 are not supported as a data collection machine.

  ***Note**: To successfully gather Performance data, ensure the data collection machine's Operating System (OS) matches, or is a higher version of the highest versioned OS target machine used within the environment. Typically, this means that Windows 8 or Windows Server 2012 is acceptable to use.*
- Can be 32-bit or 64-bit operating system.
- At least a 1024x768 screen resolution (higher preferred).
- A member of the same domain as the Dynamics CRM servers or a member of a trusted domain.
- Microsoft® .NET Framework 4.0 (or higher).— http://www.microsoft.com/en-us/download/details.aspx?id=17851
- Networked "Documents" or redirected "Documents" folders are not supported. Local "Documents" folder on the data collection machine is required.

Internet connectivity is needed in order to complete this RAP as a Service offering

You will require access to the following sites and URLs:

For general use:
https://services.premier.microsoft.com

For token activation and authentication:
http://corp.sts.microsoft.com.
http://live.com

For data collection:
http://go.microsoft.com

For data submission
https://services.premier.microsoft.com
https://.windows.net*
https://ajax.aspnetcdn.com
https://telerik-aspnet-scripts.s3.amazonaws.com

Note: Some of these URLs cannot be opened using a web browser.

Review the article below for complete information regarding these URLs:
https://ppas.uservoice.com/knowledgebase/articles/120616-what-do-i-need-to-open-in-my-firewall-proxy-to-use

2. Accounts Rights

- A domain account with the following:
  - Local administrator permissions on the tools machine and to all Dynamics CRM servers to be assessed.
  - Administrative access to the SQL server instances (member of SysAdmin Role).
  - Member of the System Administrator role in Dynamics CRM.
  - Unrestricted network access from the tools machine to all servers.
  - Logon on the tools machine using a domain account that is also part of the local administrator group.

  WARNING: Do not use the "Run As" feature to start RaaSClient.exe. Some collectors might fail. The account starting the RaaS client must logon to the local machine.

- A Windows Live ID for each user account to logon to the Premier Proactive Assessment Services portal (https://services.premier.microsoft.com). This is the RAP as a Service portal where you will activate your access token, download the toolset and fill out the operational survey. This is also the URL that hosts the web service that coordinates the data submission.
  - If you do not have one, you can create one at http://login.live.com.
  - Contact your TAM if the token in your Welcome Email has expired or can no longer be activated. Tokens expire after ten days. Your TAM can provide new activation tokens for additional people.

3. Network and Remote Access

- Ensure that the browser on the Tools machine or the machine from where you activate, download and submit data has JavaScript enabled. Follow the steps listed at How to enable scripting in your browser.

- Internet Explorer is the recommended browser for a better experience with the portal. Ensure Internet Explorer Enhanced Security Configuration (ESC) is not blocking JavaScript on sites. A workaround would be to temporary disable Internet Explorer ESC when accessing the https://services.premier.microsoft.com portal.
  - Additional information regarding Internet Explorer Enhanced Security Configuration can be found here: http://support.microsoft.com/kb/815141

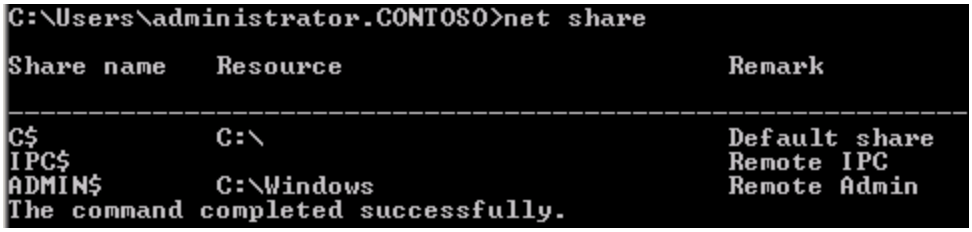
The other following pre-reqs are required on the target servers in the Dynamics CRM environment and / or on the tools machine:

