
Machete Installation Manual

Release 1.7.0

Savage Learning LLC

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INTRODUCTION

Machete is a web application built on Microsoft Internet Information Server (IIS) using the ASP.NET MVC Framework. Installing Machete will require a user with basic Windows and Internet experience.

blah blah blah

> blah blah blah

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- voo voo voo

> blah blah blah

INSTALLATION

2.1 System Pre-Requisites

- Hardware
- Software

2.2 Web Platform Installer

2.3 Database Configuration

2.4 Create IIS Site

2.5 Configure Application Pool

coming soon!

MAINTENANCE TASKS

3.1 Machete database backup

3.2 Weekly class creation

ONLINE ORDER FORMS

4.1 Overview

Machete offers the ability to receive work orders from other systems, such as public web sites. Orders from online systems are flagged as originating from an on-line system, then added to the Machete database like any other order originating from the user interface. This allows organizations to use an existing web site to capture work requests and forward them directly to Machete, or to integrate Machete into an existing Service Oriented Architecture (SOA) using HTTPS requests.

4.1.1 Security Concerns

Due to the nature of computer networks, when creating applications that receive business data from the Internet, precautions must be taken to protect against unwanted spamming or malicious hacking. To address this, Machete uses public key certificates (certs) to ensure that only authorized systems can create orders automatically. In simple terms, a cert is created for an external system, then installed in Machete's web server configuration. When a client attempts to connect, it must offer a cert that Machete knows to trust, or the connection will be ignored.

Any 3rd-party system can be configured to forward orders to Machete, provided that the system can offer the cert to Machete when it initiates the communication. Such functionality is common for modern web browsers and web automation languages (Python, Perl, C#).

4.1.2 Order Form Design

Most modern websites use a web framework such as WordPress or Drupal. These frameworks offer a large variety of plug-ins that provide common functionality to a web site developer, such as forms, blogs, and RSS feeds, and Machete takes advantage of these functions. Machete relies on the website's framework to create a form that captures the necessary information for the work order, and to store the order in the website's database. Once recorded, Machete will find the order through the use of scripts installed on the website's server, and forward order to Machete.

Machete also leverages the website framework for email notification. Most frameworks allow for email verification when a form is submitted. Machete uses this feature to confirm the order with the employer submitting the request by sending the employer an electronic receipt of the submission. The Machete scripts are then responsible for getting the order to the Machete system. if the script encounters a problem sending the order to Machete, it emails an alert to the administrator, which is defined in script configuration file.

4.2 Drupal 7 Add-On

The Machete add-on for Drupal consists of a series of scripts and scheduled tasks that interact with standard Drupal modules. The setup and maintenance of Drupal itself is beyond the scope of this document, which assumes that Drupal is installed and configured properly.

4.2.1 System Pre-requisites

A Mail Server

The Machete script saves errors to a log file and sends email notifications when an error occurs. The script assumes that an email service exists on the web server and is available for the script to use. Configuring the email server is beyond the script of this document.

The Machete script uses the Python `smtpplib` to interact with the mail server. It has been tested using a local postfix mail server, but should also work other SMTP servers, such as Gmail. Documentation on `smtpplib` can be found here: <http://docs.python.org/2/library/smtpplib.html>

Python Interpreter & Modules

Python is the scripting language used for the Machete scripts on the website's server. Python 2.x will need to be installed on the web server and available to the user account executing the Machete scripts. Additionally, the scripts will need the following Python modules:

PIP Installer

PIP is a utility for installing Python packages automatically. You will need administrator privileges on the web server to install it. To do so, execute the following from a terminal window:

```
sudo apt-get install python-pip python-dev build-essential
```

If apt-get is not available, PIP can be found here: <http://www.pip-installer.org/en/latest/>

Once PIP is installed, use it to upgrade itself to the latest version:

```
sudo pip install --upgrade pip
```

Virtualenv Module

The Virtualenv module for Python allows scripts to create a virtual execution environment for the script, so that it does not interfere with other python installations.

```
sudo pip install --upgrade virtualenv
```

Requests Module

The Python Requests module handles the communication between the script and Machete using HTTPS. It is required for the script to function. To install it, execute the following on the web server:

```
pip install requests
```

Information on the Requests module can be found at the following link: <http://docs.python-requests.org/en/latest/user/install/>

Python mysqldb Module

The Python Mysqldb Module allows the script to query Drupal's database (mysql). This module is required for the script to function. To install it, execute the following on the web server:

```
sudo apt-get build-dep python-mysqldb pip install MySQL-python
```

For more information on Python integration with Mysql, see the following link: <http://sourceforge.net/projects/mysql-python/>

4.2.2 Drupal Pre-requisites

An existing Drupal installation

See <http://drupal.org> for more information on Drupal. Many shared hosting sites offer Drupal support.

Drupal Modules

- **Webform:** <http://drupal.org/project/webform>

Webform is a module that aids in making various one-off forms such as contact forms, surveys, order forms, reservations, CRM requests, and more.

- **webform_validation:** http://drupal.org/project/webform_validation

Webform Validation adds an extra tab to each webform node, allowing you to specify validation rules for your webform components.

4.2.3 Installation

Create Drupal form

Use the Drupal framework to create a webform. See the following link for documentation pertaining to creating a Drupal webform: <http://drupal.org/documentation/modules/webform>

The screenshot shows the Drupal WebForm configuration interface. At the top, there's a navigation bar with links like Dashboard, Content, Structure, Appearance, People, Modules, Configuration, Node Hierarchy, Reports, and Help. Below this is a secondary navigation bar with links like Add content, Find content, Main menu, Contact Entries, and Newsletter Entries. The main content area is titled 'Worker Online Order Form' and includes tabs for VIEW, EDIT, WEBFORM, RESULTS, CONVERT, LOG, and KEYWORDS. Under the WEBFORM tab, there are sub-tabs for Form components, E-mails, Form settings, Form validation, Export, and Import. A table lists the form components with columns for LABEL, TYPE, VALUE, MANDATORY, and OPERATIONS. The table contains seven rows of form fields.

LABEL	TYPE	VALUE	MANDATORY	OPERATIONS
+ Employer Information	Fieldset	-		Edit Clone Delete
+ Is this a business?	Select options	False	<input type="checkbox"/>	Edit Clone Delete
+ Name	Textfield	-	<input checked="" type="checkbox"/>	Edit Clone Delete
+ Address 1	Textfield	-	<input checked="" type="checkbox"/>	Edit Clone Delete
+ Address 2	Textfield	-	<input type="checkbox"/>	Edit Clone Delete
+ City	Textfield	-	<input checked="" type="checkbox"/>	Edit Clone Delete
+ State	Textfield	-	<input checked="" type="checkbox"/>	Edit Clone Delete

Figure 4.1: The Drupal WebForm configuration page

Machete has a set number of fields for creating an Employer record and a Work Order record, and the webform must provide values for all required fields. A few fields are not required, and can be provided or left blank by the webform. Therefore, when creating the webform, the following fields must be created. Using the fields names below in the webform will also simply subsequent steps.

The following is a list of the fields expected by the Machete script:

Field Name	Data type	Required?	Description
business	boolean	yes	
name	string	yes	
address1	string	yes	
address2	string		
city	string	yes	
state	string	yes	
zipcode	string	yes	
phone	string	yes	Primary phone
cellphone	string		Secondary phone
email	string		
referredBy	int		The integer values are configured in Machete. The webform must use the same
referredbyOther	string		
blogparticipate	boolean	yes	
returnCustomer	boolean	yes	
notes	string		Free form text related to the employer
contactName	string	yes	
workSiteAddress1	string	yes	
workSiteAddress2	string		
wo_city	string	yes	
wo_state	string	yes	
wo_zipcode	string	yes	
wo_phone	string	yes	
typeOfWorkID	int	yes	The integer values are configured in Machete. The webform must use the same
englishRequired	boolean	yes	
englishRequiredNote	string		Free form text about language requirements
lunchSupplied	boolean	yes	
description	string		Free form text related to the work order
date_needed	string	yes	
time_needed	string	yes	
timeFlexible	boolean	yes	
transportMethodID	int	yes	The integer values are configured in Machete. The webform must use the same

Map webform IDs to Machete fields

Once the webform is created, you will need to interrogate the webform and find the webform's internal IDs for the created form, and each field within the form. These IDs will be used by the Machete script to find the online orders inside the Drupal database and forward the order to Machete.

The simplest way to get the IDs is to export the form using the Export feature on the webform configuration page. Clicking the Export button on the upper-right side of the page will prompt to save a text file. The file is a (serialized) export of the webform, and contains all the internal IDs necessary.

you will need to customize the Machete scripts to match the IDs in your webform. The Machete script uses the IDs to extract values from Drupal's webforms database. Once it has the values, it sends them to Machete using the certs configured in subsequent sections. Using a text editor, do the following:

1. Edit the `employer_form.ini` file. Replace the number under the `[webform]` tag with the number embedded in the Export file's name. This is the Drupal `nid` ID for the webform.
2. Edit the `employer_combined.py` script. This is the script that reads the Drupal database, finds the webform entries, and processes them. At the top of the script, there is a `fields` array, which maps ID numbers to the Machete fields. You will need to search the Export file for the `cid` ID of each field, and replace the number in

the script with the number from the file. The numbers are assigned by Drupal—you must complete the mapping so that the Machete script knows which cid fields go with which Machete field.

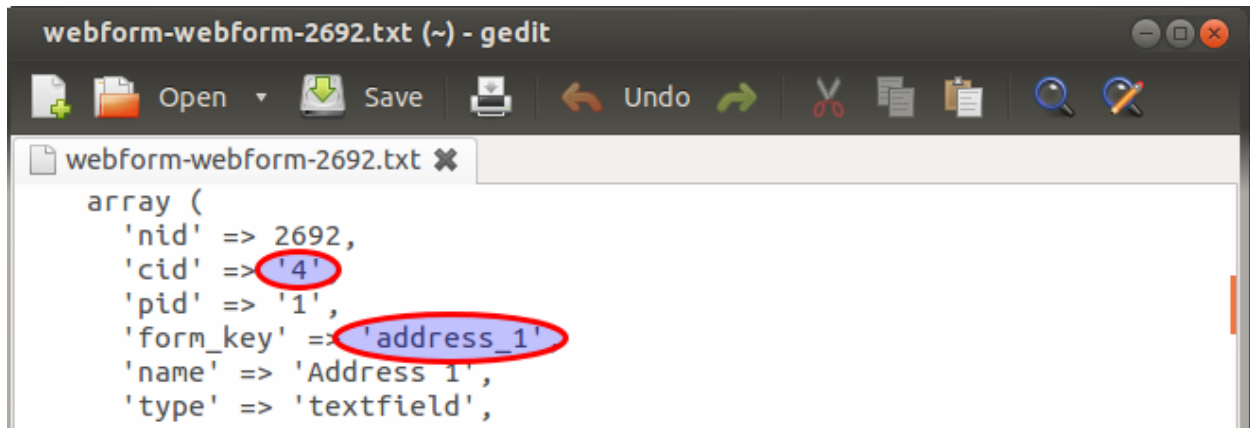


Figure 4.2: Mapping cids from the export file

Add tracking table to database

To track which webform entries have been sent to Machete, a new table must be added to the Drupal database. The table tracks the internal sid ID of webform order, whether it was successfully transmitted, how many attempts it took to transmit the order, and the date of the last attempt.

Execute the following statement from the mysql CLI:

```
create table webform_machete (sid int not null primary key, success boolean not null default 0, tries int, last_attempt datetime)
```

This SQL statement will create the table and its four fields with the proper settings. To verify that the table is created properly, execute the following from the mysql CLI:

```
show columns from webform_machete;
```

The show columns command will give a simple text-based display of the table, its four fields, and their properties.

