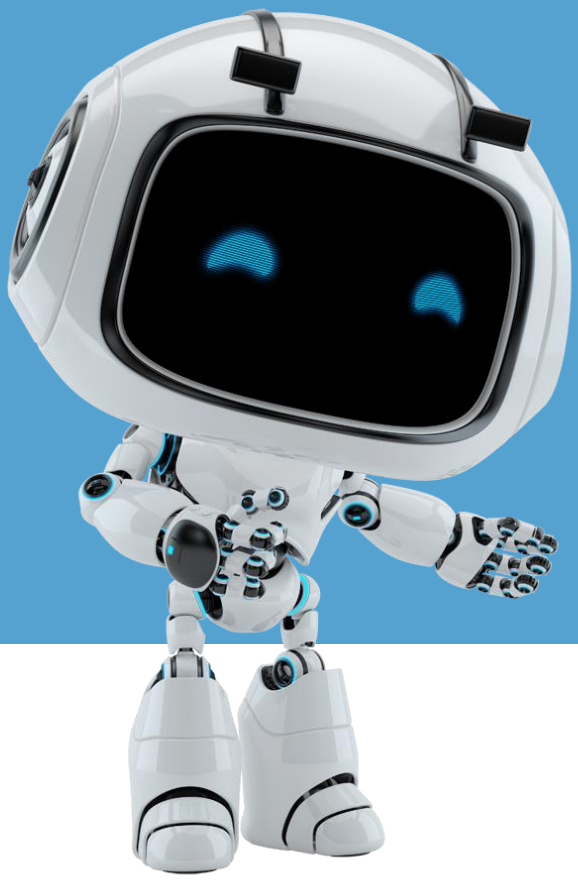
UiPath

Robotic Process



Orchestrator Installation Guide

Revision History

Date	Version	Author	Description
1st June 2016	2016.1	M.B.	Applied template

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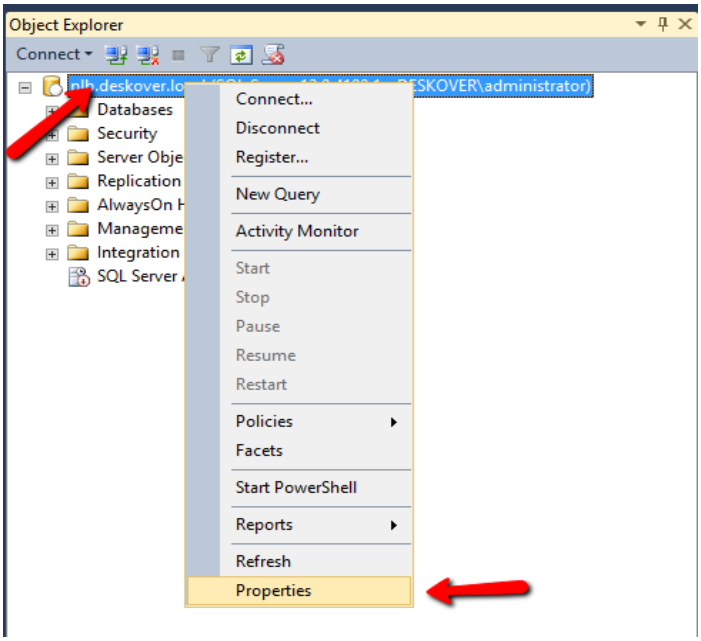
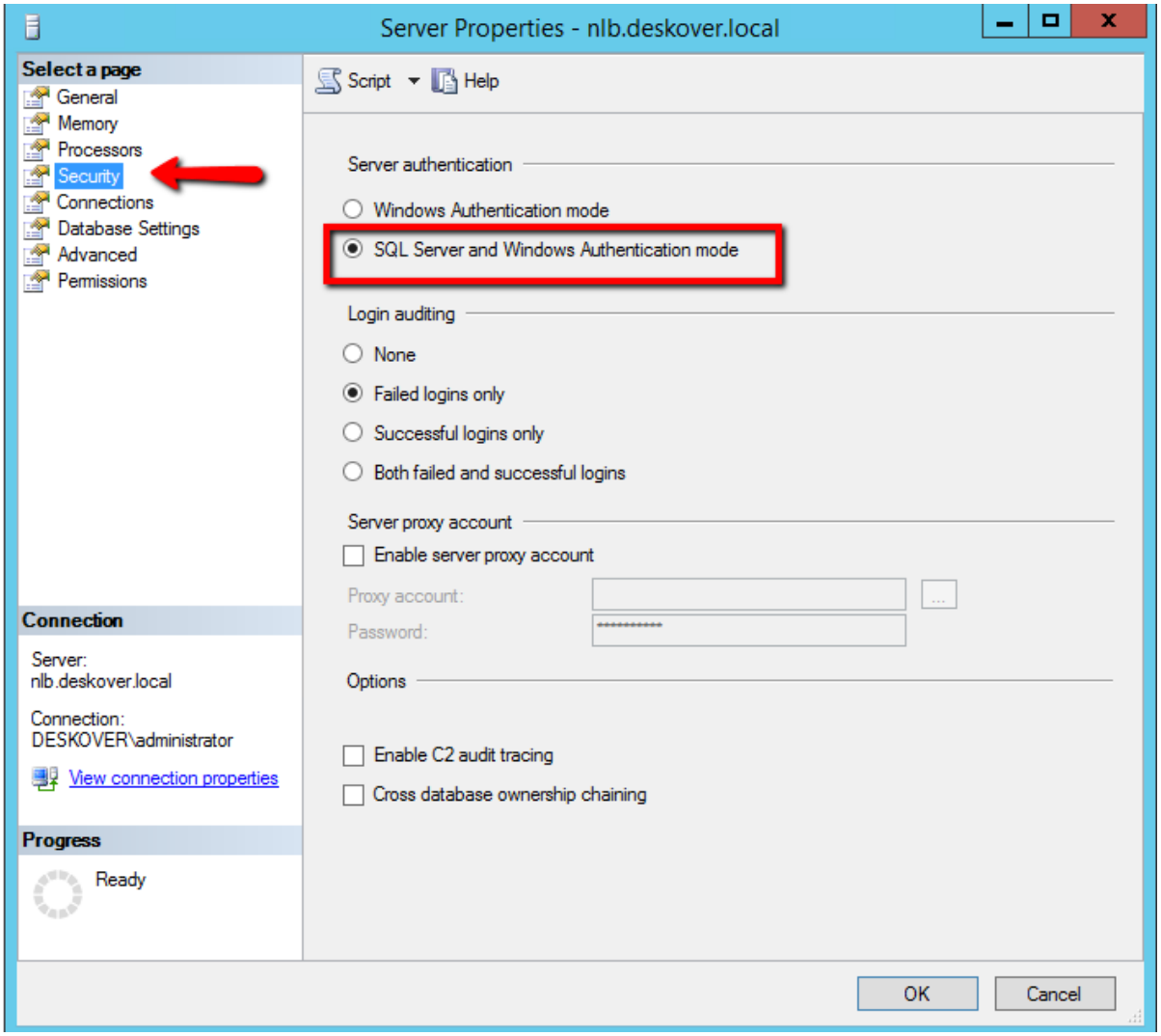
Orchestrator Installation Guide

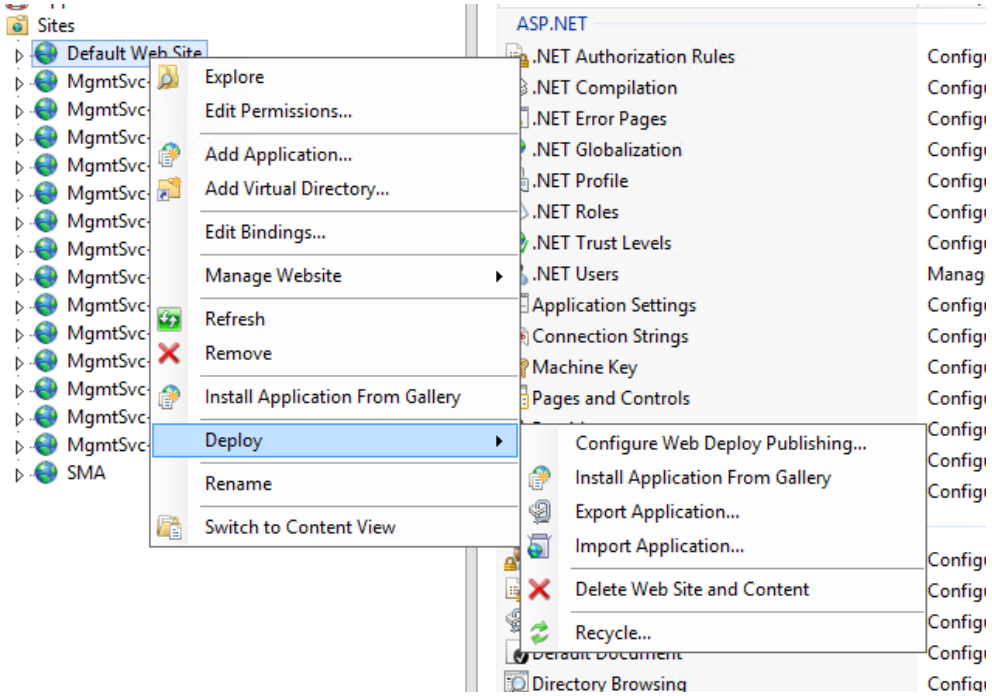
1. Prerequisites

- Windows Server Operating System, version 2012 or 2014.
- .NET 4.6 (minimum). To find out what is the .NET version installed on the computer, please see Appendix 1
- SQL server installed, one of the following versions: 2008R2 with at least SP1, 2012 Standard, 2014 Standard.
  If you want to have the AlwaysOn feature, then 2012R2 Enterprise Edition or 2014 Standard; the SQL Server product can be installed on the same machine with the Application Server or can be provided as a separate machine.
- SQL Server should have the mixed mode authentication enabled (SQL Server authentication and Windows authentication). If it's already installed, please check this option as shown in the pictures below:



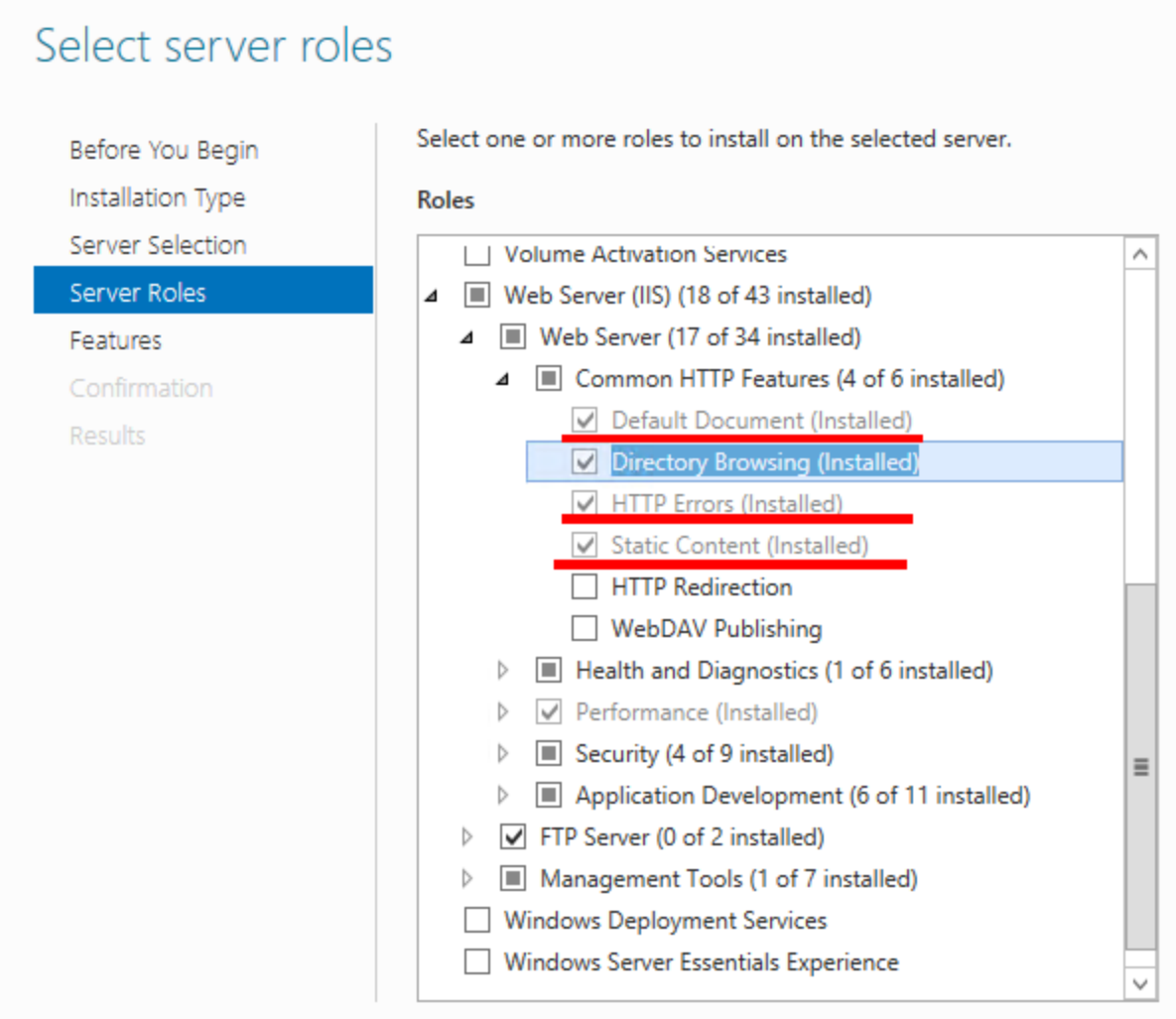


- SQL Server Management Studio - it's necessary in order to configure the login for the domain user that will access the SQL Server and under whose name will run the services on the application server.
- IIS 7.0 +
- Web-Deploy extension: Allows you to deploy a website. Check that the following context menu item is available: Right click on the default website -> from the contextual menu choose Deploy -> Import Application.

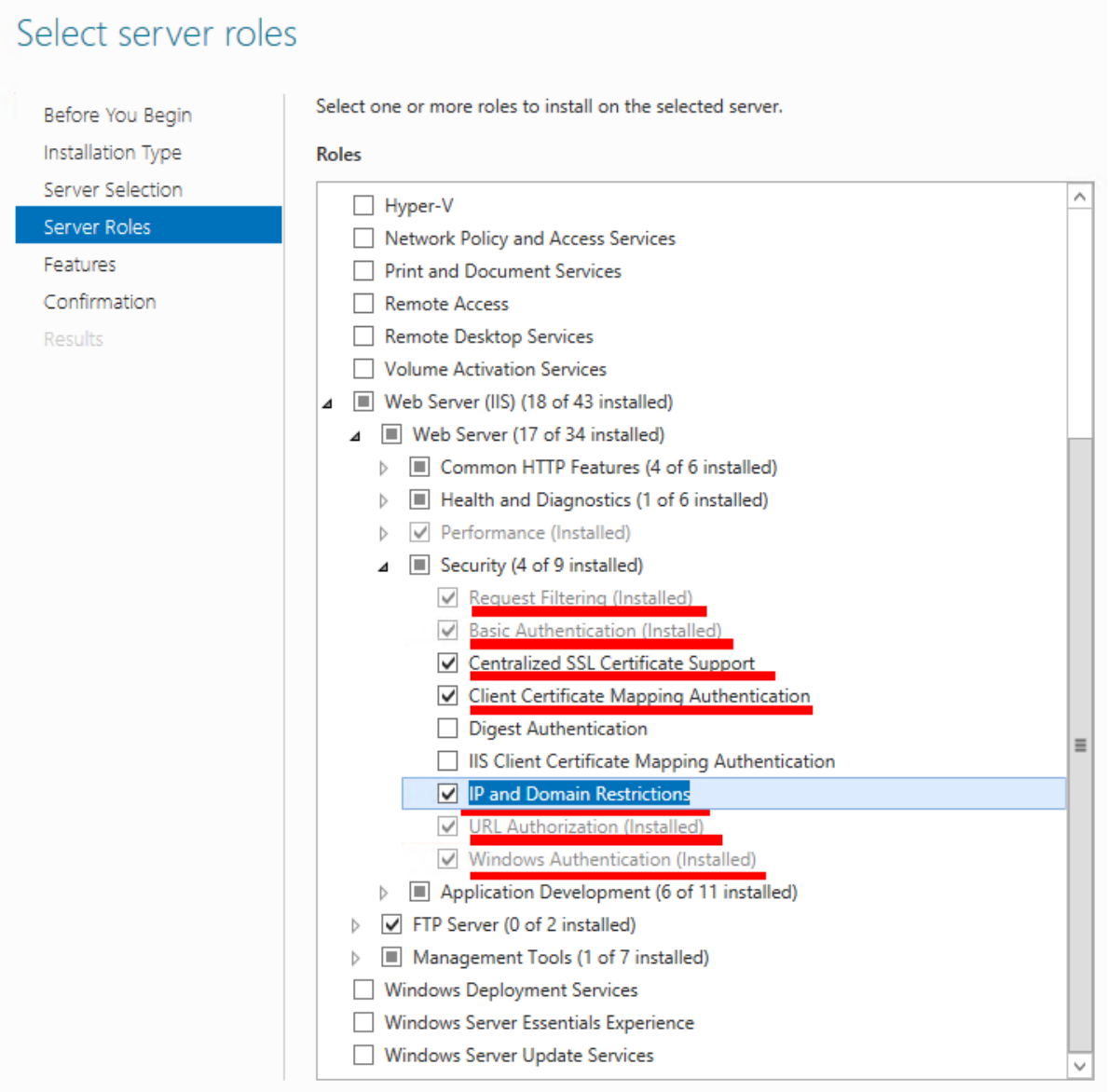


Note: If the menu option Deploy > Import Application is not available, as shown in the screenshot above, then download and install Web Deploy Extension 3.5 from here http://www.iis.net/downloads/microsoft/web-deploy.

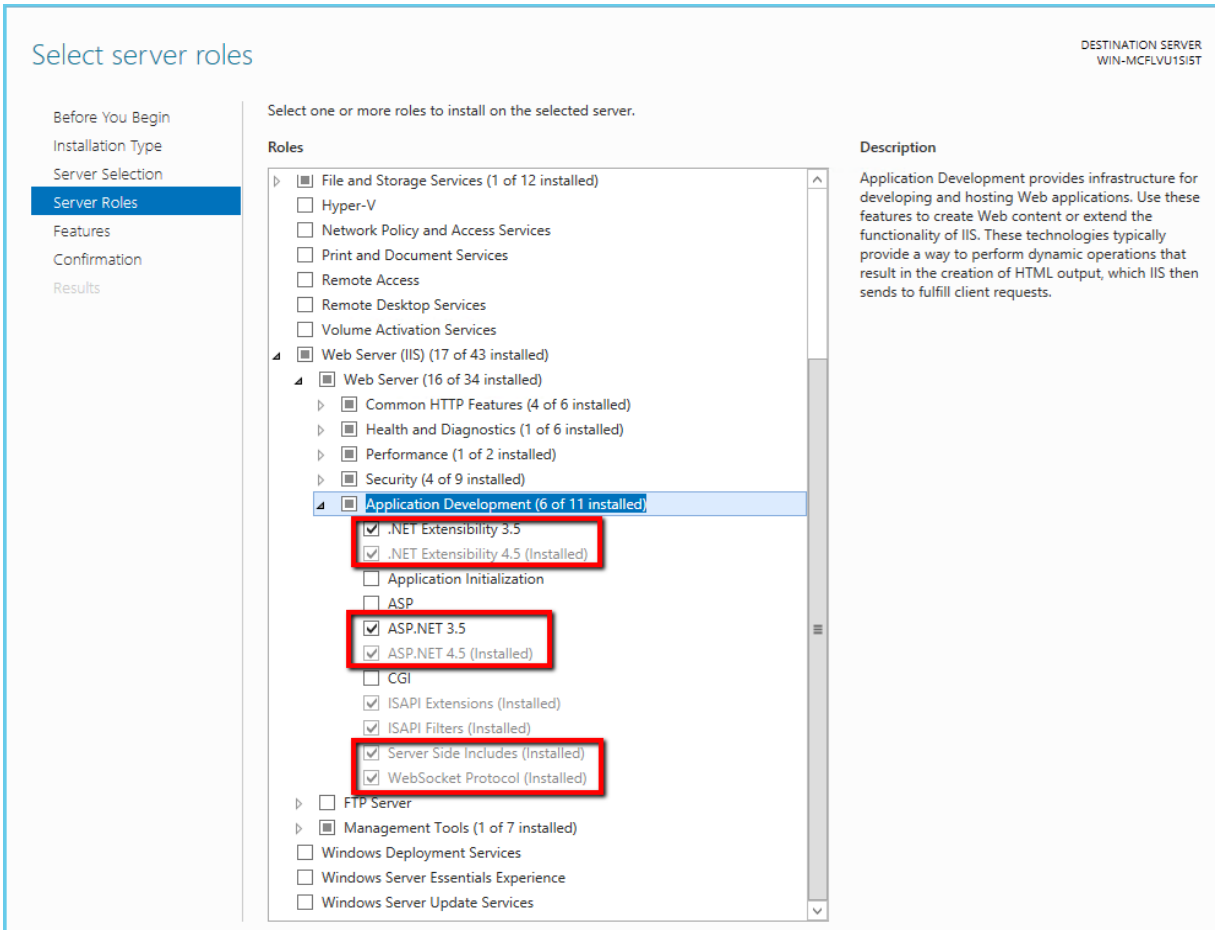
- If the computers are in a domain ensure that they are added in section "**Computers**" in the domain server, in "**Active Directory users and computers**" because the computer name is used in installation process. (For example: http://computerName-01/UiPath.Server.Web instead of http://localhost/UiPath.Server.Web).
  If this is not possible localhost/IP should be used in installation process. Please see step 4 from chapter "**Preparing packages and script for Installation**".
- The following server roles should be installed (see the picture below): expand **Web Server (IIS)**, expand **Web Server**, expand **Common HTTP Features**
  - Default Document
  - HTTP Errors
  - Static Content