☐ **Verify that the following services are running on each Dynamics CRM and SQL server in the Dynamics CRM environment**
- From an elevated cmd prompt run "**net start**" command on all servers.
- Check that the following services are listed as started:
  - Performance Logs and Alerts
  - Remote Procedure Call (RPC)
  - Remote Registry
  - Server
  - Windows Management Instrumentation
  - Workstation

- If these services are not listed, ensure they are started prior to starting data collection else data collection may fail.
- Windows Management Instrumentation (WMI) is a key service to ensure it is started and functioning correctly between the tools machine and each server. To validate that this connectivity is working, use the Windows built in command "wbmtest" to connect to the following namespaces:
    - \\ServerName\root\CIMv2
    - \\ServerName\root\WebAdministration
        - If you receive an RPC error when trying to connect, it means RPC ports are not available between the Tools machine and the target server. Verify there are not firewall rule preventing this connection.
        - If you receive an access denied error, the user does not have appropriate permissions to the target servers.

***Note**: If you are not familiar with using "wbmtest" please see the Appendix section for guidance.*

☐ **Verify that "File and Printer Sharing for Microsoft Networks" is enabled** on the target servers
☐ **Verify that** the **time on all the servers** are **in sync with tools machine**.
☐ **Verify that the administrative shares are available on all servers:**



- On each CRM server run from a cmd prompt the following command: "**net share**" .
- The "Remote Admin" share should be present a below:

- From tools machine try opening the shares remotely:
    - \\crmserver\Admin$
    - \\crmserver\IPC$
    - \\crmserver\C$
- Ensure that the above shares are accessible before starting data collection else data collection may fail. Firewall rules may cause the access to be denied.

☐ **Install (if not yet installed) IIS Management Scripts and Tools on each target Dynamics CRM server & tools machine**

- First, Backup your IIS configuration for additional information on how to create an IIS backup configuration you may refer to: http://support.microsoft.com/kb/954872
- Open Server Manager by selecting Start -> Administrative Tools - > Server Manager.
- Right-click the Web Server (IIS) role, select "Add Role Services".
- Select the "**IIS Management Scripts and Tools**".
- Click "Install".
- Click "Close".
- Perform an IIS configuration backup after change.

☐ **Install (if not yet installed) IIS Logging tools and components on each Dynamics CRM server** (this is the default and recommended setting).

***Note**: It is important that prior and after performing any IIS configuration change to make sure IIS configuration backups are performed using the "**appcmd add backup**" command. While the expected impact of this changes in terms of*

workload is minimal we recommend checking that enough disk space is available on the server (on busy Dynamics CRM servers a daily IIS log file may take up to a gigabyte). We also recommend applying this change during non-peak load hours.

- If IIS logging has been turned off , this setting needs to be turned back on for collection and logs analysis.
    - First, Backup your IIS configuration for additional information on how to create an IIS backup configuration you may refer to: http://support.microsoft.com/kb/954872
    - On each Dynamics CRM Windows Server running IIS:
        - Open Server Manager by selecting Start -> Administrative Tools - > Server Manager.
        - Right-click the Web Server (IIS) role, select "Add Role Services".
        - Select the "**HTTP Logging**" and "**Logging tools**".
        - Click "Install".
        - Click "Close".
- By default IIS7 and higher has turned on all the required fields needed. On a default IIS install no additional changes are required. However if the servers has been harden the following fields are required and must be enabled for collection and analysis to complete successfully.

    IISW3C: sc-status, cs-uri-stem, date, time, time-taken

    HTTPErr/http.sys: s-reason (Reason Phrase)