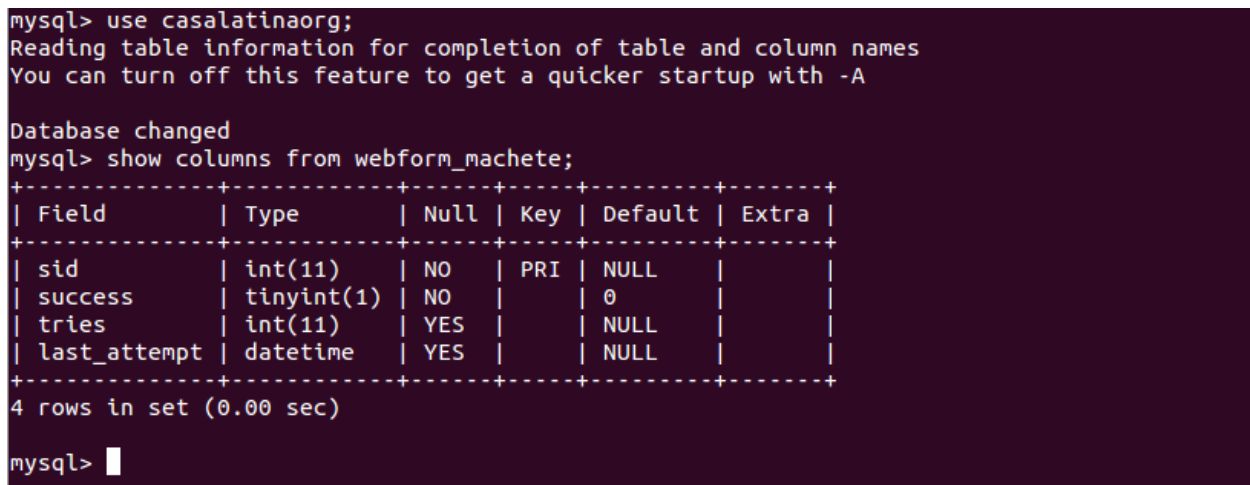


Figure 4.3: Verifying webform_machete table creation

Schedule Machete script execution

The Machete script needs to be scheduled to run in order to execute, find new orders, and process them. On UX-type systems, a cron entry will execute the script periodically. To add the entry, execute the following command with root privileges:

```
crontab -e
```

On most systems, this will load the cron settings (crontab) in a text editor. Add the following line at the bottom of the crontab.

```
*/* * * * * bash -c "cd /home/user/pymachete;/usr/bin/python  
/home/user/pymachete/employer_combined.py"
```

Save the crontab. The script will execute based on the cron entry.

Certificate configuration

A x509 certificate is used to secure communications between the website and Machete. The following steps must be completed for the communication to work safely and successfully:

1. Create the x509 certificate on the website
2. Make the certificate available to the Machete script
3. Create a secure IIS web site instance on Machete
4. Add the certificate's public key to the secure site's configuration
5. Verify proper configuration by running the Machete script

Create x509 certificate

Creating certificates is a non-trivial task. Certificates incorporate complex cryptography and are somewhat tedious. For a more thorough treatment of how to make a certificate and what each step does, see the following link:

<https://help.ubuntu.com/10.04/serverguide/certificates-and-security.html>

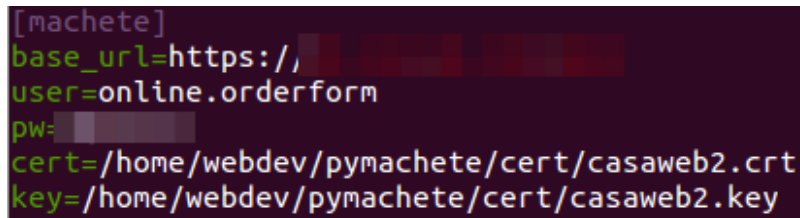
For Machete, the following steps have been used successfully, and were taken from the above link. If you encounter problems creating the certificate, refer to the link first and identify what, if anything, you did differently.

- `openssl genrsa -des3 -out example.key 1024`
- `openssl rsa -in example.key -out example.key.insecure`
- `mv example.key example.key.secure`
- `mv example.key.insecure example.key`
- `openssl req -new -key example.key -out example.csr`
- `openssl x509 -req -days 365 -in example.csr -signkey example.key -out example.crt`

Make available to Machete script

Once the example.crt cert and the example.key exist, copy them to the website server. Or, if you executed the above steps on the server, move the cert file to the location of the Machete scripts. You can, and probably should, rename the files to be a little more descriptive too.

The Machete script's ini file has a config entry for the script, so you can store the files wherever you wish, but it makes sense to keep all the components of the Machete script in the same location. Edit the `employer_form.ini` file and update the `cert` entry and the `key` entry to the locations of the files.



```
[machete]
base_url=https://
user=online.orderform
pw=
cert=/home/webdev/pymachete/cert/casaweb2.crt
key=/home/webdev/pymachete/cert/casaweb2.key
```

Figure 4.4: Editing `employer_form.ini` file, adding certificate information

Create secure IIS site instance

Add certificate to site

Verify Configuration

Add to Firefox - Allows you to access the Machete interface using the certificate

- create a pkcs12 file from the x.509 public cert and private key
- `openssl pkcs12 -export -in example.crt -inkey example.key -out example.p12`

In Firefox, import

- Edit > Preferences > Advanced > Encryption > View Certificates > Your Certificates > Import the p12 file

WINDOWS 7 INSTALLATION

This document is a HOWTO for installing Machete on a Windows 7 OS system. It captures each step either as a screenshot, or narrative text, guiding the reader through the installation. For a more detailed explanation on installing Machete, see Chapter 2, Installation.

5.1 Install Internet Information Server

Click: Start -> All Programs -> Control Panel -> Programs and Features

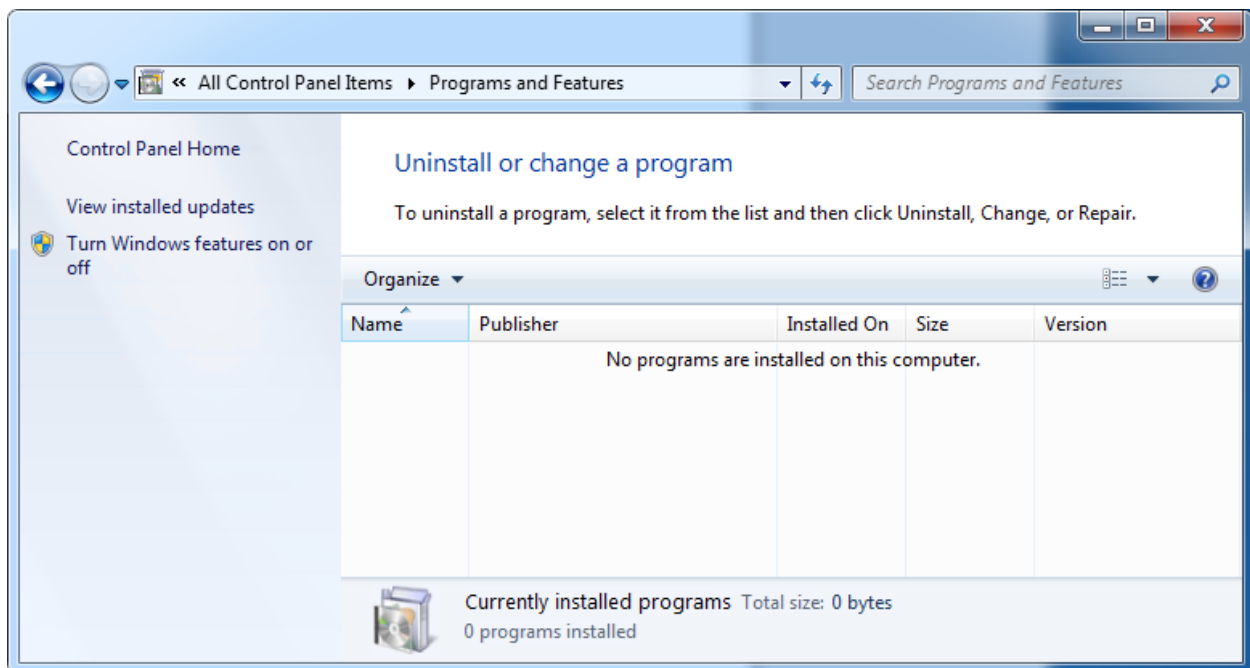


Figure 5.1: Control Panel

Click “Turn Windows features on or off”

select “Internet Information services” and select “OK”

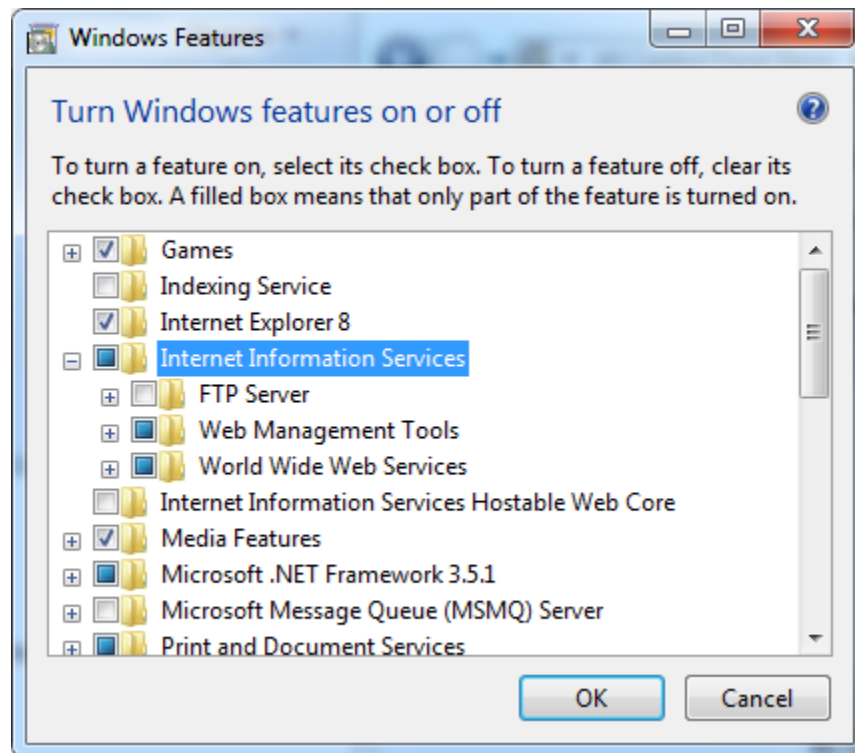


Figure 5.2: Windows Features

5.2 Check the IIS installation

Start -> All Programs -> Internet Explorer (Or Chrome, or Firefox)

Go to address: <http://localhost/>

If IIS is running correctly, it will display the default IIS page (seen above).

5.3 Configure Machete host name

Start -> All Programs -> Accessories -> Notepad [Right-click -> **Run As Administrator**]

(click 'yes' on the security authorization)

Using notepad, open the file C:\Windows\System32\drivers\etc\hosts

put "*.*)" in the File name to see all the files

select "hosts"

Add "127.0.0.1 machete" to the hosts file.

Save the file.

Use Internet Explorer (or Chrome, or firefox). Check that <http://machete/> works.