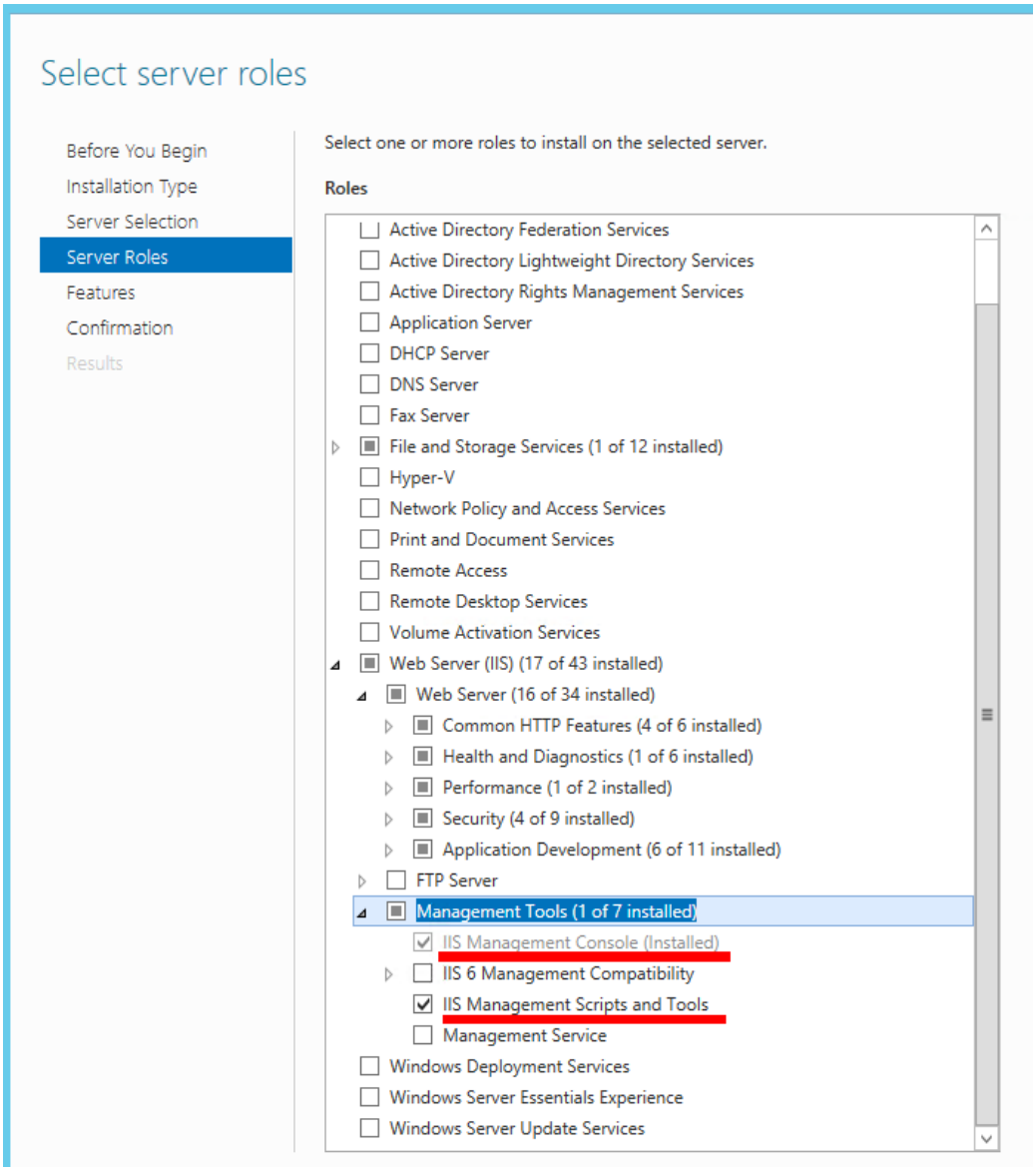
- The following server roles should be installed (see the picture below): expand **Web Server (IIS)**, expand **Web Server**, expand **Security**
    - Request Filtering
    - Basic Authentication
    - Centralized SSL Certificate Support
    - Client Certificate Mapping Authentication
    - IP and Domain Restrictions
    - URL Authorization
    - Windows Authentication



- The following server roles should be installed (see the picture below): expand **Web Server (IIS)**, expand **Web Server**, expand **Application Development**
    - .NET Extensibility 3.5
    - .NET Extensibility 4.5
    - ASP.NET 3.5
    - ASP.NET 4.5
    - Server Side Includes
    - WebSocket Protocol

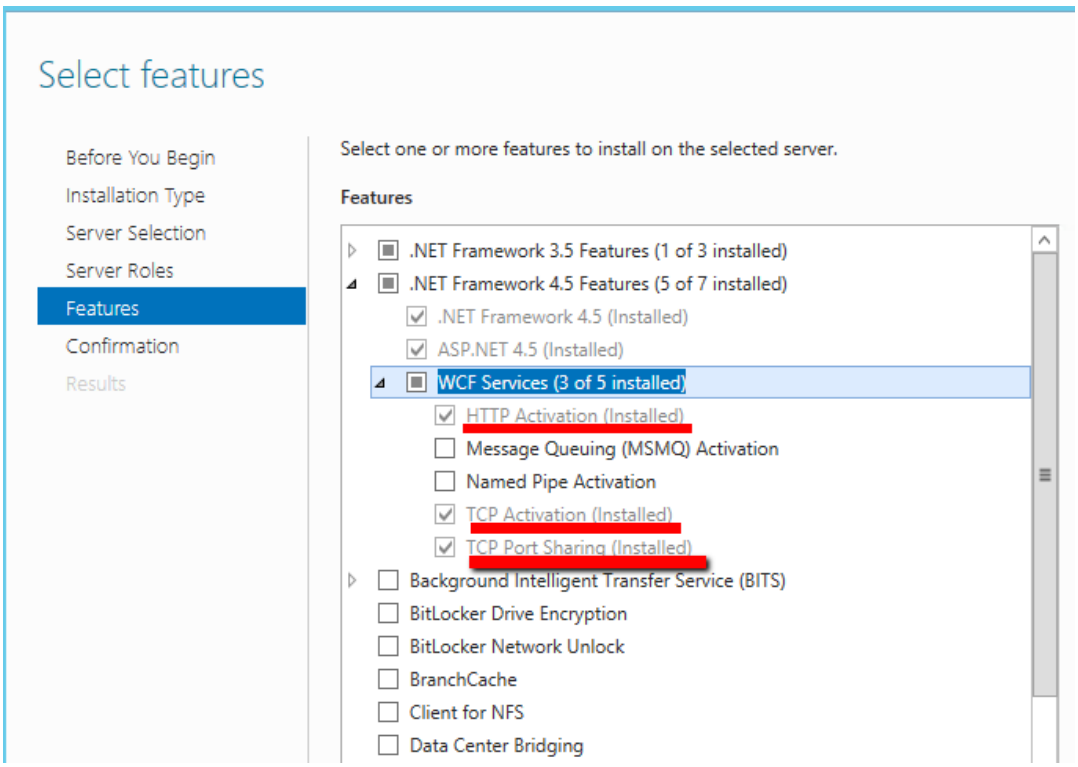


- The following server roles should be installed (see the picture below): expand **Web Server (IIS)**, expand **Web Server**, expand **Management Tools**
    - IIS Management Console
    - IIS Management Scripts and Tools

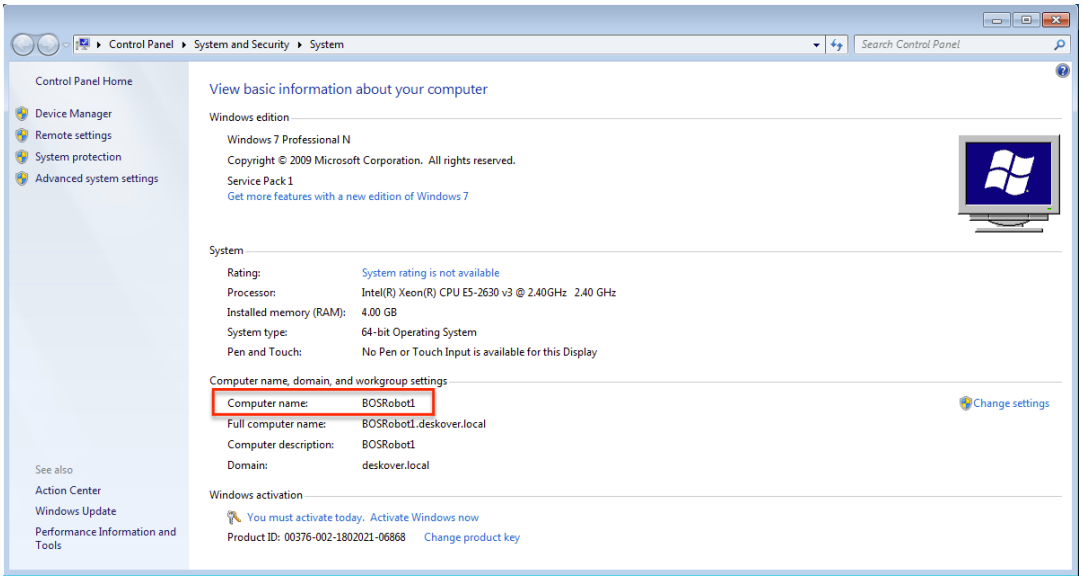


Click **Next** to go to **Server Features**.