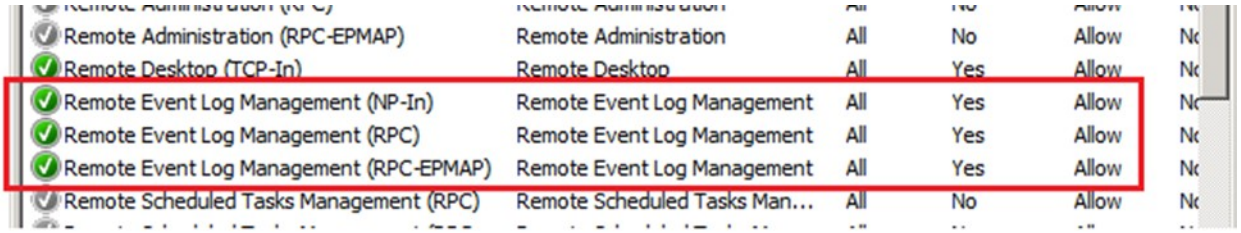
- For additional information you may refer to the following articles:
    - "Enable or Disable Logging (IIS 7)" available here : http://technet.microsoft.com/en-us/library/cc754631(v=ws.10).aspx
    - "Select W3C Fields to Log (IIS 7)" available here : http://technet.microsoft.com/en-us/library/cc754702(v=WS.10).aspx
    - "The HTTP status code in IIS 7.0, IIS 7.5, and IIS 8.0" available here : http://support.microsoft.com/kb/943891
    - "Error logging in HTTP APIs" available here : http://support.microsoft.com/kb/820729/

☐ **Verify IIS Logs are available**

- The RaaS client will attempt to collect log files from the Dynamics CRM web sites and will be attempting to collect the actual ".log" file. If the IIS log files are not present, the associated collectors will fail. If IIS logging has just recently been enabled, wait to run the data collection until log files are present in the logging directory.
- IIS Log Directory must contain ".log" files at the time of Discovery else collectors may fail and Discovery may need to be rerun.

☐ **Unrestricted network access to the target servers in the Dynamics CRM environment**

- This means access through any firewalls, and router ACLs that might be limiting traffic to any Dynamics CRM servers. This includes remote access to DCOM, Remote Registry service, WMI services, and default administrative shares (C$, D$, IPC$).
  - Common ports are 135 (RPC), 139, (Netbios) 445 (SMB)
- Ensure that the machine you use to collect data has complete TCP / UDP access, including RPC access to all servers
- Configure the server firewall to ensure all Dynamics CRM servers running Windows Server 2008/R2 and higher have "Remote Event Log Management" enabled. RAP as a Service Client might be unable to collect event log information from a Windows Server 2008/R2 or higher servers if "Remote Event Log Management" has not been allowed. When "Remote Management" is enabled, the rules that allow Remote Event Log Management are also enabled.
- Configure the server firewall to ensure RPC dynamic port range will go through your firewalls as this has been changed since Vista (Windows Server 2008) and higher as described in this article: "The default dynamic port range for TCP/IP has changed in Windows Vista and in Windows Server 2008" (http://support.microsoft.com/kb/929851).



- To test if the tool will be able to collect event log data from a Windows Server 2008 R2 server, you can try to connect to the Windows Server 2008/R2 server using eventvwr.msc. If you are able to connect, collecting event log data is possible. If the remote connection is unsuccessful you may need to enable the Windows built-in firewall to allow "Remote Event Log Management".

☐ **Verify WMI repository** is consistent on all servers and on the tools machine.

- From an elevated command prompt run the following command:

  cmd /C winmgmt.exe /verifyrepository.

  - The expected successful output result is the following on each machine: "*WMI repository is consistent*".
  - If WMI returns error messages, be aware that they may not indicate problems in the WMI service or in WMI providers. Failures can originate in other parts of the operating system and emerge as errors through WMI. Under any circumstances, ***do not delete the WMI repository as a first action*** because deleting the repository can cause damage to the system or to installed applications. See this article for troubleshooting assistance: http://msdn.microsoft.com/en-us/library/aa394525(v=vs.85).aspx

☐ The **tools machine should have all .NET libraries NGened** in order to perform data collection. For additional information you may refer to: http://msdn.microsoft.com/library/6t9t5wcf(v=VS.80).aspx

- Log on the tools machine using an account with local administrator rights. From an elevated command prompt run the following command:
- On x64 OS: "cd C:\Windows\Microsoft.NET\Framework64\v4.0.30319"
- On x86 OS: "cd C:\Windows\Microsoft.NET\Framework\v4.0.30319"
- Then execute the following command: "**ngen executeQueuedItems**"
- In some cases it might be required to re ran the "ngen executeQueuedItems" command several times While the

utility runs you might see some warning or errors.