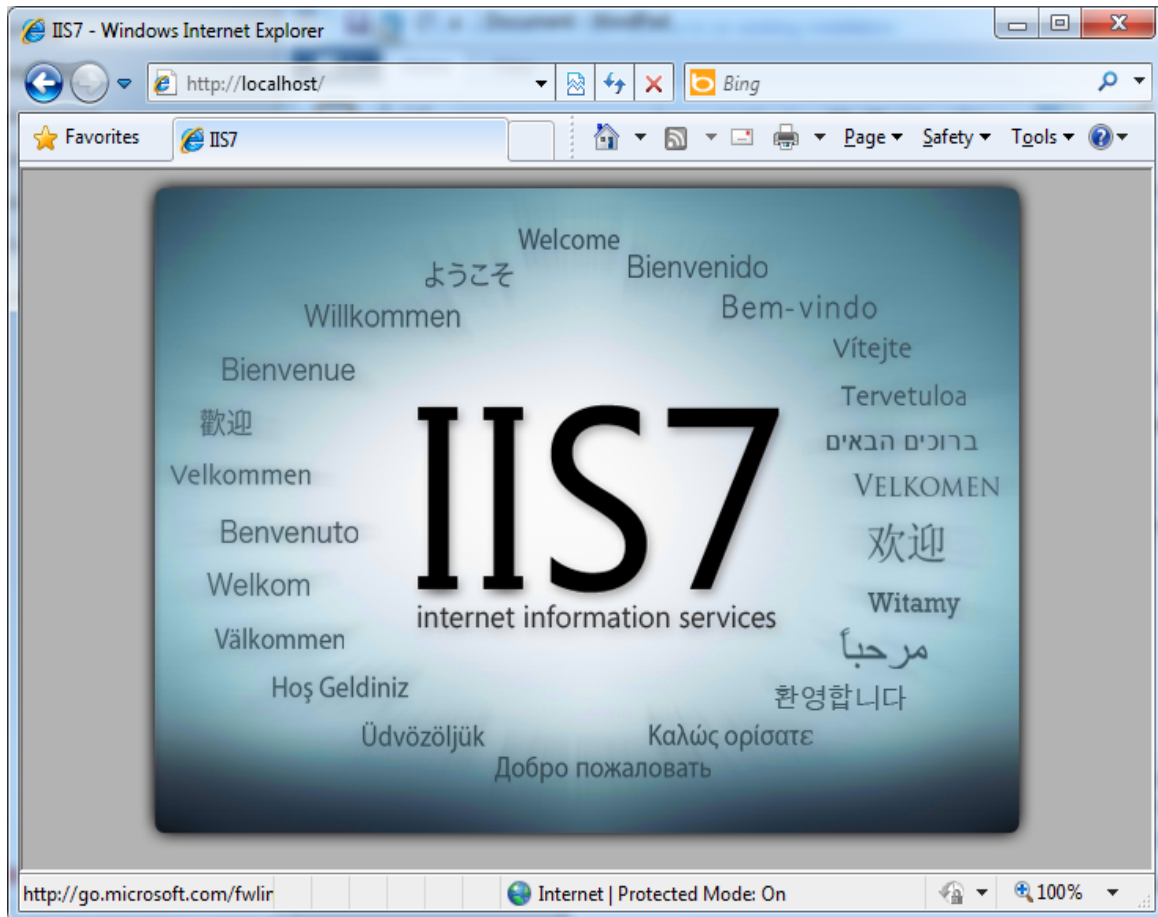
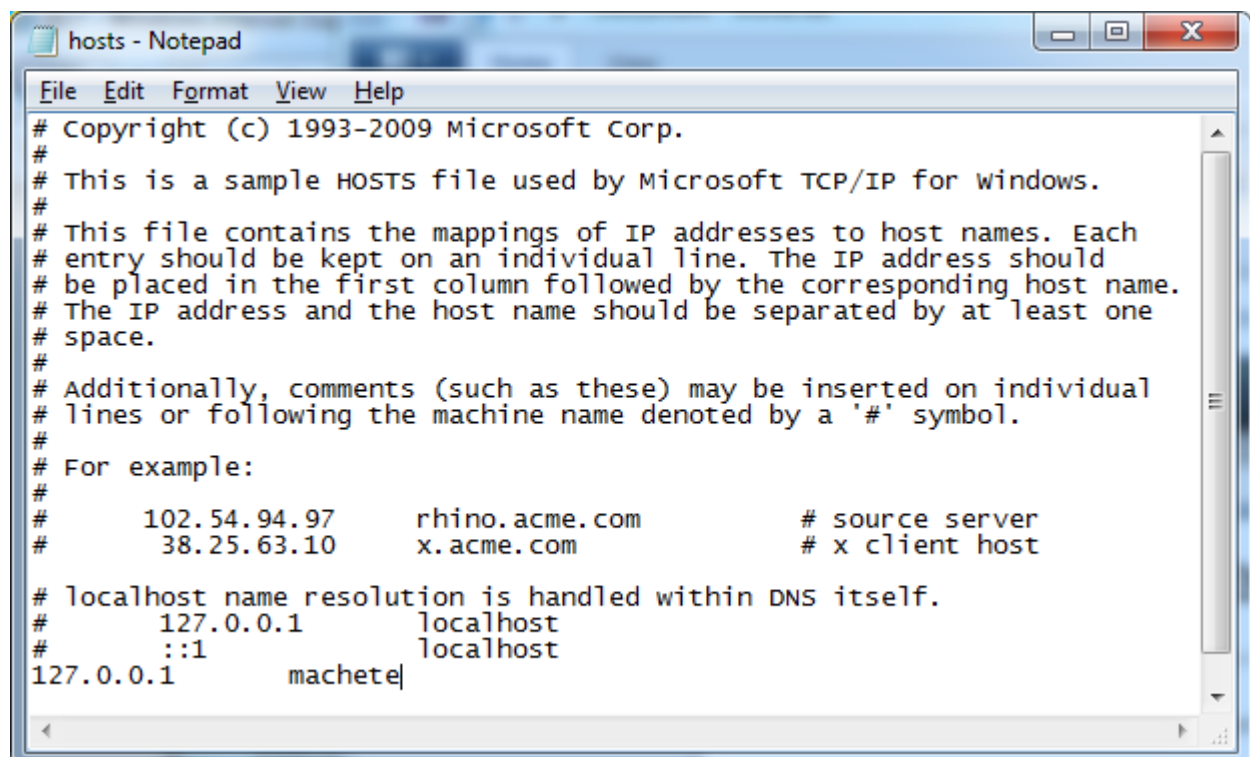
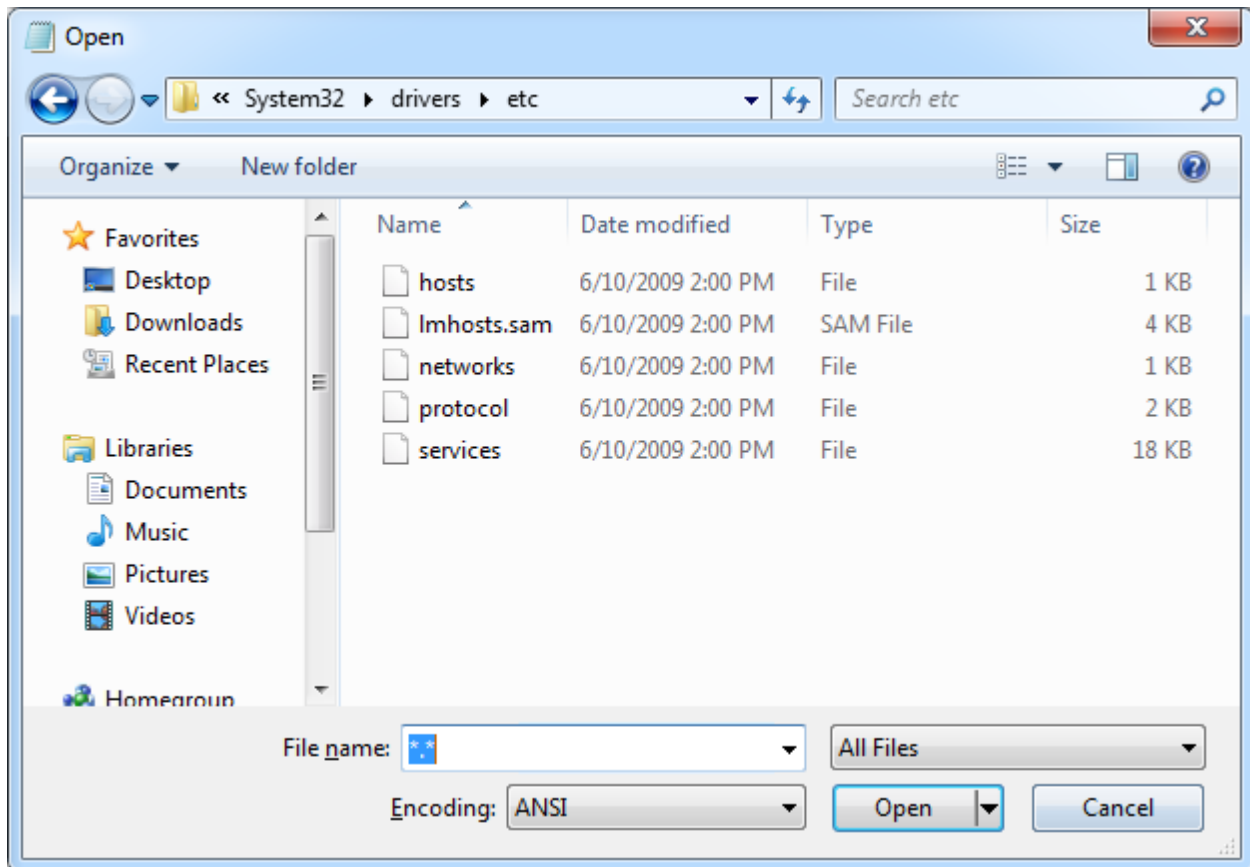
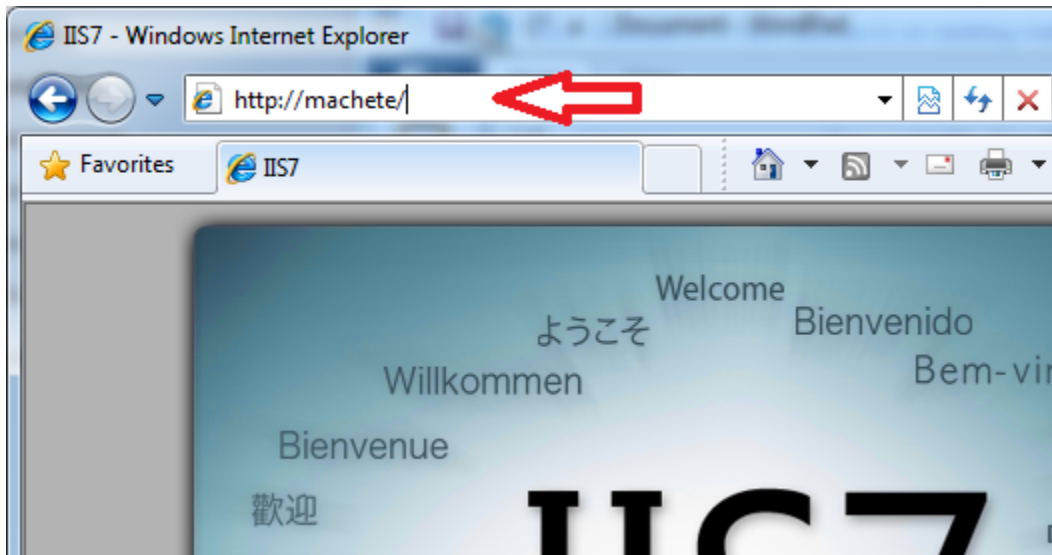


Figure 5.3: IIS default page





5.4 Install Web Platform Installer

5.4.1 Download the Web Platform Installer from Microsoft

<http://www.microsoft.com/download/en/details.aspx?id=6164>

Click Download for either x86 / x64, depending on the platform

Click Run on the Download page

Click Run on the Security warning

Click "I accept the terms in the License Agreement"

Click "Install"

Click "Yes" on the User Account Control (another security warning)

Click "Finish"

Start -> Microsoft Web Platform Installer

Click "Yes" on the User Account Control (the security dialog)

Click "Products"

Find and Click Add next to "Microsoft .NET Framework 4"