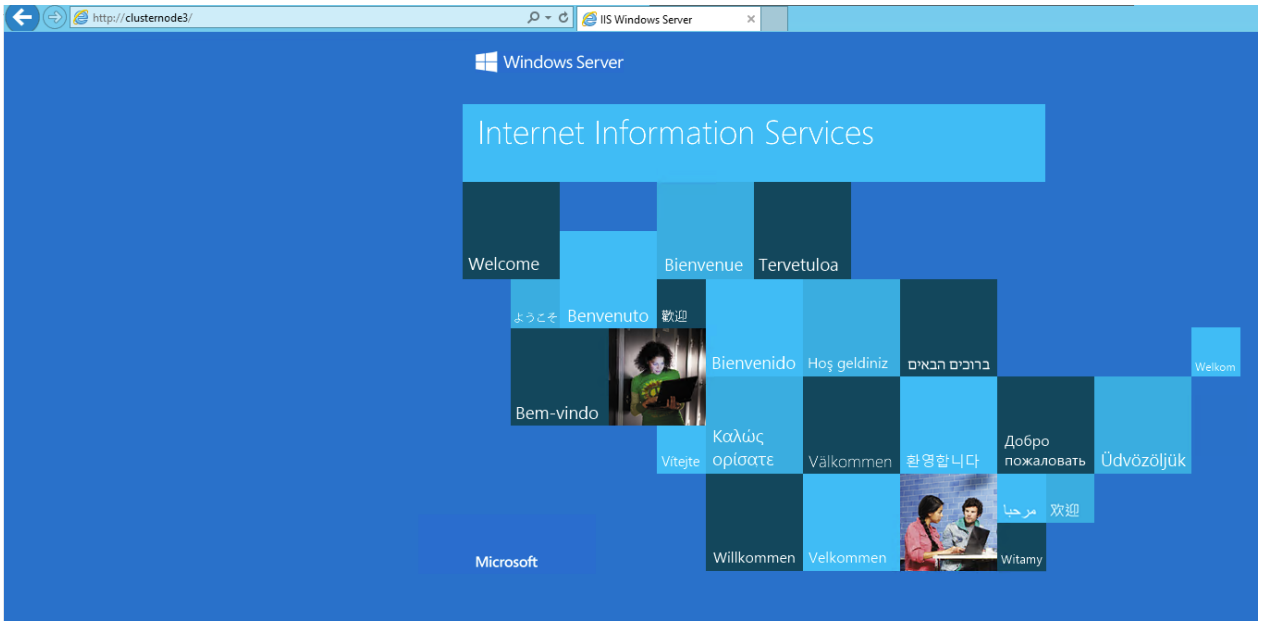
- The following server features should be installed (see the picture below): expand .NET Framework 4.5 Features, expand WCF Services
    - HTTP Activation
    - TCP Activation
    - TCP Port Sharing



After the installation is done, open browser and go to http://computername/. (If you don't know your computer name open a command prompt and type "hostname" or open **System** and look for **Computer Name**).



The result of opening the address http://computername/ should be the default page of IIS.

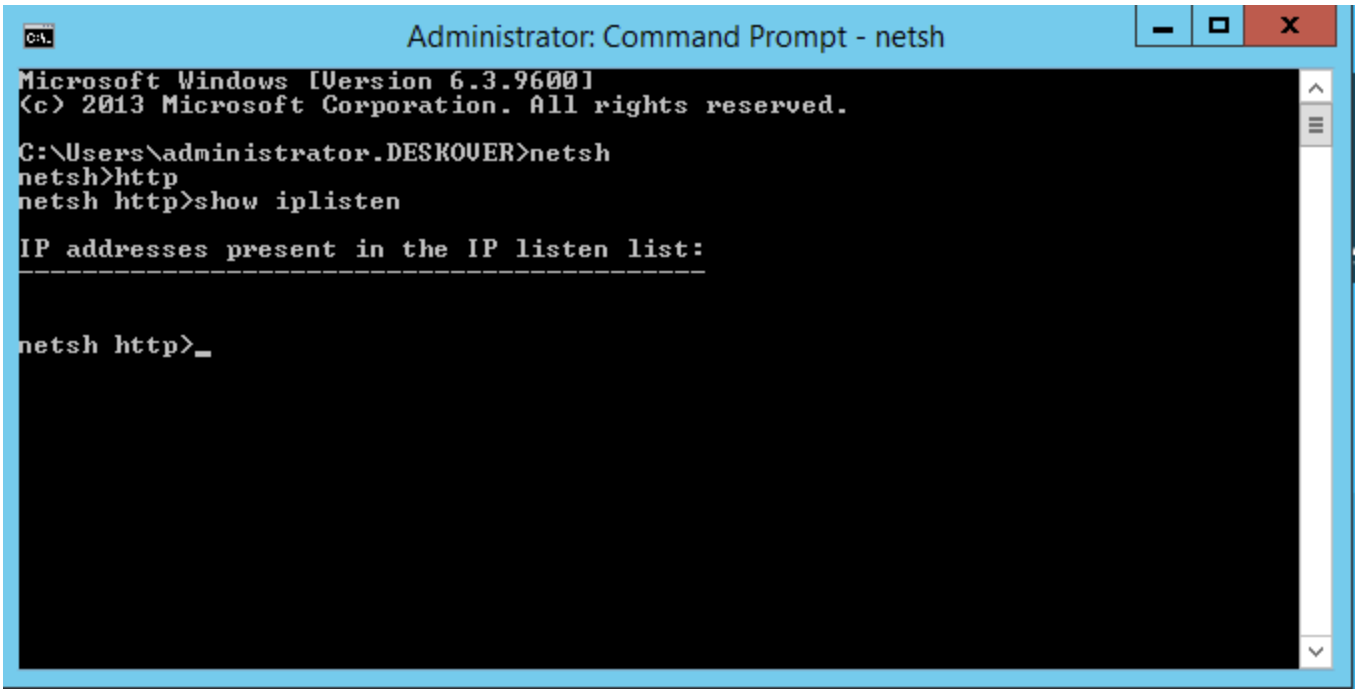


In case you are not seeing a page as in the above image you need to ensure that IIS server is running and port 80 is open. By default IIS will listen for connections on port 80 for any IP bound to the server.

This happens even if there are no host headers or bindings set for a specific IP. This can be a problem when trying to run multiple web servers on port 80.

To set IIS to listen on specific IPs follow the instructions below. Windows Server 2008/IIS 7 (at least):

1. Open an elevated command prompt and type “netsh”.
   netsh
2. Type “http”.
   http
3. Enter the following command to display the current list of IPs to listen on. Note if no IPs are displayed like in the below image, IIS will listen on all IPs (default).
   show iplisten



4. Use the command below to set IIS to listen on a specific IP. Make sure to replace 0.0.0.0 with the correct IP and run the command again for any additional addresses.
   add iplisten ipaddress=0.0.0.0

```
netsh http>add iplisten ipaddress=0.0.0.0
IP address successfully added
netsh http>show iplisten
IP addresses present in the IP listen list:
    0.0.0.0
netsh http>
```

5. In case you need to delete an IP from this list, use the following command.
   delete iplisten ipaddress=0.0.0.0
6. Restart IIS to apply these changes.
   iisreset

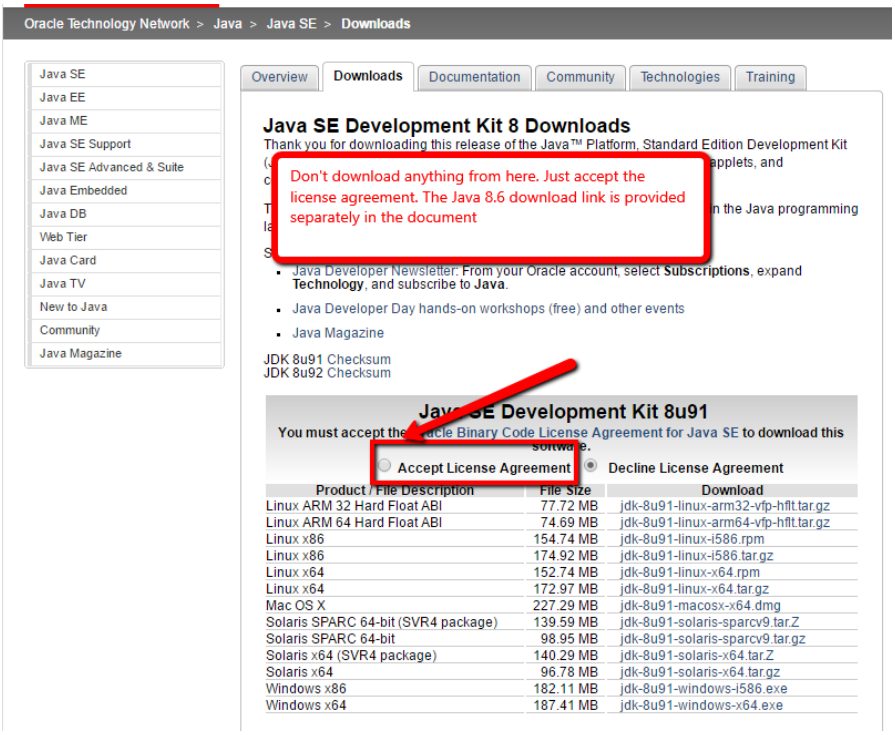
2. Resources

2.1. Java Runtime

In order to download Java from the Oracle Technology Network website, you need to go to the Oracle download page, select any product, then Accept License Agreement.

After that, you can use in another browser tab the exact URL that we provide below the next picture for Java 8.6.

For example, go to this URL just to accept the license terms. Don't download anything from here: [http://www.oracle.com/technetwork/java/javase/downloads/jdk8-downloads-2133151.html.](http://www.oracle.com/technetwork/java/javase/downloads/jdk8-downloads-2133151.html)



Download link: after you accepted the license agreement, you can click this link: http://download.oracle.com/otn-pub/java/jdk/8u60-b27/jdk-8u60-windows-x64.exe.

2.2. ElasticSearch

- Elasticsearch version 2.3.2
- Elasticsearch package: https://download.elastic.co/elasticsearch/release/org/elasticsearch/distribution/zip/elasticsearch/2.3.2/elasticsearch-2.3.2.zip

2.3. Kibana

- Kibana version 4.5.0
- Kibana plugin download page: https://download.elastic.co/kibana/kibana/kibana-4.5.0-windows.zip

2.4. Configure Windows Firewall

UiPath Orchestrator uses only port 80 to communicate with the Robots (default port).

To access **ElasticSearch** & **Kibana** from other machines then you need to open the 9200 (ElasticSearch) and 5601 (Kibana) ports.