Re run this command until you get the following message:
"**All compilation targets are up to date.**"

If after several runs Ngen is still not able to compile successfully native image for the system then verify that Windows Updates are applied to this system and consider opening a Microsoft support case for the tools machine as all .NET images should be Ngened correctly for optimal performance of the RaaS client.

☐ **Energy Power Settings** on the tools machine should not go to sleep or log off the user during the data collection period. The data collection may take up to six hours.

- From Control Panel\Hardware\Power Options\Edit Plan Settings review the power policy in place in order that the computer does not go into sleep mode during data collection.
- For additional information you may refer to the article: "Session Time Limits" : http://technet.microsoft.com/en-us/library/cc753112(v=WS.10).aspx

Appendix A: Data Collection Methods

RAP as a Service for Active Directory (RaaS AD) uses multiple data collection methods to collect information. This section describes the methods used to collect data from an Active Directory environment. No VB scripts are used to collect data. Data collection uses workflows and collectors. The collectors are:

1. Registry Collectors
2. Data File Collectors
3. Event Log Collectors
4. Log Parser Collectors
5. Performance Collectors
6. SQL Collectors
7. Windows Management Instrumentation (WMI) Collectors
8. Custom Code Collectors

1. Registry Collectors

Registry keys and values are read from servers in scope of the Dynamics CRM RaaS. They include items such as :

- Dynamics CRM configuration information from HKEY_LOCAL_MACHINE\SOFTWARE\Microsoft\MSCRM

  This allows us to determine if Dynamics CRM tracing is enabled, the roles installed on the server and if any registry keys have been added or modified that may affect the performance or stability of Dynamics CRM.
- Operating System information from HKLM\SOFTWARE\Microsoft\Windows NT\CurrentVersion

  This allows to determine Operation System information such as Windows Server 2003, 2008 or 2012.

2. Data File Collectors

Enumerates files in a folder on a remote machine, and optionally retrieves those files. An example is collecting Windows Error Reporting (WER) information from the Dynamics CRM servers from a registry location:

- C:\PROGRAMDATA\Microsoft\Windows\WER

3. Event Log Collectors

Collects event logs from servers in scope of the Dynamics CRM RaaS. We collect the last 7 days of Warnings and Errors from

4. Log Parser Collectors

Collects information related to IIS Logs on the Dynamics CRM servers. They include items such as:

- IIS Log Statistics: select sc-status, count(*) as hits.
- Dynamic Content Hits: select TO_LOCALTIME(QUANTIZE(time,3600)) AS Hour, count(*) as hits.

5. Performance Collectors

Collects Key Performance Indicators from your Dynamics CRM environment. They include items such as:

- % Processor Time.
- Avg. Disk sec / Read & writes.
- Total Operations Failed (Dynamics CRM Async Service)
- SQL Page life expectancy
- Windows Pages/seconds

6. SQL Collectors

Database information from the SQL Servers that support the Dynamics CRM environment. They include items such as:

- Number of rows in the AsyncOperationBase Table
- Build version of the Dynamics CRM Databases
- Dynamics CRM Configuration information from the DeploymentProperties Table

7. Windows Management Instrumentation (WMI)

WMI is used to collect various information such as:

- WIN32_Service
  - Collects information on services that are running on the servers in scope of the Dynamics CRM RaaS. The information is used to evaluate the service that is starting and running various services on the servers.
- Win32_OperatingSystem
  - Collects information about the Operating System deployed to evaluate if it is supported by Dynamics CRM, as an example.

8. Custom Code Collectors

Collects information not captured using other collectors. As an example:

- Collect information about the SQL Reporting Services that supports the Dynamics CRM environment including the version and SSRS Virtual Directory Report Manager.