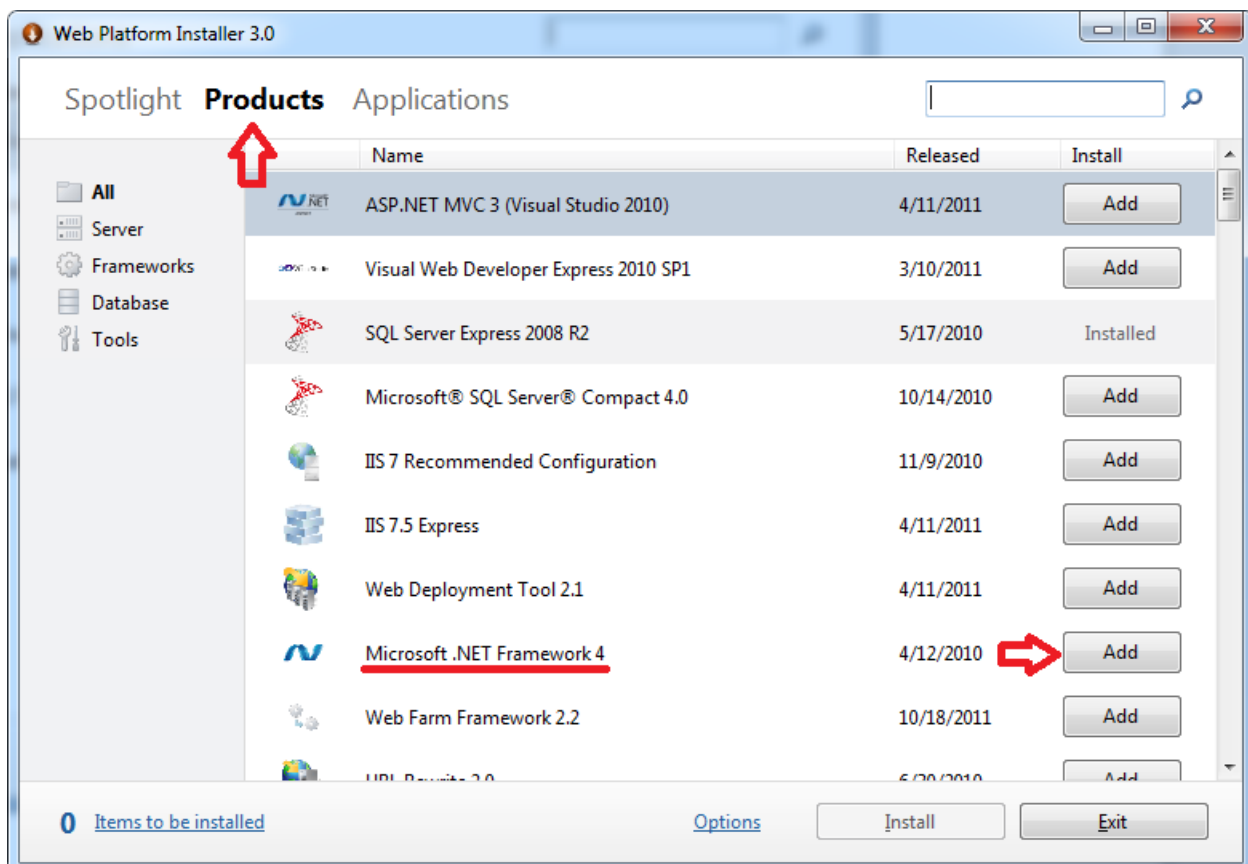
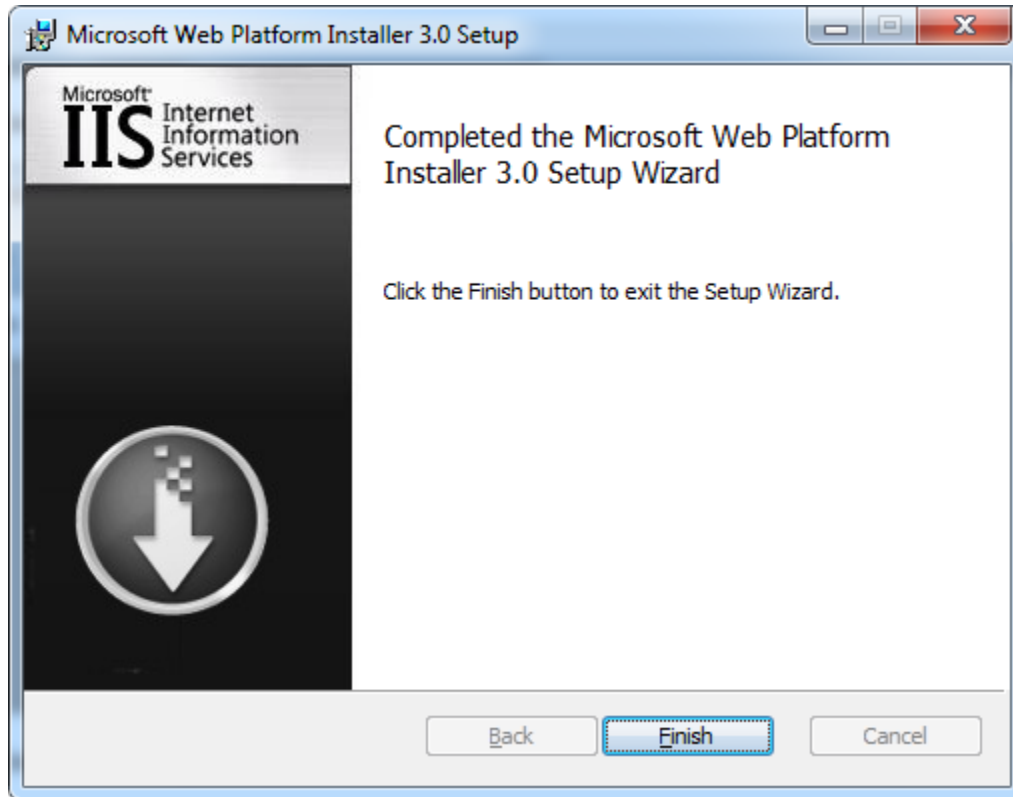
Click "Install"

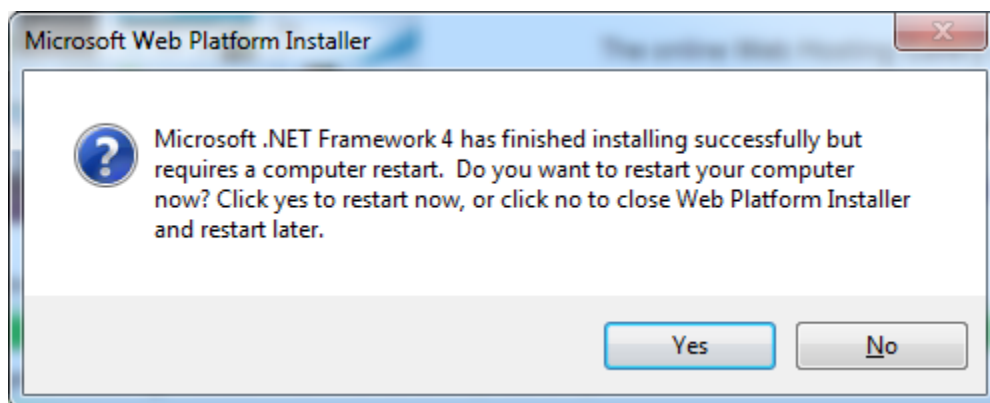
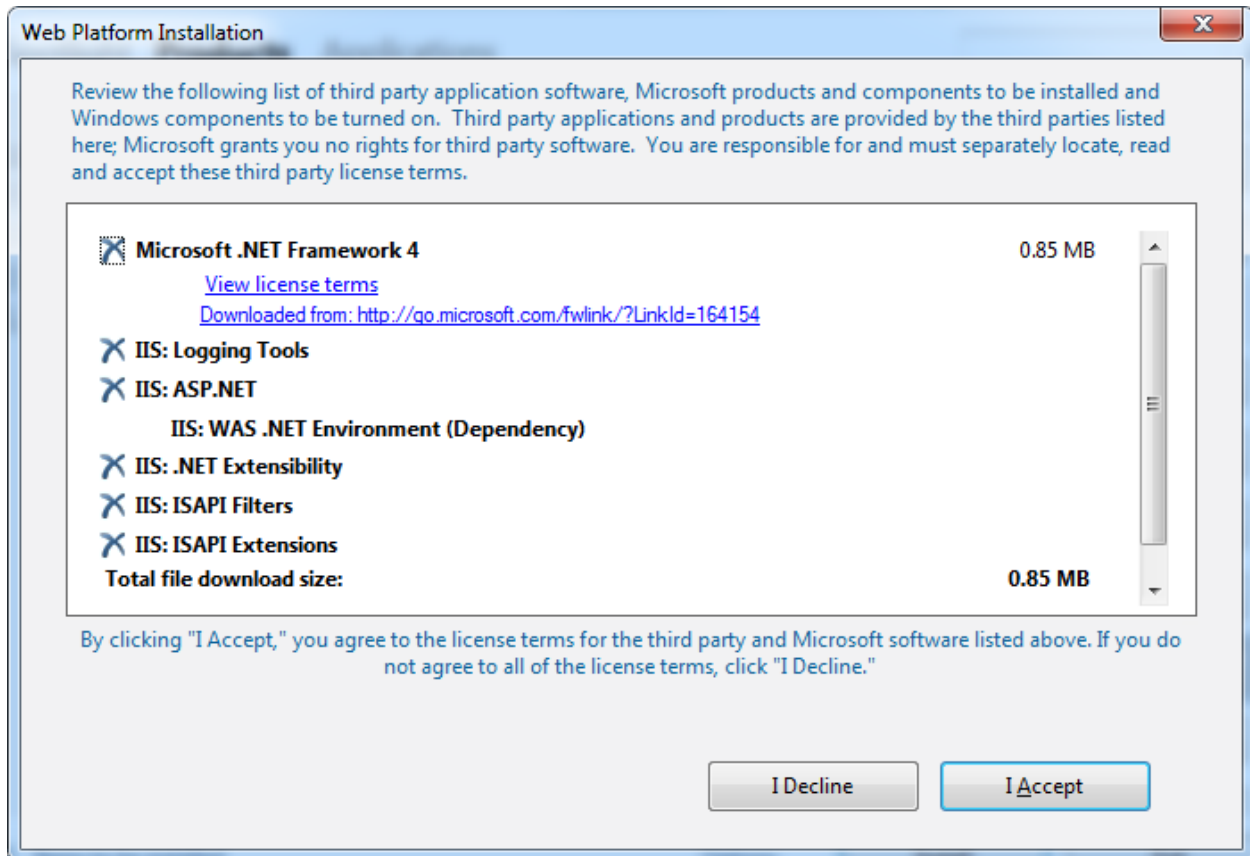
Click "I Accept"

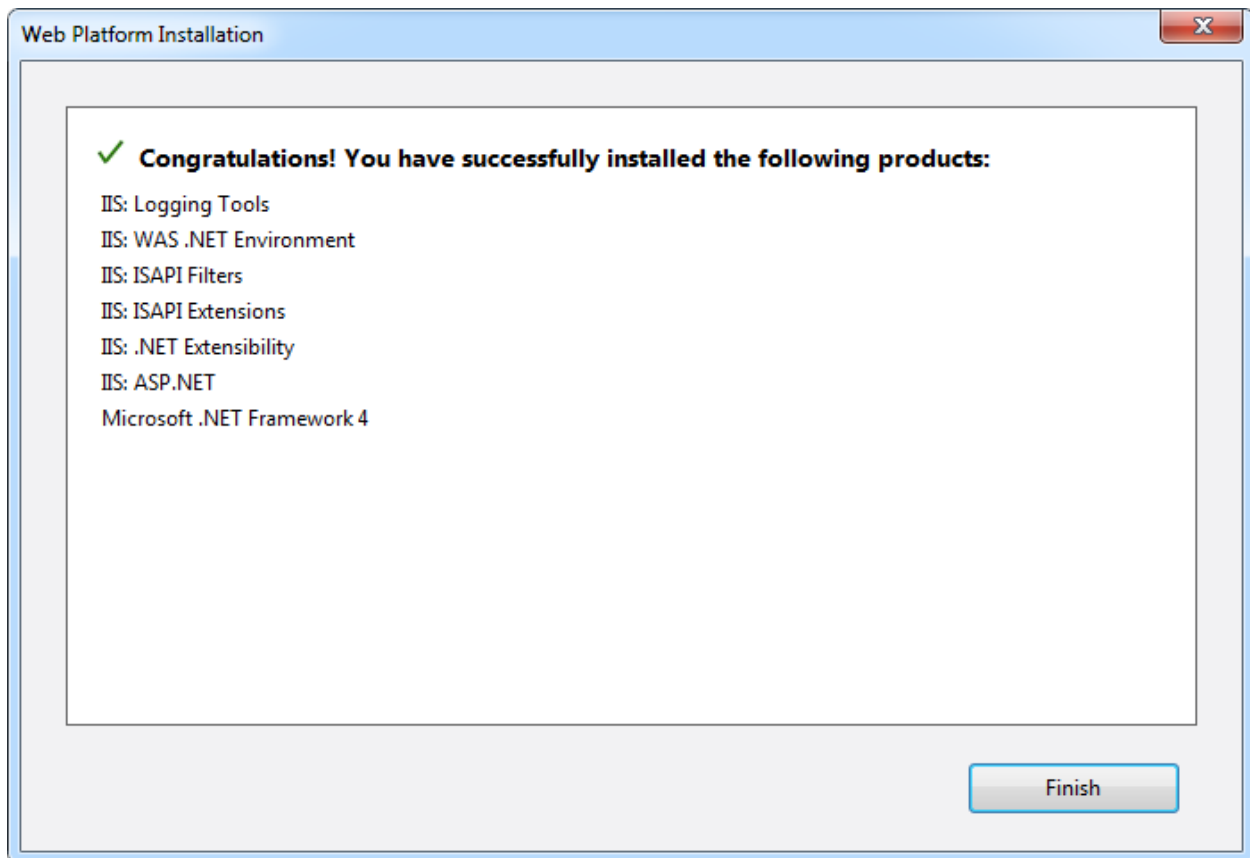
Click "Yes" and reboot.

Click "Finish"

Click Exit







5.5 Configure IIS Application Pool and Machete Web Site

Start -> Control Panel -> Administrative Tools

double click "Internet Information Services (IIS) Manager"

Double-Click on the Web Server (The name will be different than in the image)

Double-Click on "Application Pools"

Double-Click on the "DefaultAppPool"

Change the ".NET Framework version" to "v4.0.30319"

Click "OK"

Right-click on "DefaultAppPool", click "Advanced settings..."