3. UiPath Server Installation

3.1. Preparing Packages and Script for Installation

1. Create a folder on your server.
2. Copy the packages in the folder.
3. Copy the script **OrchestratorInstaller.ps1** in the same folder (like in the above screenshot).
4. In order to get more details about the script, open powershell console (ensure that you have rights to run scripts, if not run: **Set-ExecutionPolicy Unrestricted**) and enter: **Get-Help .\OrchestratorInstaller.ps1**.

```
PS C:\Users\andreibogdan\develop\Orchestrator\DeploymentArtifacts> Get-Help .\UiPathServerInstall.ps1

NAME
    C:\Users\andreibogdan\develop\Orchestrator\DeploymentArtifacts\UiPathServerInstall.ps1

SYNOPSIS
    This is a simple Powershell script to explain how to create help


SYNTAX
    C:\Users\andreibogdan\develop\Orchestrator\DeploymentArtifacts\UiPathServerInstall.ps1
    [[-iisWebSiteName] <String>] [[-iisWebSitePort] <String>] [-useAppPoolIdentity] [[-iisHostname]
    <String>] [[-directoryPath] <String>] [-useSQLAuthentication] [[-dbServerInstance] <String>]
    [[-mainDatabase] <String>] [[-monitoringPersistenceDB] <String>] [[-queuesDB] <String>]
    [[-elasticSearchHost] <String>] [[-elasticSearchPort] <String>] [[-kibanaPort] <String>]
    [-insecureHTTP] [-partialInstall] [[-environmentName] <String>] [<CommonParameters>]


DESCRIPTION
    Description: Publishes the UIPath FrontServer website and webapps, using prebuilt MSDeploy
    packages

    Prerequisites:
        1. Have installed Web Deploy 3+ and 'IIS Management Scripts and Tools'(Windows Features)
        2. Place the MSDeploy packages in the same folder with this script
        3. Run this script as administrator


RELATED LINKS
    http://www.uipath.com

REMARKS
    To see the examples, type: "get-help
    C:\Users\andreibogdan\develop\Orchestrator\DeploymentArtifacts\UiPathServerInstall.ps1
    -examples".
    For more information, type: "get-help
    C:\Users\andreibogdan\develop\Orchestrator\DeploymentArtifacts\UiPathServerInstall.ps1
    -detailed".
    For technical information, type: "get-help
    C:\Users\andreibogdan\develop\Orchestrator\DeploymentArtifacts\UiPathServerInstall.ps1 -full".
    For online help, type: "get-help
C:\Users\andreibogdan\develop\Orchestrator\DeploymentArtifacts\UiPathServerInstall.ps1 -online"
```

5. Take a look at the script using any text editor (PowerShell ISE is better for syntax coloring):

OrchestratorInstaller.ps1

```
param(
# The name of the Orchestrator website, as seen in IIS
[String] $iisWebSiteName = 'UiPathOrchestrator',

# The port used by the Orchestrator website. If left 0, the default value will be used - 80 for HTTP, 443 for HTTPS
[String] $iisWebSitePort = 0,

# Flag to run the app pools with AppPoolIdentity; otherwise a Windows/AD credential will be requested
[Switch] $useAppPoolIdentity,

# The hostname used to access Orhestrator. Customize if you are not accessing the server with the computer name (the
[String] $iisHostname =  $env:computername,

# The path where the application will be installed. The default is C:\Inetpub\UiPathOrchestrator
[String] $directoryPath = "C:\Inetpub\UiPathOrchestrator",

# Flag for using SQL Authentication
[Switch] $useSQLAuthentication,

# The name of the SQL Server Instance (eg: MyServer, MyServer.local, MyServer\SQLEXPRESS)
[String] $dbServerInstance,

# The name of the main database
[String] $mainDatabase = 'UiPathPlatform' ,

# The name of the monitoring database
[String] $monitoringPersistenceDB = 'MonitoringPersistence',

# The name of the queues database
[String] $queuesDB = 'Queues',

# Flag for not using Elastic Search & Kibana logging
[Switch] $noElasticSearch,

# The URL of the ElasticSearch web service
[String] $elasticSearchUrl,

# The Url for thse Kibana web service
[String] $kibanaUrl,

# Flag for disabling HTTPS
[Switch] $unsecureHTTP,

# Flag for partial install. When present, you'll be able to choose which Orchestrator applications to install
[Switch] $partialInstall,

# If installing multiple instances on the same machine, choose different environment names
[String] $environmentName = ''
)
```

Note: In general, you do not have to change anything in the script. The most commonly used command line to install Orchestrator is:

```
.\OrchestratorInstaller.ps1 -unsecureHTTP
```

Parameters description:

- [String] `$iisWebSiteName = 'UiPathOrchestrator'`, # IIS Website Name (example UiPathServer)
- [String] `$iisWebSitePort = 0`, # The default value will be used - 80 for HTTP, 443 for HTTPS. If you change it make sure you open the new port in your firewall as well
- [Switch] `$useAppPoolIdentity`, # Use default AppPoolIdentity or not
- [String] `$iisHostname = $env:computername`, # Customize if you access the server with other name than the one from Computer Properties
- [String] `$directoryPath = "C:\Inetpub\UiPathOrchestrator"`, # Default path where the application will be installed.(e.g.

C:\Inetpub\UiPathOrchestrator') Change it only if you have "Inetpub" in another location.

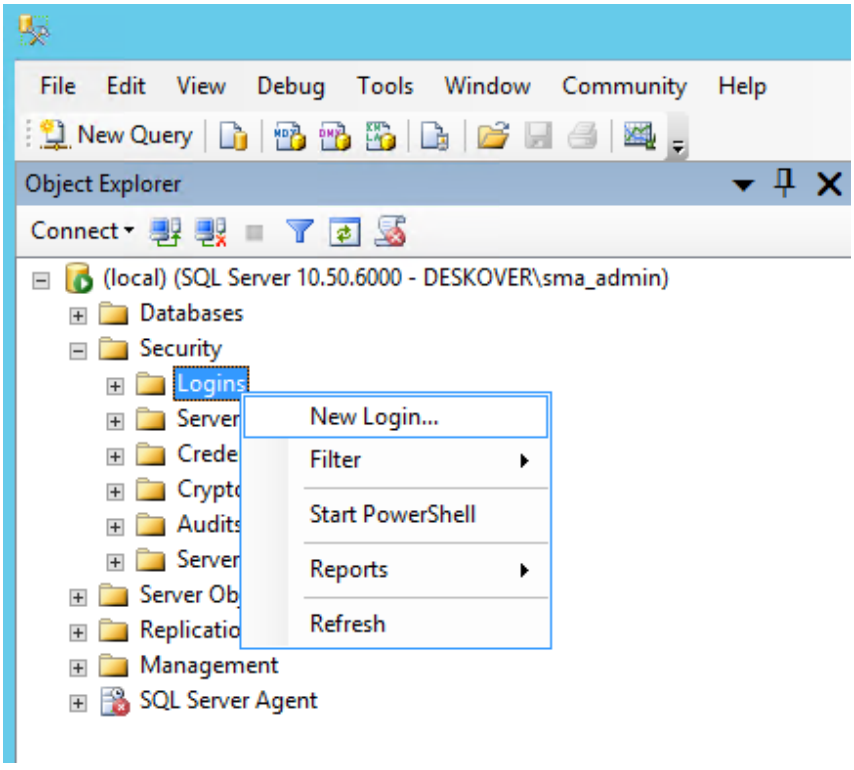
- [Switch] $useSQLAuthentication, # Flag for using SQL Authentication
- [String] $dbServerInstance, # Name of SQL Instance. (eg: MyServer, MyServer.local, MyServer\SQLEXPRESS). leave it as '.' if the same machine is used for web application and SQL Server and the default port (1433) and default instance is used; otherwise use the format:
    - 'machine\instance,port', like 'XSDB01\UiPath,1533' if another SQL Server machine, not default port, not default SQL Server instance
    - 'machine,port', like 'XSDB01,1533' if another SQL Server machine, not default port (default is 1433)
    - 'machine', like 'XSDB01' if another SQL Server machine, but using default port 1433 and default SQL Server instance
- [String] $mainDatabase = 'UiPathPlatform' , # Name of main Database
- [String] $monitoringPersistenceDB = 'MonitoringPersistence', # Name of Monitor Persistence Database
- [String] $queuesDB = 'Queues', # Name of Queue Database
- [Switch] $noElasticSearch, # if specified, will not set the configuration for ElasticSearch logging
- [String] $elasticSearchUrl, # The URL of the ElasticSearch web service, including port; you can keep the default value http://localhost:9200; don't put computer name instead of localhost, it is not accessed from another computer
- [String] $kibanaUrl, # URL for Kibana; don't keep the default value http://localhost:5601, but please provide the computer name instead of localhost; example: http://ORCHSRV:5601
- [Switch] $unsecureHTTP, # if specified, will use HTTP; if not specified, will use HTTPS and will ask for the certificate
- [Switch] $partialInstall, # Flag for partial install. When is present it will let you choose what applications to install
- [String] $environmentName = '' # Environment name. Should be used only when there is already an Orchestrator installed and you want to install another instance -

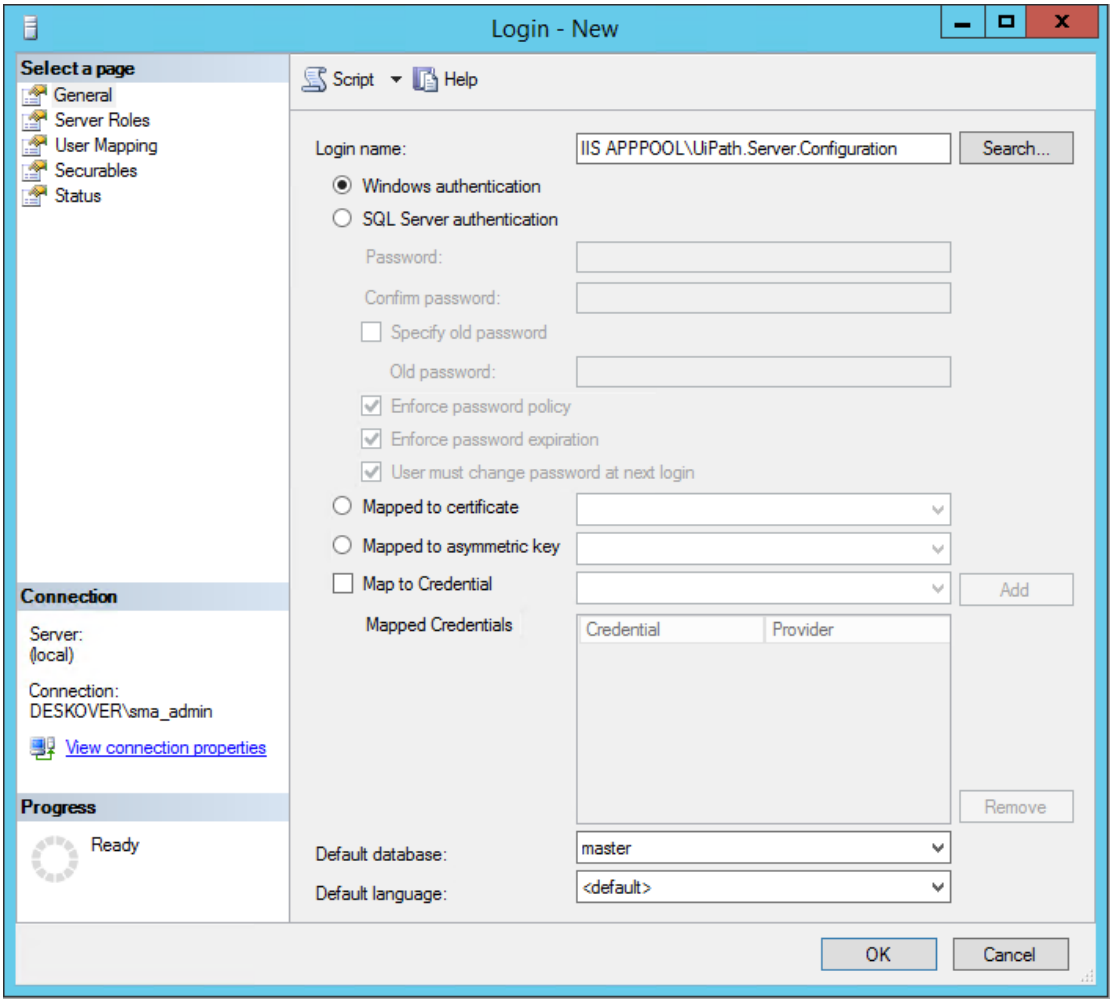
another Orchestrator. For example if you want to create a "test" environment. The prefix is used in the following names:

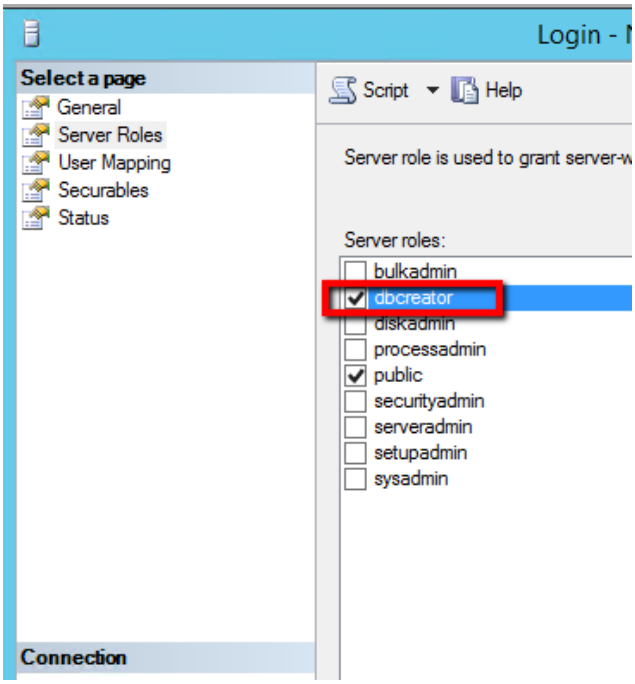
- Database names for all 3 databases
- Application Pool names
- Web Site name

The following parameters are important in relation to authentication to SQL Server database:

- `useAppPoolIdentity`, default **FALSE** - The web services and web application will run under the default application pool identity (if $true) or under a custom identity which represents a domain account (a regular domain user) if $false.
  The first case (`$useAppPoolIdentity = $true`) is applicable only if SQL Server machine is the same as the web application machine.
  In the first case (`$useAppPoolIdentity = $true`), after running this script, the SQL Server administrator should add the following users under Security -> Logins, with the Server Role **dbcreator**.




Login - New
Select a page
General
Server Roles
User Mapping
Securables
Status
Script
Help
Login name:
IIS APPPOOL\UiPath.Server.Configuration
Search...
Windows authentication
SQL Server authentication
Password:
Confirm password:
Specify old password
Old password:
Enforce password policy
Enforce password expiration
User must change password at next login
Mapped to certificate
Mapped to asymmetric key
Map to Credential
Add
Mapped Credentials
Credential
Provider
Remove
Default database:
master
Default language:
<default>
Connection
Server:
(local)
Connection:
DESKOVER\sma_admin
View connection properties
Progress
Ready
OK
Cancel


Select a page
General
Server Roles
User Mapping
Securables
Status
Script
Help
Server role is used to grant server-w
Server roles:
bulkadmin
dbcreator
diskadmin
processadmin
public
securityadmin
serveradmin
setupadmin
sysadmin
Connection

Following the method described above, the following users should be added:

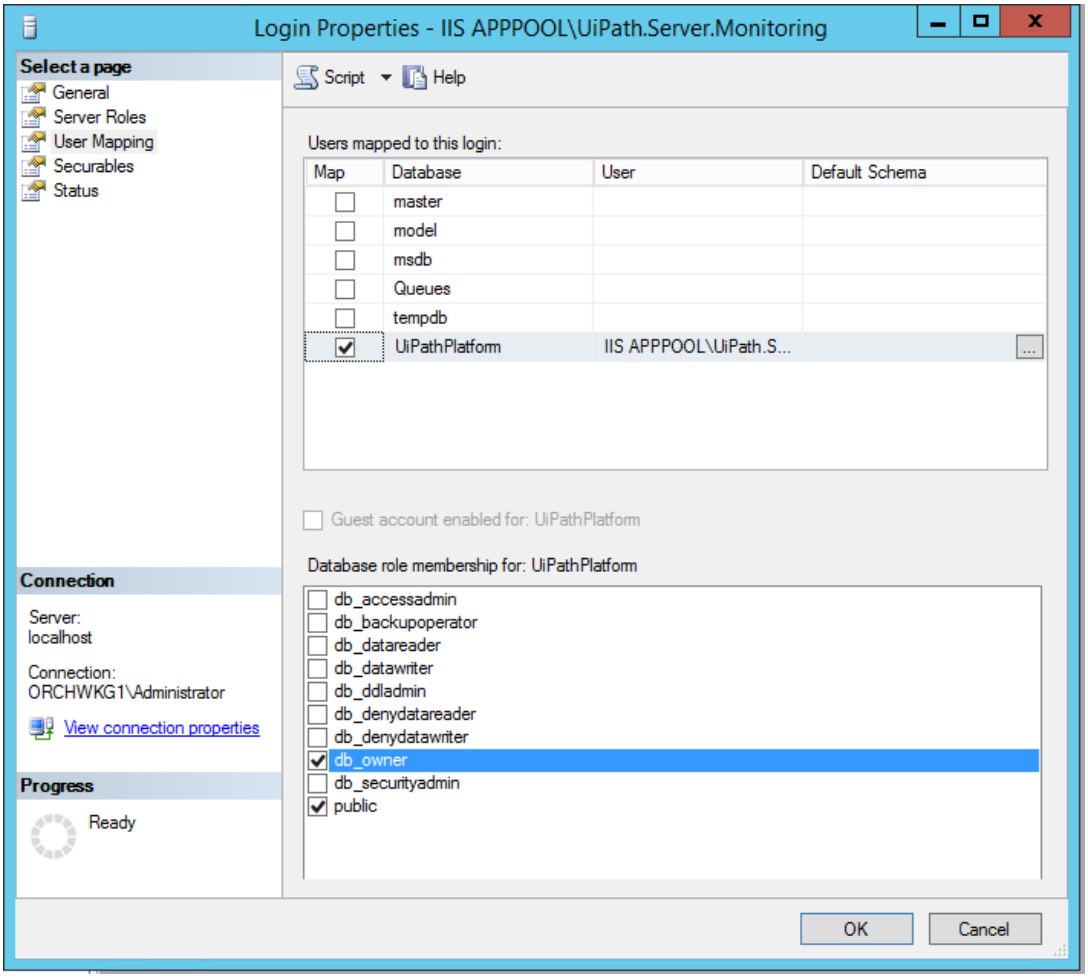
- `IIS APPPOOL\UiPath.Server.Configuration`
- `IIS APPPOOL\UiPath.Server.Deployment`
- `IIS APPPOOL\UiPath.Server.Logging`
- `IIS APPPOOL\UiPath.Server.Monitoring`
- `IIS APPPOOL\UiPath.Server.Web`
- `IIS APPPOOL\UiPath.Server.Queues`

As stated in the information displayed by the script (OrchestratorInstaller.ps1), after the UiPathPlatform database is created you need to give read and write access to this database to the following users:

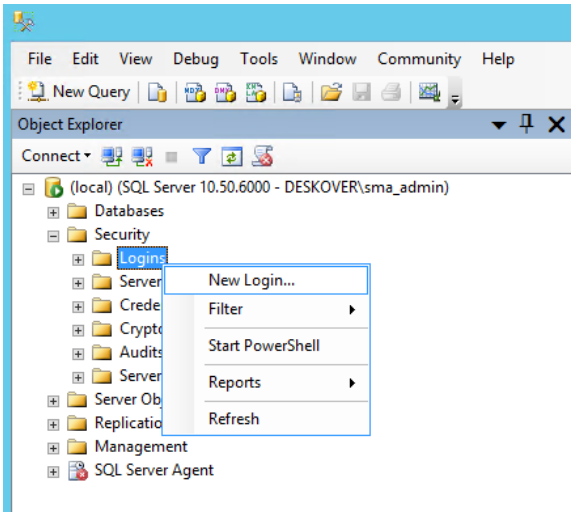
- `IIS APPPOOL\UiPath.Server.Configuration`
- `IIS APPPOOL\UiPath.Server.Monitoring`

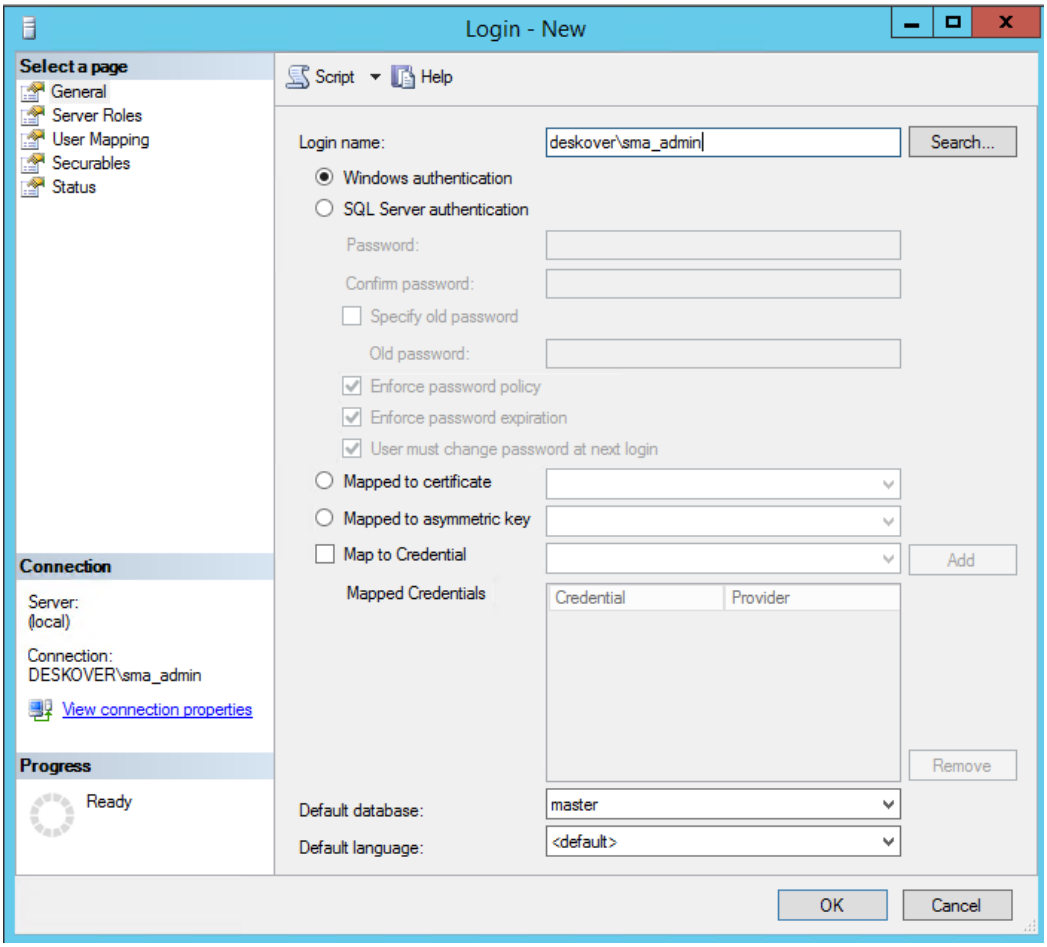
```
Ensure that the following users have these permissions on the databases:

User                                    Database             Permission
----                                    --------             ----------
IIS APPPOOL\UiPath.Server.Configuration UiPathPlatform       Create, Write, Read
IIS APPPOOL\UiPath.Server.Monitoring    UiPathPlatform       Write, Read
IIS APPPOOL\UiPath.Server.Monitoring    MonitoringPersistence Create, Write, Read
IIS APPPOOL\UiPath.Server.Queues        Queues               Create, Write, Read
```