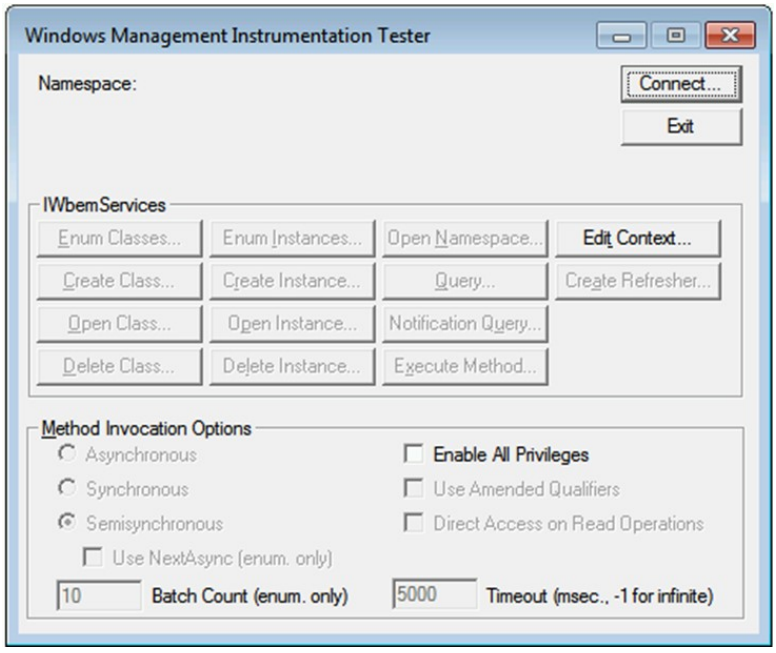
Appendix B: Using WBEMTEST to validate WMI connectivity

Use the Windows built in command “wbmtest” to verify that each server can be reached from the tools machine. The namespaces we want to test connectivity to are:

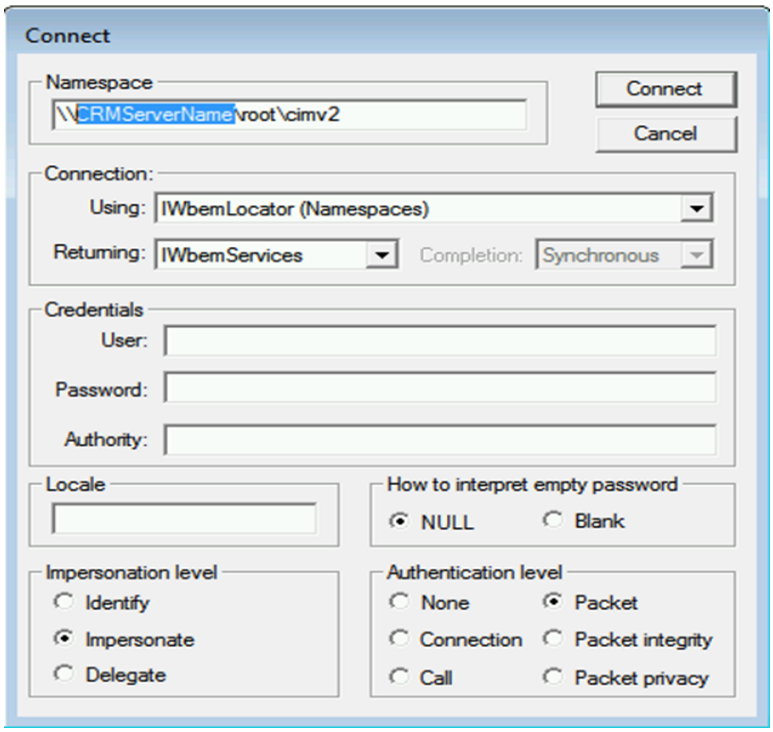
- *CRMServerName*\root\CIMv2
- *CRMServerName*\root\WebAdministration