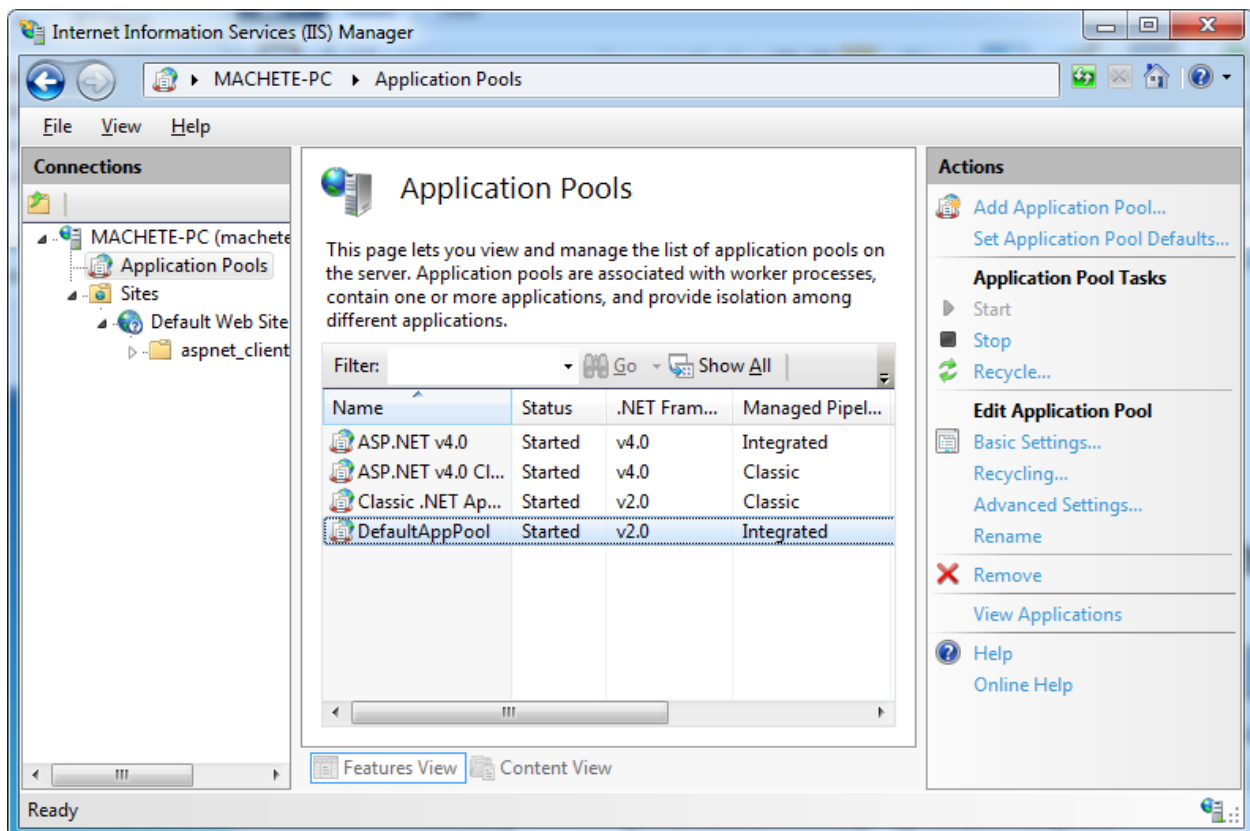
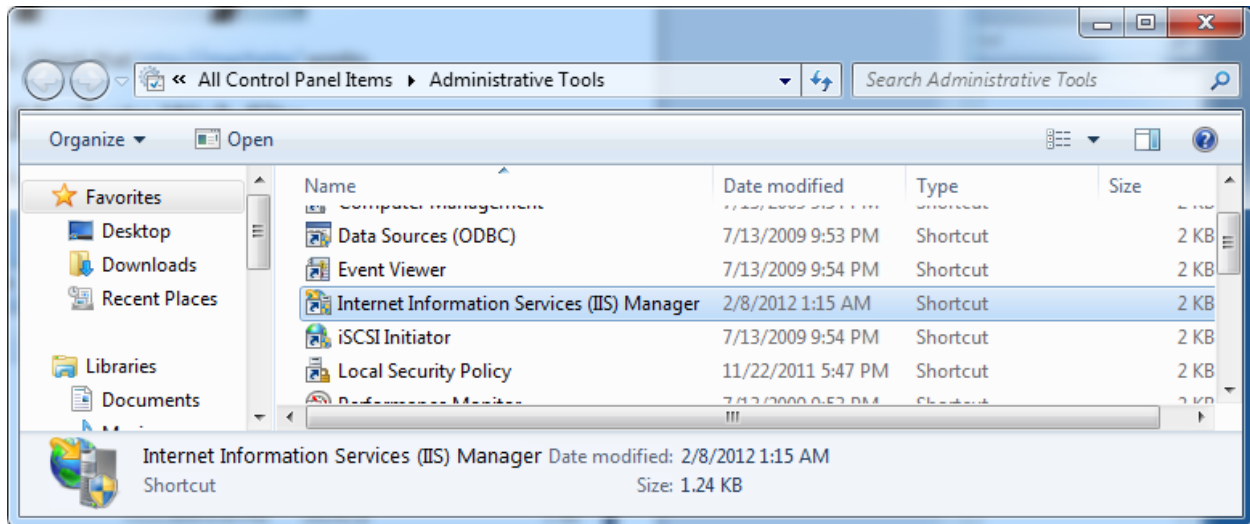
Click the "..." in the Identity field

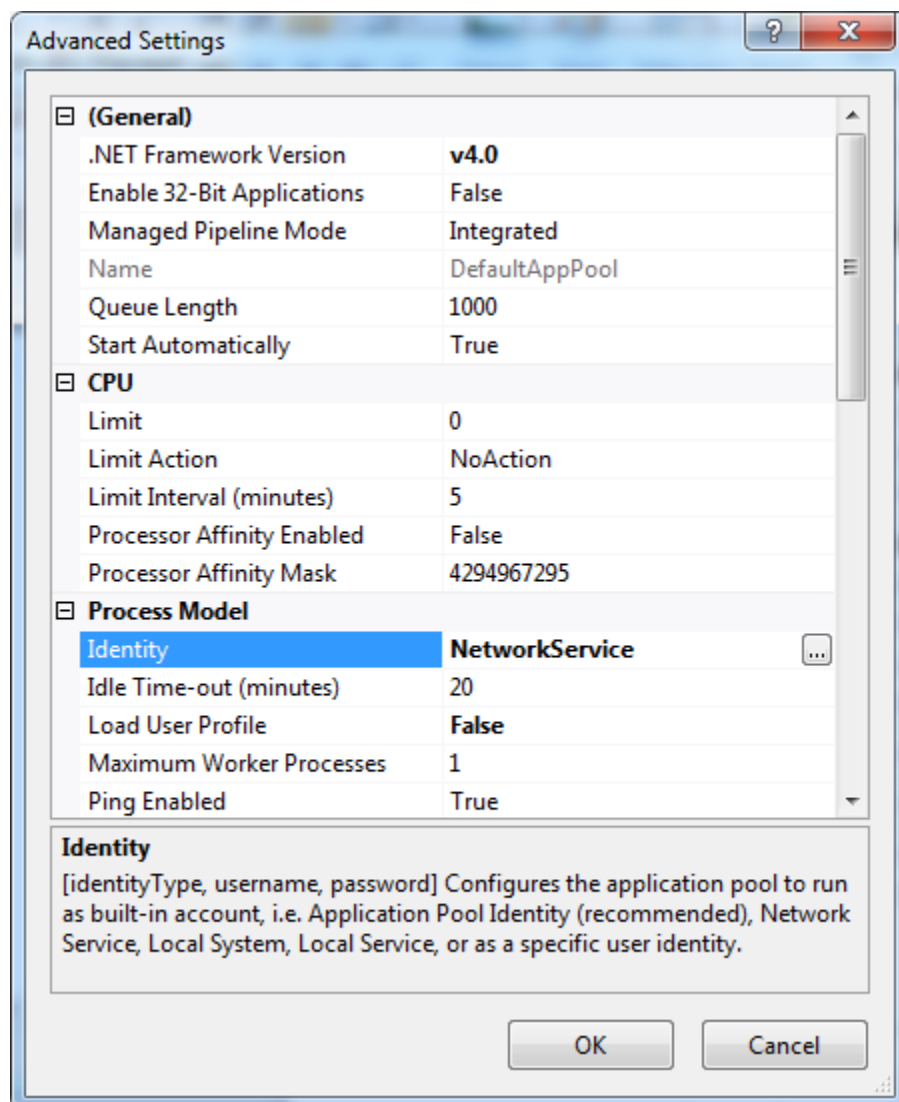
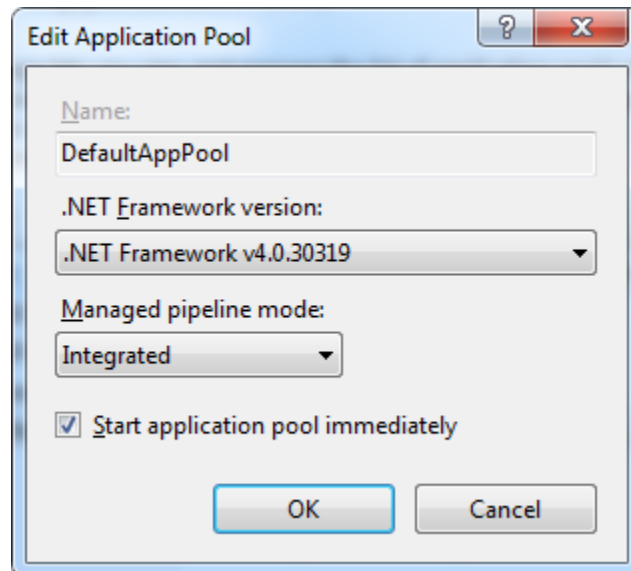
Change the "Built-in account" to "NetworkService", then click "OK"

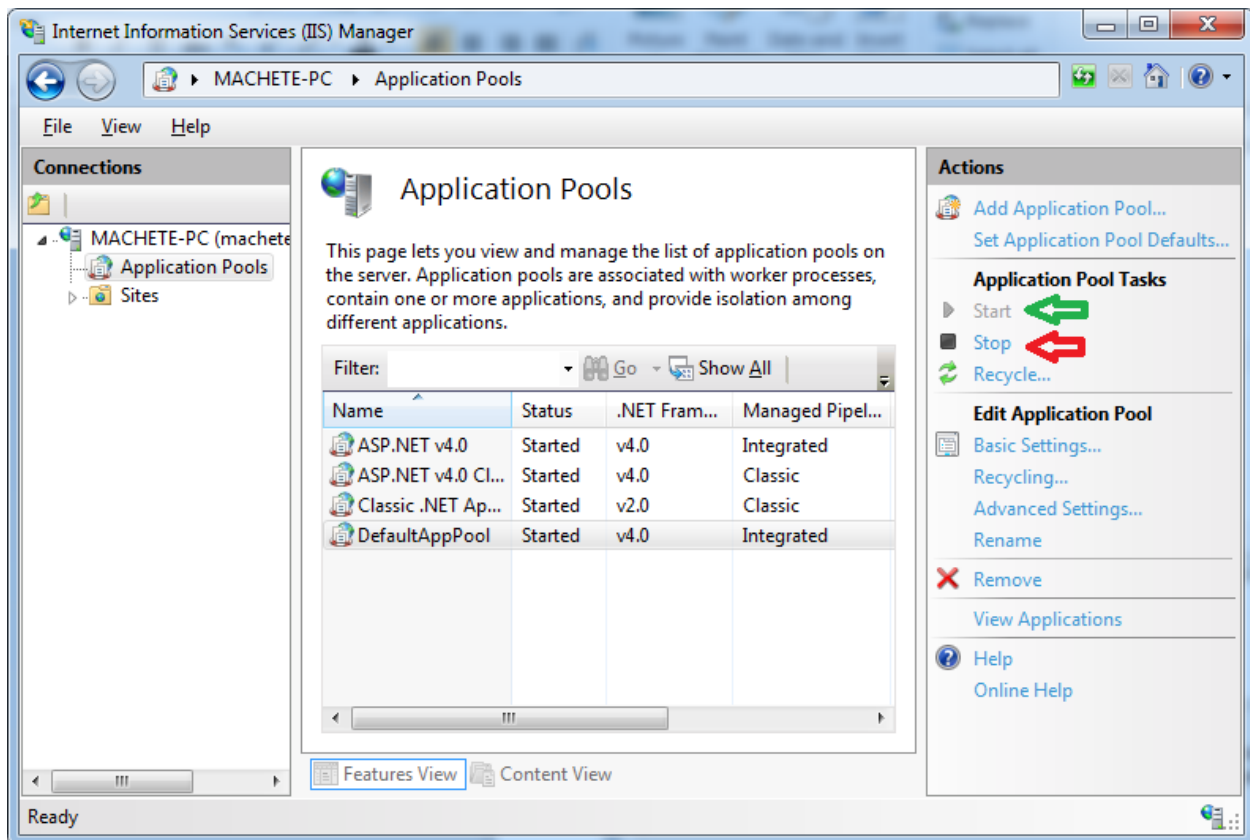
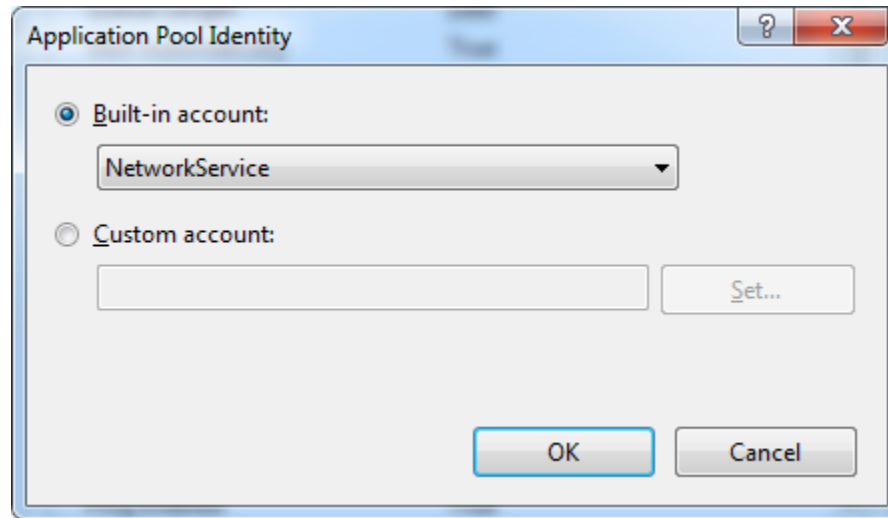
Click "OK" to the "Advanced Settings" to close the window.