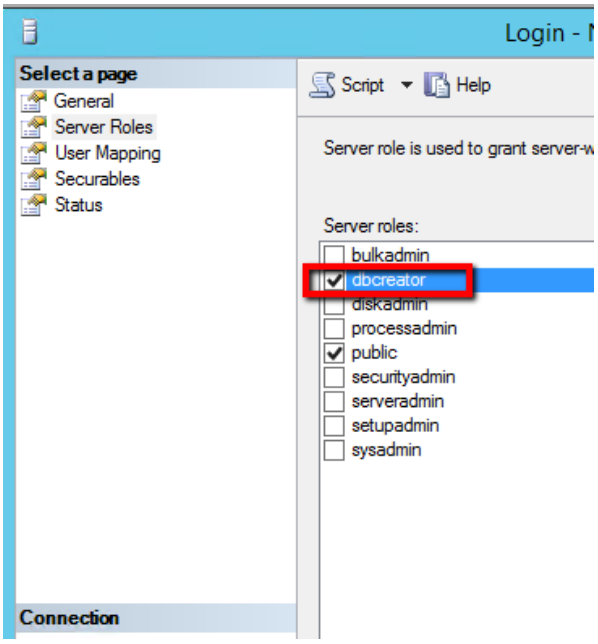
For each of these 2 users (`IIS APPPOOL\UiPath.Server.Monitoring` and `IIS APPPOOL\UiPath.Server.Configuration`), double-click to edit the properties, go to "User Mapping", select the UiPathPlatform database and give the user the **dbowner** role on this database:



In the second case (**$useAppPoolIdentity = $false**), because of $useSQLAuthentication=$true, after running this script, the SQL Server administrator should add the dedicated domain user under Security > Logins, with the Server Role **dbcreator**.

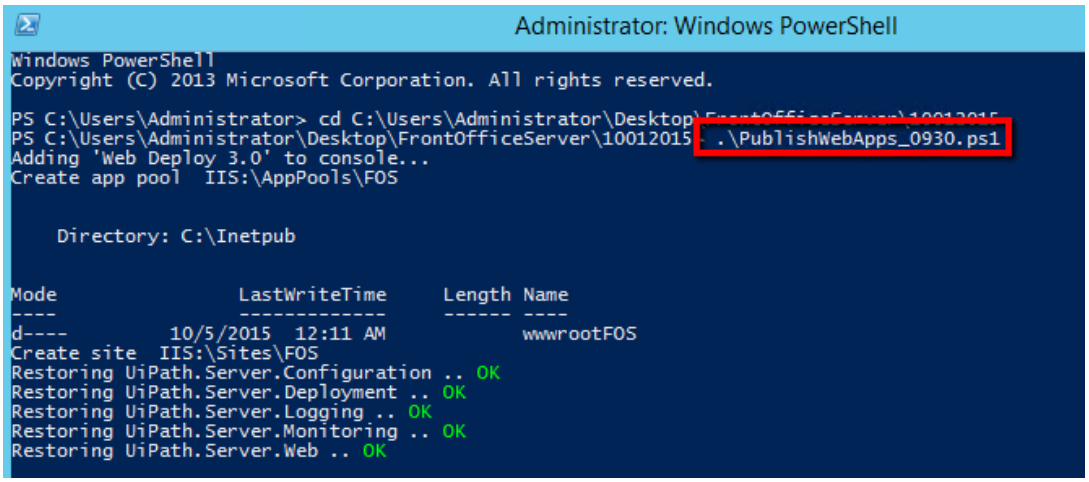



Login - New
Select a page
General
Server Roles
User Mapping
Securables
Status
Script
Help
Login name:
deskover\sma_admin
Search...
Windows authentication
SQL Server authentication
Password:
Confirm password:
Specify old password
Old password:
Enforce password policy
Enforce password expiration
User must change password at next login
Mapped to certificate
Mapped to asymmetric key
Map to Credential
Add
Mapped Credentials
Credential
Provider
Remove
Default database:
master
Default language:
<default>
Connection
Server:
(local)
Connection:
DESKOVER\sma_admin
View connection properties
Progress
Ready
OK
Cancel


Select a page
General
Server Roles
User Mapping
Securables
Status
Script
Help
Server role is used to grant server-w
Server roles:
bulkadmin
dbcreator
diskadmin
processadmin
public
securityadmin
serveradmin
setupadmin
sysadmin
Connection

3.2. Installation

1. Open Windows PowerShell as administrator.
2. Navigate to your folder (created on step 1).
3. Before running the script, decide:
   - whether you want to use the Application Pool identity or Windows identity (flag useAppPoolIdentity to be specified only if you want to use the Application Pool identity).
   - whether you want to use SQL authentication or Windows Integrated Authentication (flag useSQLAuthentication to be specified only if you want to use SQL authentication).
   - be sure you know the name of the SQL server machine, the name of the instance (if it's not the default one) and the SQL Server TCP port (if it's not the default one 1433) (you will be asked to provide the value for dbServerInstance).
4. Run `.\OrchestratorInstaller.ps1 -unsecureHTTP.`
   If asked, enter the password for database.
5. Press Enter.



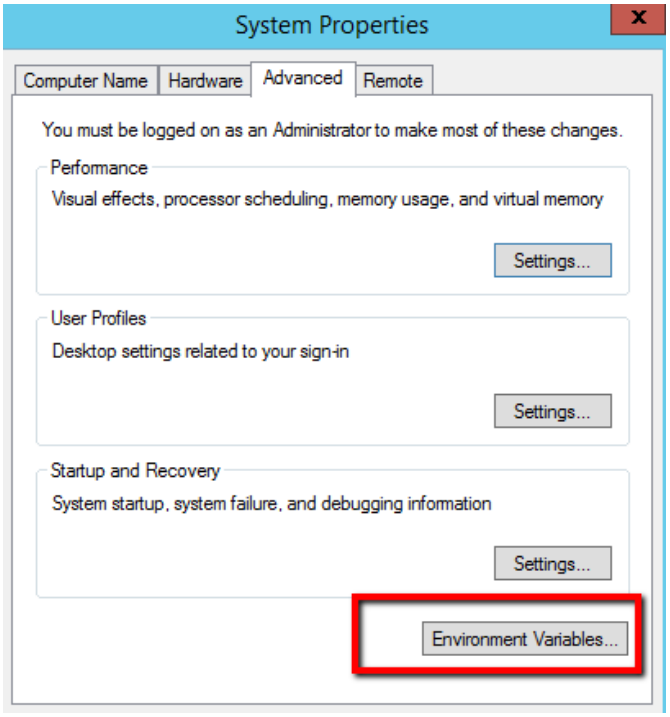
6. Open IIS and refresh the Sites.
7. Select the site and **restart the IIS**.
8. Open powershell as administrator and restart iis service (**iisreset**)

4. ElasticSearch and Kibana

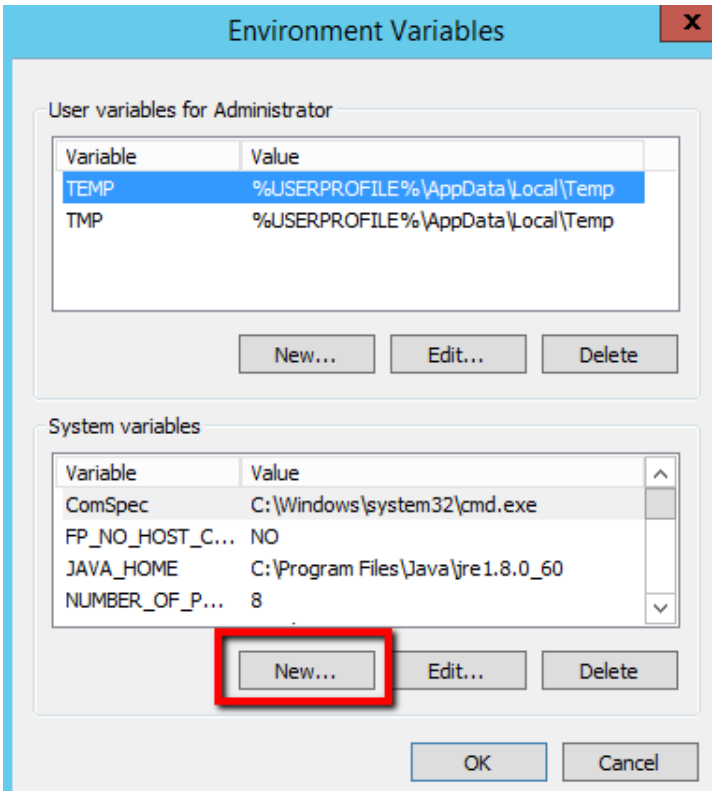
4.1. Setting Up JAVA_HOME

If the JAVA_HOME variable is not set, please follow the next steps:

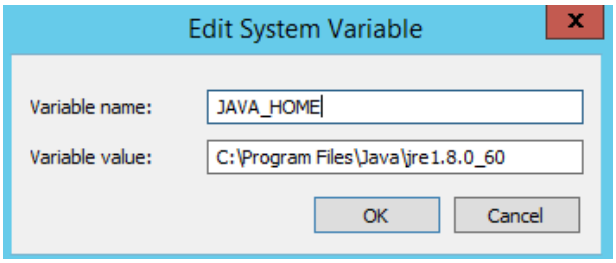
1. Edit environment variables > select “Edit the system environment variables”
2. On the **Advanced** tab, click **Environment Variables**.