⇒ Start **wbemtest** from an elevated cmd prompt

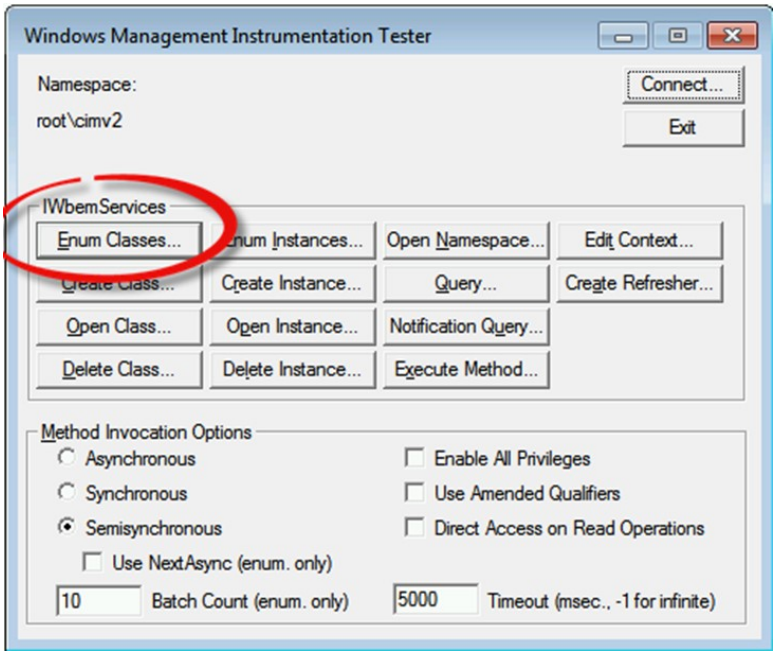
⇒ Click “Connect”



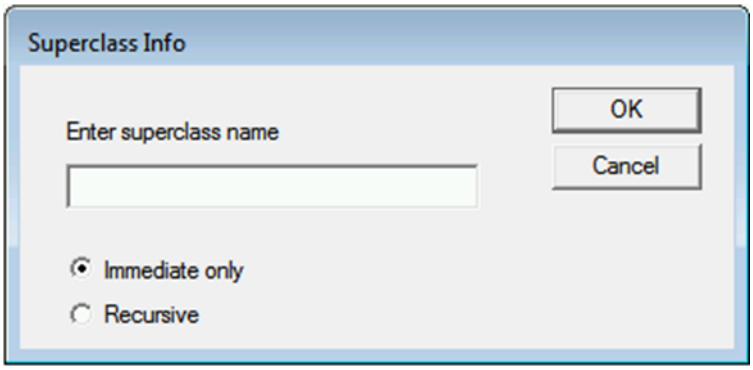
⇒ In the Namespace enter the first Dynamics CRM server name as follows and then click “Connect”



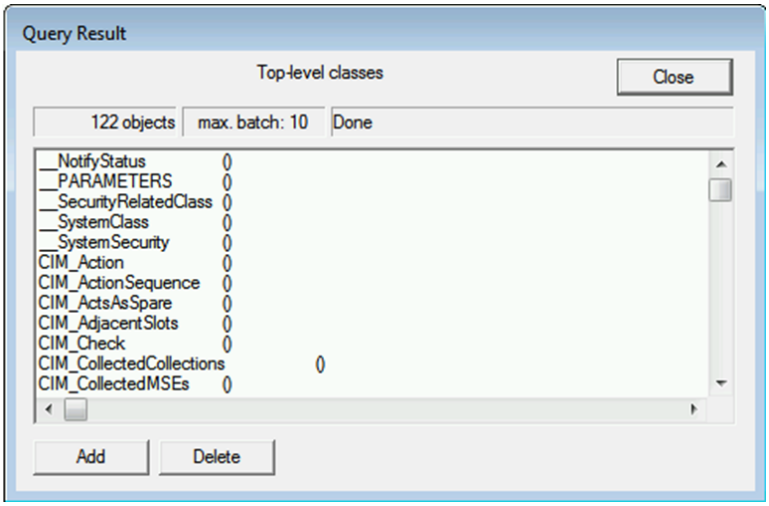
⇒ Then click on “Enum Classes…”



⇒ Press the “OK” button with all default settings.



⇒ If successful this test should return Top-level classes such as here.



⇒ Then click “Close” and then “Exit”.

⇒ Repeat the step for WebAdministration name space