Click "Stop" and wait for the Application Pool to stop.

Click "Start" and wait for the Application Pool to start.



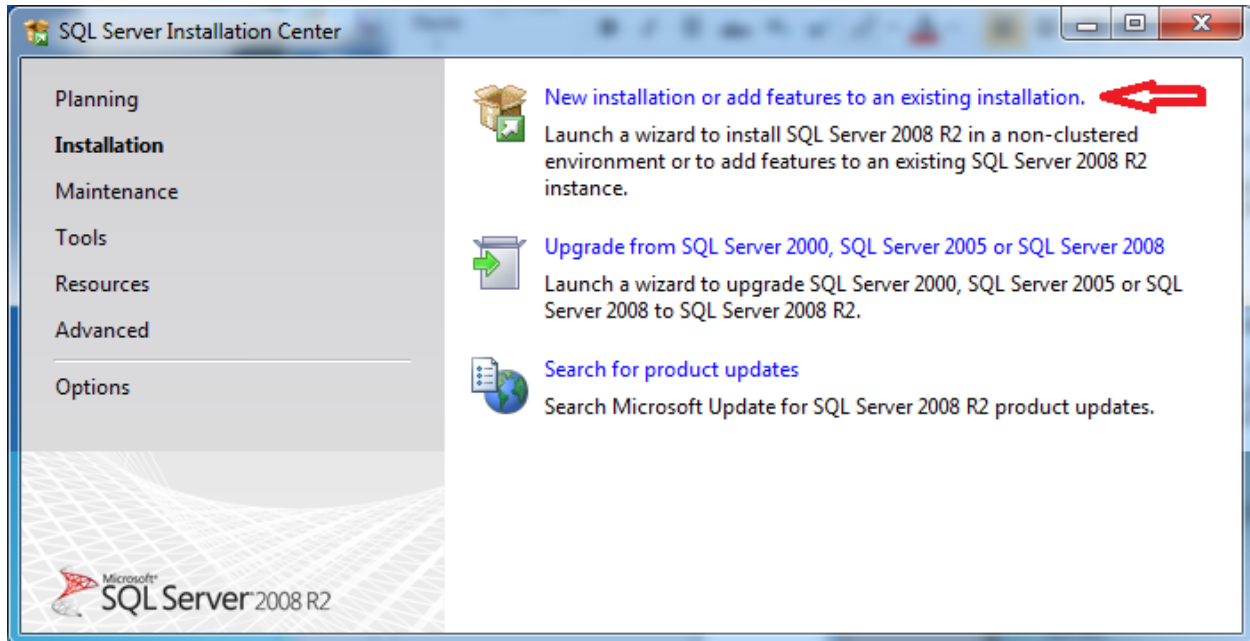




5.6 Install SQL Server Express

Down SQL Server Express with Management Tools (choose x86 or x64, based on the OS)<http://www.microsoft.com/download/en/details.aspx?displaylang=en&id=23650>

Run the downloaded program



Click on “New installation ... “

Click “I accept the terms”

Click “Next” -> (several screens will pop up and go away...wait)

Uncheck “SQL Server Replication” and uncheck “SQL Client Connectivity SDK”

Click “Next”

Click “Next” (DO NOT CHANGE the names. Machete is configured to use these names.)

Click “Next” thru the Server Configuration page

Click “Next” thru the Database Engine Configuration page

Click “Next” thru the Error Reporting page. The installation will start.

Click Close

Click the “Red X” in the upper right-hand of the box.

Configure “Network Service” account to access SQL Server

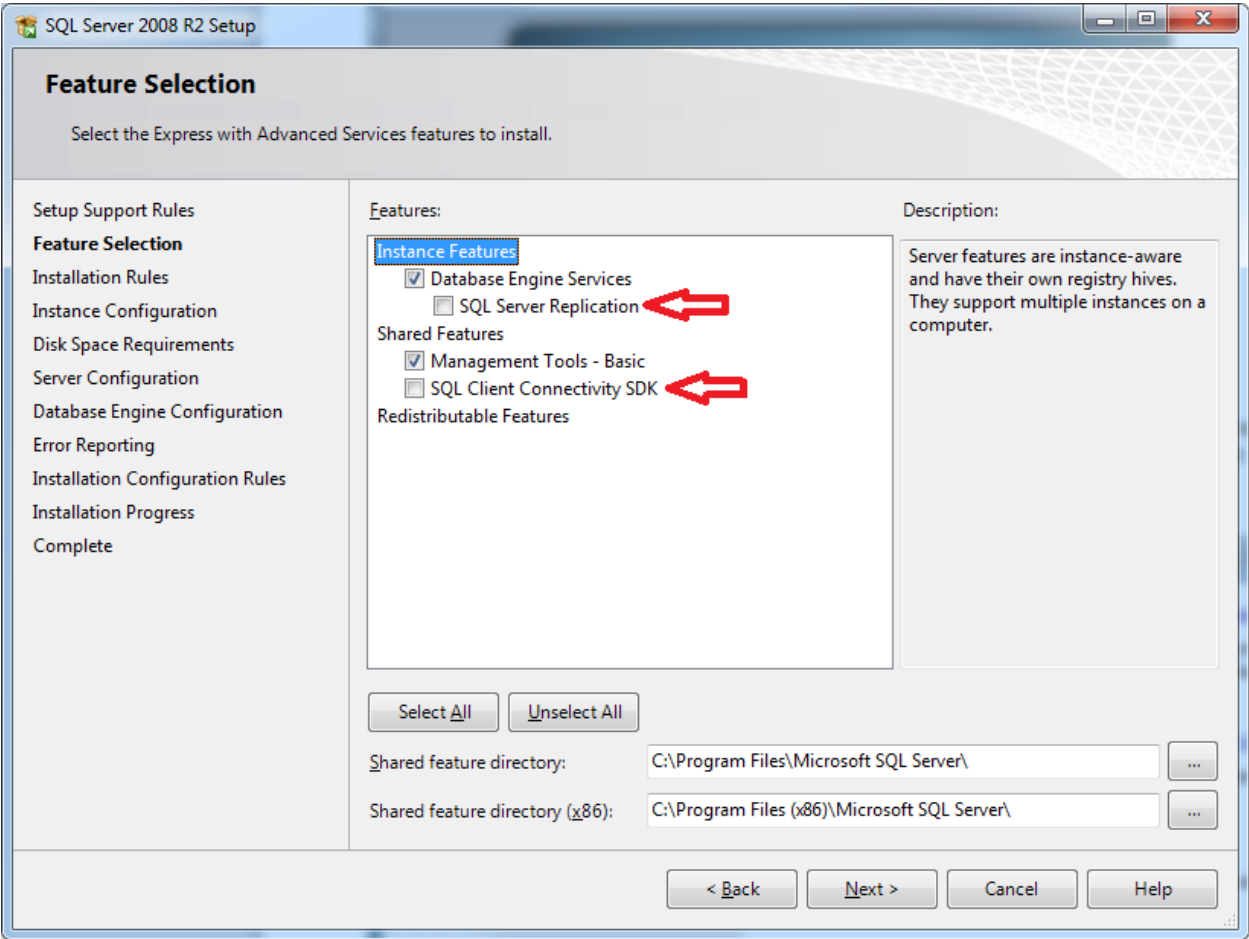
Start -> All Programs -> Microsoft SQL Server 2008 R2 -> SQL Server Management Studio (SSMS)

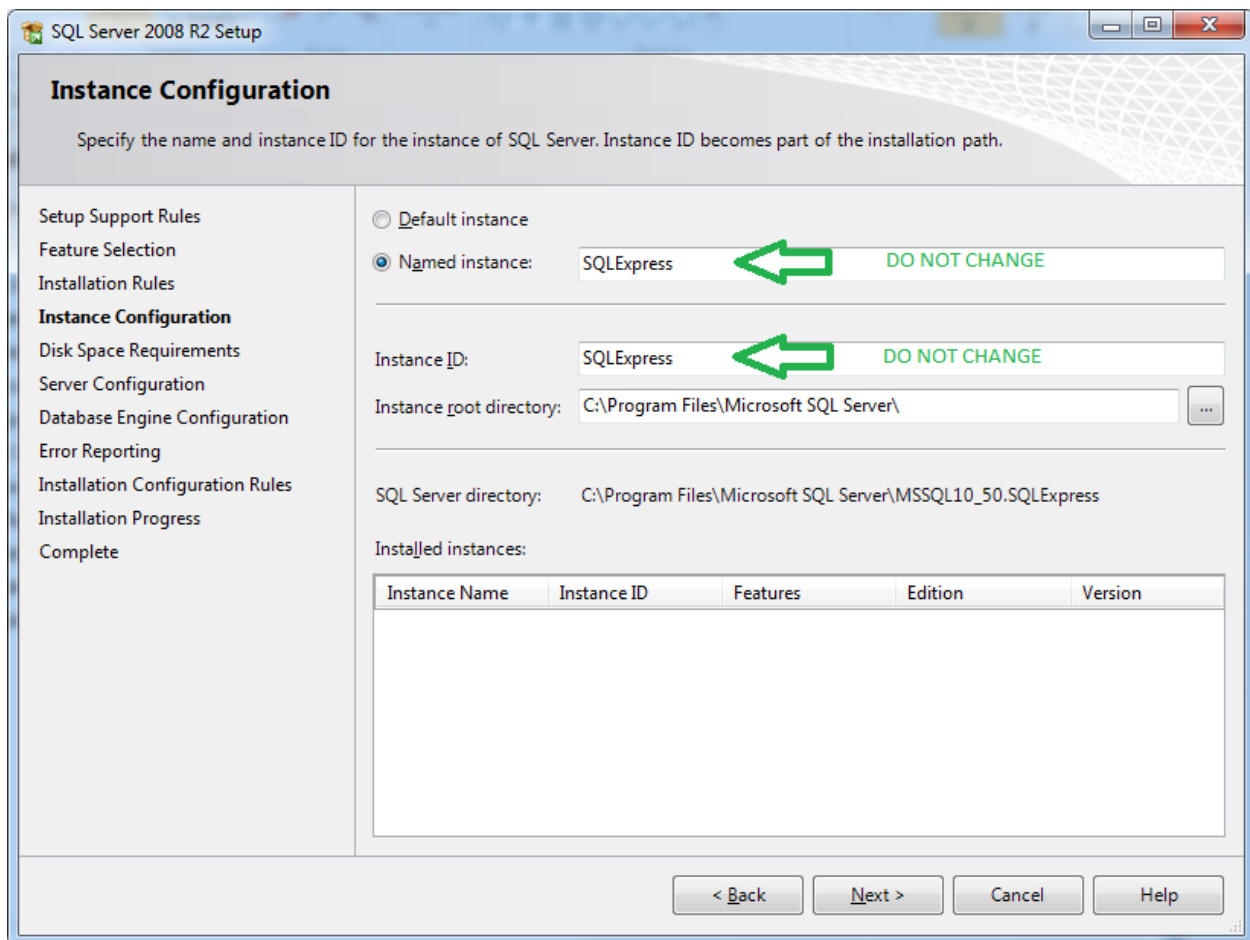
Set server name to “localhost\SQLEXPRESS”