3. Under the **System Variables** section, click **New**.



4. Set the variable and click **OK**.

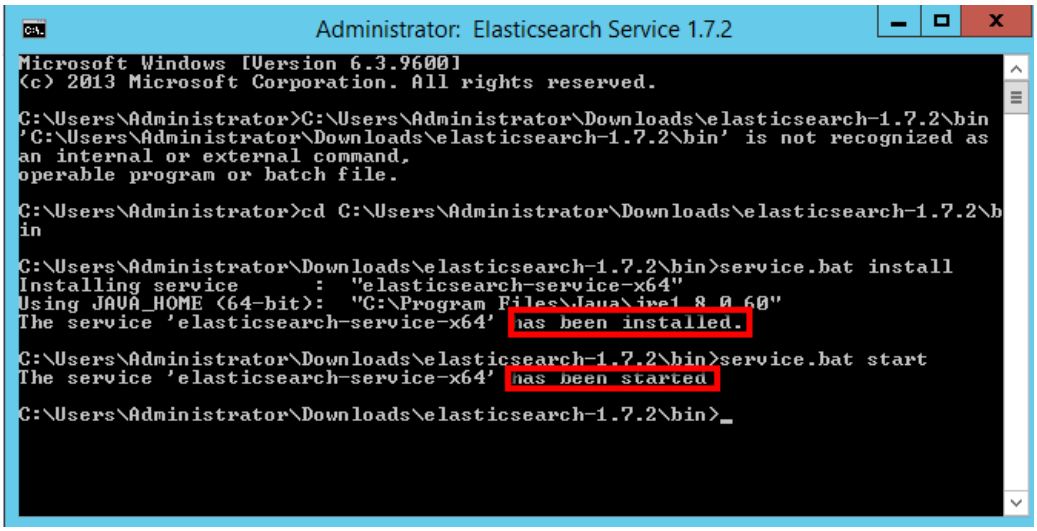


4.2. Installing ElasticSearch

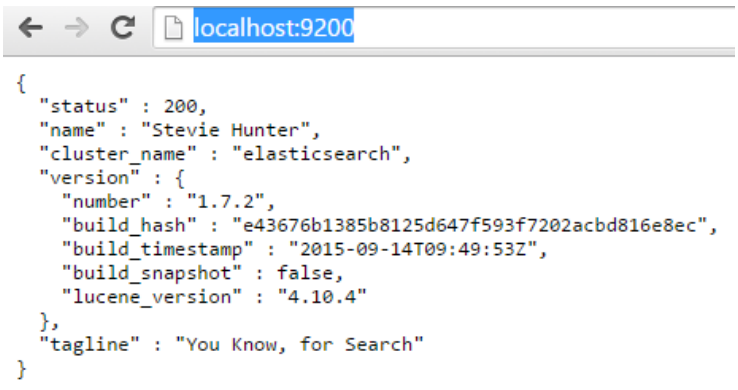
1. Unzip the elasticsearch package.

Note: When unzipping, do not create a new folder “elasticsearch-x.y.z” because the archive already contains the folder called “elasticsearch-x.y.z”.

2. Start bin/elasticsearch.bat - it will open a cmd window.
3. In the bin folder open a cmd and run: “service.bat install” (install elasticsearch as service).
4. In the bin folder open a cmd and run: “service.bat start”.



For test, open: http://localhost:9200/.



4.3. Installing Kibana

1. Unzip “kibana-x.y.z-windows.zip” archive.

Note: When unzipping, do not create a new folder “kibana-x.y.z-windows” because the archive already contains the folder called “kibana-x.y.z-windows”.

2. Start KIBANA: C:\kibana-4.1.2-windows\bin; kibana.bat.
3. Test: http://servername:5601.

4.4. Setting Kibana as Windows Service

1. Open a command prompt as administrator
2. sc create `"ElasticSearch Kibana 4.0.1" binPath= "C:\kibana-4.1.2-windows\bin\kibana.bat" depend= "elasticsearch-service-x64" start= auto`

Note: Be careful that each parameter has the “=” sign collated at the end without a space, then there is a space before the value of the parameter.

Do not expect to see the Kibana service running. Because the underlined executable of the service is a BAT file, it will not appear as Running.

However, the BAT file will start a program called “node.exe”. If that process is running, the Kibana service and web site is working. Test with this URL: http://servername:5601.

Appendix 1 - Find the installed .NET version

Find .NET Framework versions by viewing the registry (.NET Framework 1-4)

1. On the **Start** menu, choose **Run**.
2. In the **Open** box, enter **regedit.exe**.
   You must have administrative credentials to run regedit.exe.
3. In the Registry Editor, open the following subkey:
   HKEY_LOCAL_MACHINE\SOFTWARE\Microsoft\NET Framework Setup\NDP
   The installed versions are listed under the NDP subkey. The version number is stored in the **Version** entry. For the .NET Framework 4 the **Version** entry is under the Client or Full subkey (under NDP), or under both subkeys.

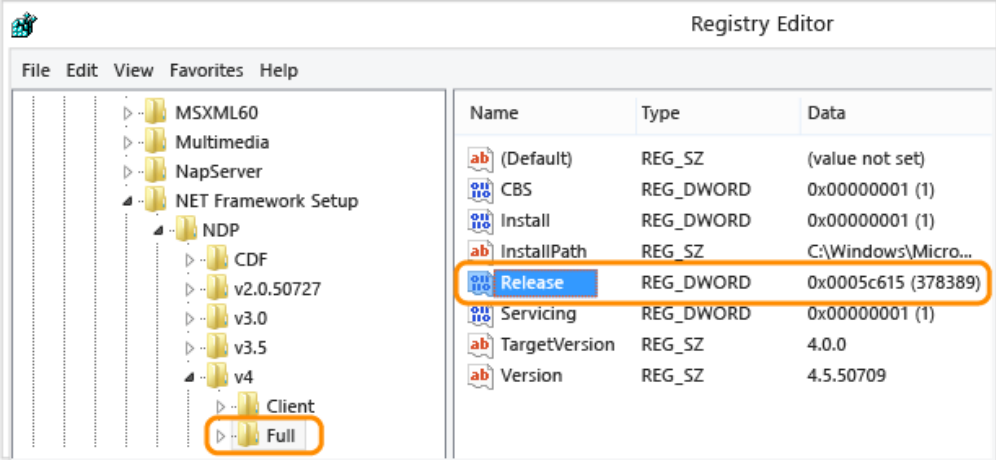
Note: The "NET Framework Setup" folder in the registry does not begin with a period.

Find .NET Framework versions by viewing the registry (.NET Framework 4.5 and later)

1. On the **Start** menu, choose **Run**.
1. In the **Open** box, enter **regedit.exe**.
   You must have administrative credentials to run regedit.exe.
2. In the Registry Editor, open the following subkey:
   HKEY_LOCAL_MACHINE\SOFTWARE\Microsoft\NET Framework Setup\NDP\v4\Full.
   Note that the path to the **Full** subkey includes the subkey **Net Framework** rather than **.NET Framework**.

Note: If the **Full** subkey is not present, then you do not have the .NET Framework 4.5 or later installed.

Check for a DWORD value named **Release**. The existence of the **Release** DWORD indicates that the .NET Framework 4.5 or newer has been installed on that computer.

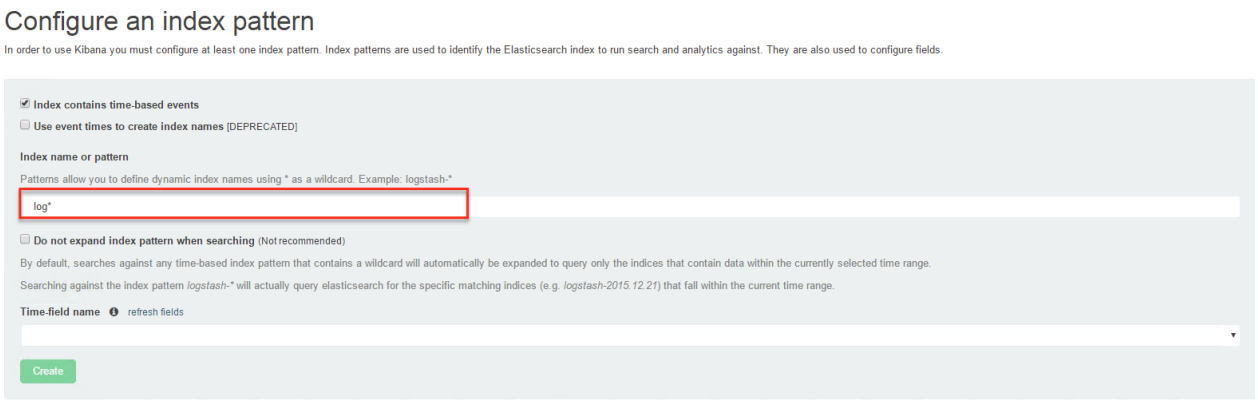


The value of the **Release** DWORD indicates which version of the .NET Framework is installed.

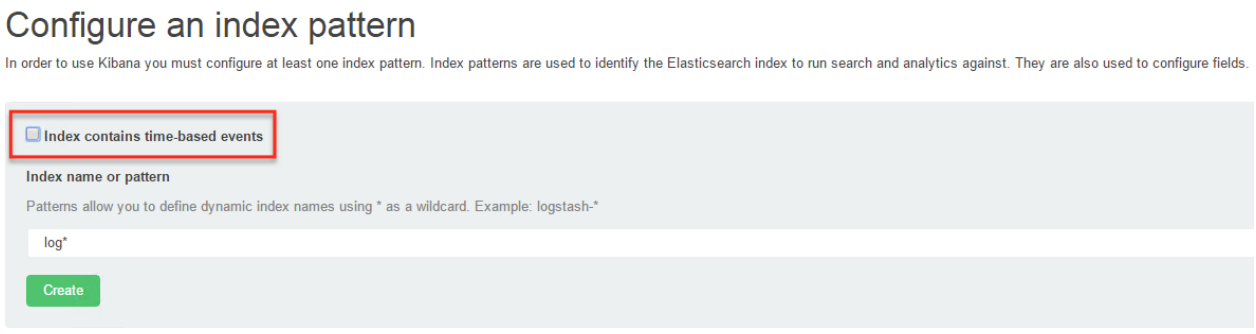
Version of the Release DWORD	Version
378389	.NET Framework 4.5
378675	.NET Framework 4.5.1 installed with Windows 8.1 or Windows Server 2012 R2
378758	.NET Framework 4.5.1 installed on Windows 8, Windows 7 SP1, or Windows Vista SP2
379893	.NET Framework 4.5.2
On Windows 10 systems: 393295 On all other OS versions: 393297	.NET Framework 4.6
On Windows 10 November Update systems: 394254 On all other OS versions: 394271	.NET Framework 4.6.1
On Windows 10 Insider Preview Build 14295: 394747 On all other OS versions: 394748	.NET Framework 4.6.2 Preview

Appendix 2 - Creating an Index Pattern to Connect to Elasticsearch

1. Go to the Settings > Indices tab.
2. Specify an index pattern that matches the name of one or more of your Elasticsearch indices. By default, Kibana guesses that you're you're working with log data being fed into Elasticsearch by Logstash. For example you can enter: **logs***



3. If your index contains a timestamp field that you want to use to perform time-based comparisons, select the **Index contains time-based events** option and select the index field that contains the timestamp. Kibana reads the index mapping to list all of the fields that contain a timestamp.



4. By default, Kibana restricts wildcard expansion of time-based index patterns to indices with data within the currently selected time range. Click Do not expand index pattern when search to disable this behavior.
5. Click **Create** to add the index pattern.