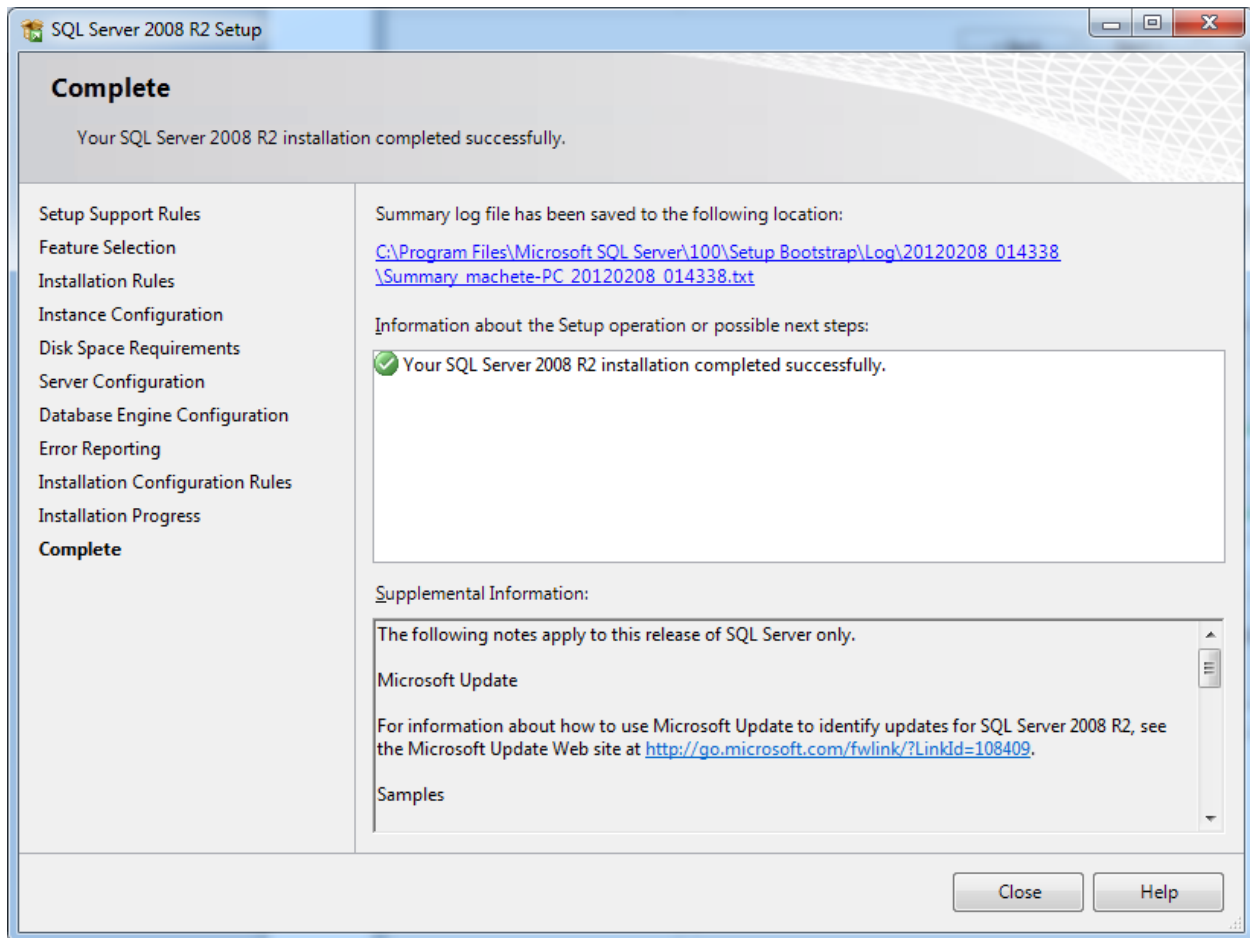
Click “Connect”

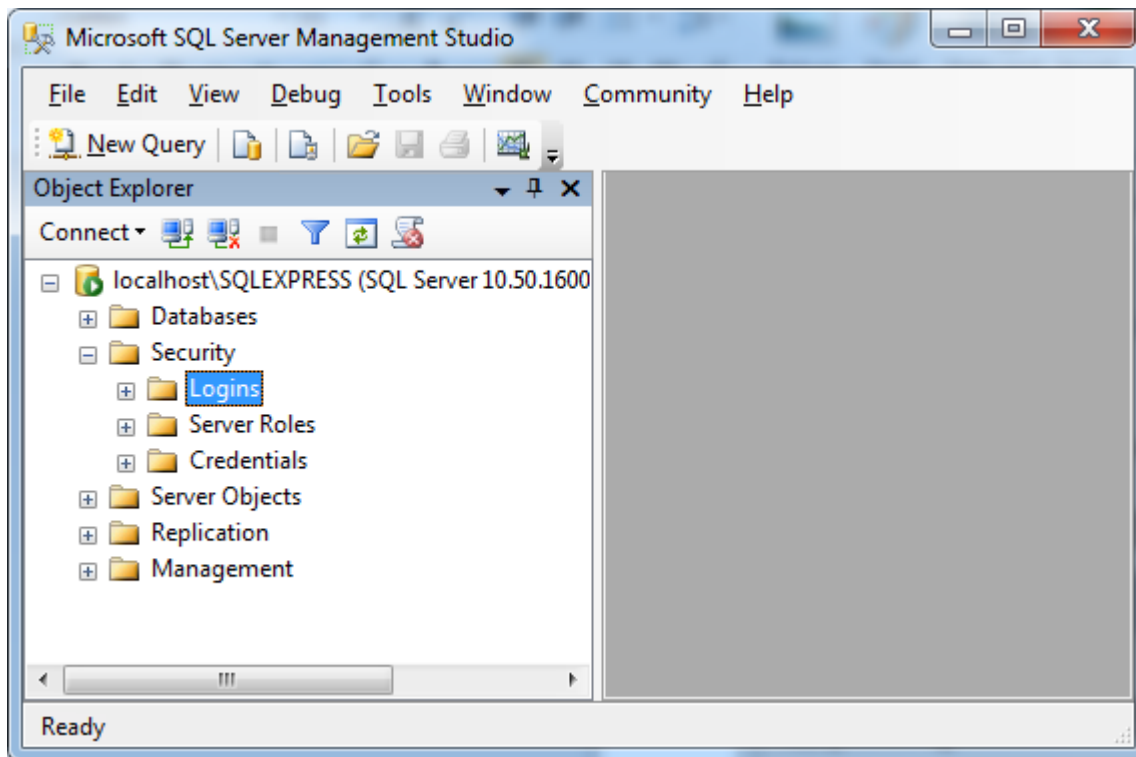
Right-click on Logins, then click “New Login...”

Click “Search...”









Type “network service” into the test box, then click “Check Names”. You should see the name change and the name become underlined.

Click “OK”

Click “Server Roles”

Click the checkbox next to “sysadmin”

Click “OK”

5.7 Add Machete User and Log database to Machete

Machete requires three databases to function. Each database contains data for a core function. They are:

- User accounts (aspnetpub.mdf)
- Log information (ELMAHlog.mdf)
- Application information (machete.mdf)

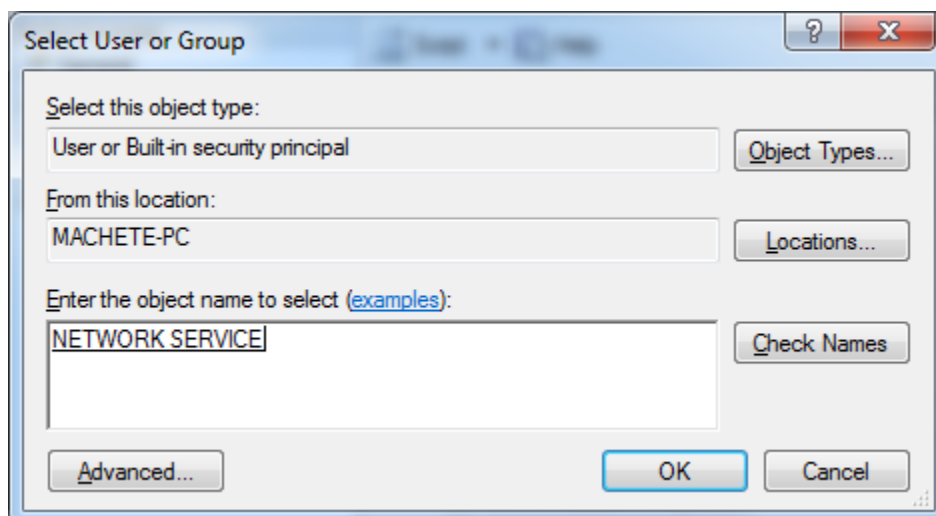
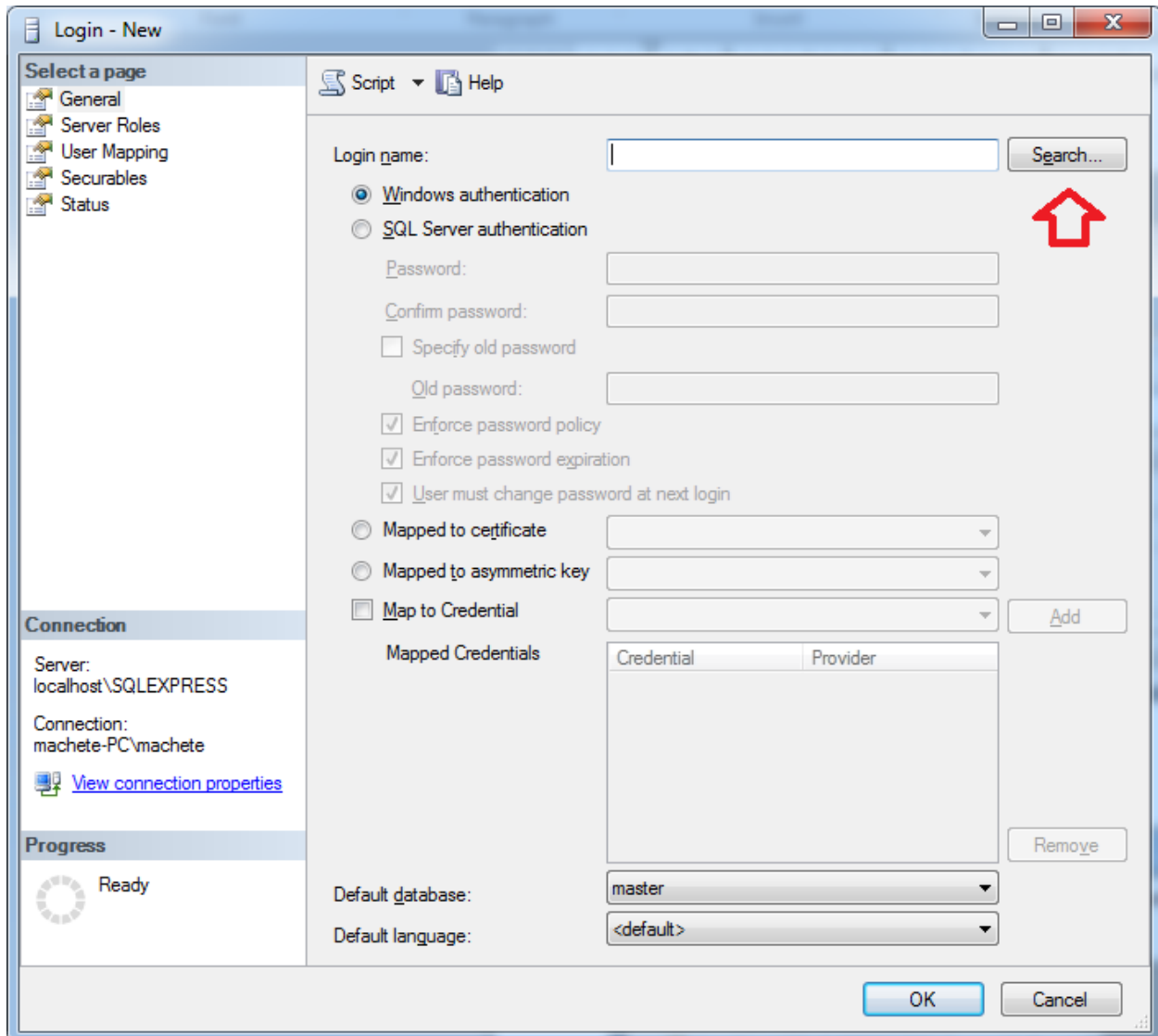
Machete.mdf is created by the application when it first runs. The other two databases must be copied into the correct SQL Server directly and attached to the database server.

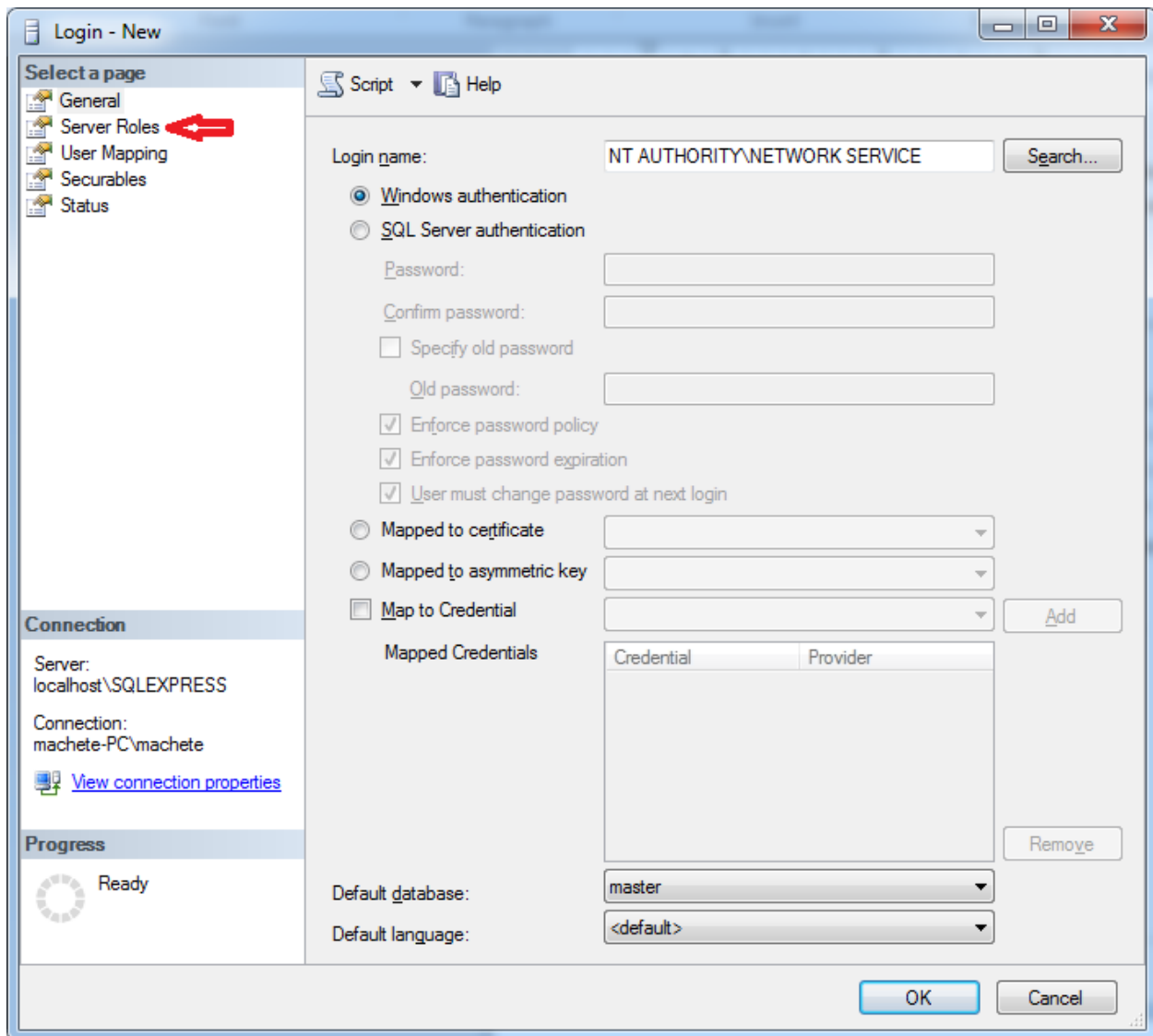
Use Windows Explorer to “Extract All” from the “machete_User_log_databases.zip” file.

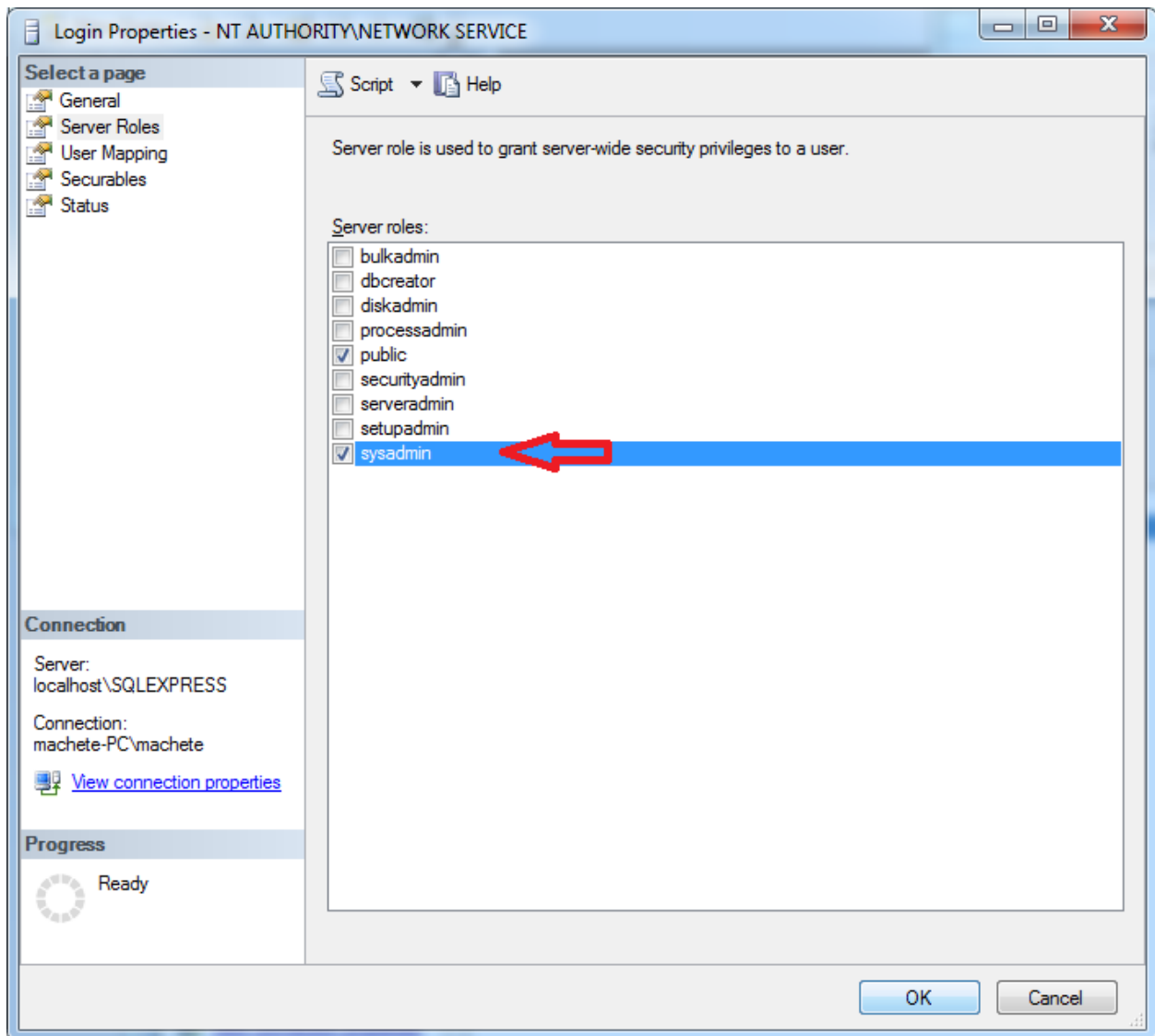
Click “continue” on the security confirmation

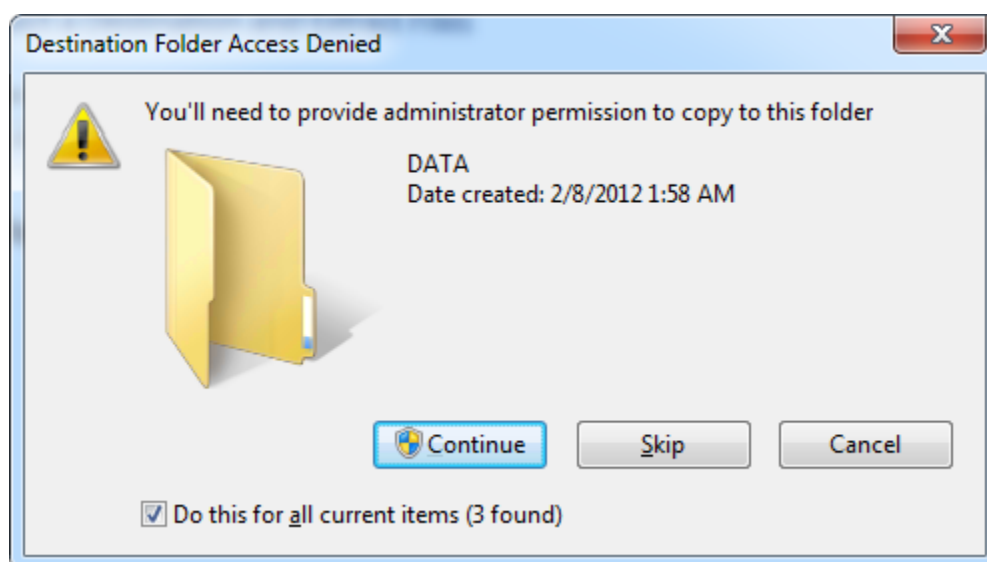
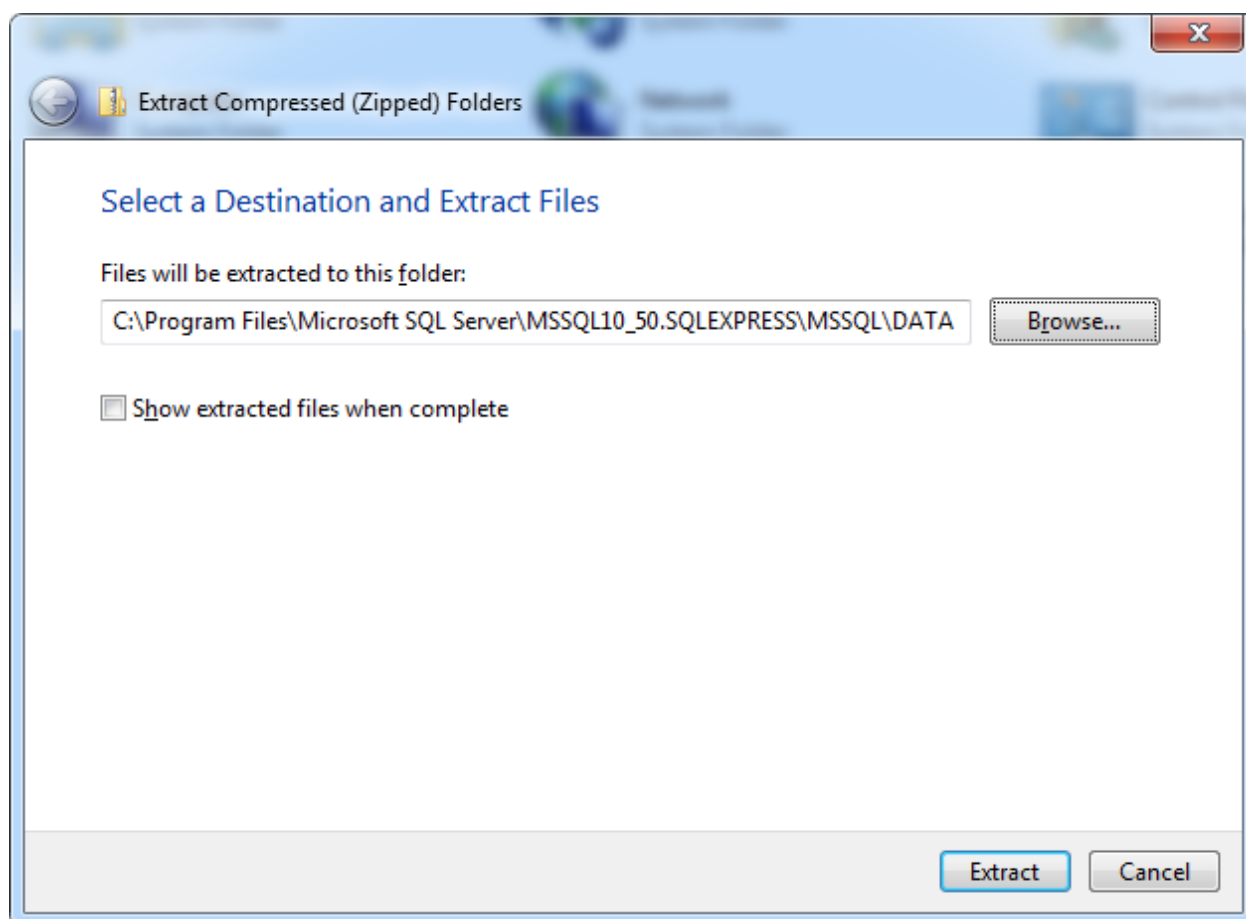
Use windows explorer to verify the files are in the correct location. You will need to “confirm” permission to view the directory:

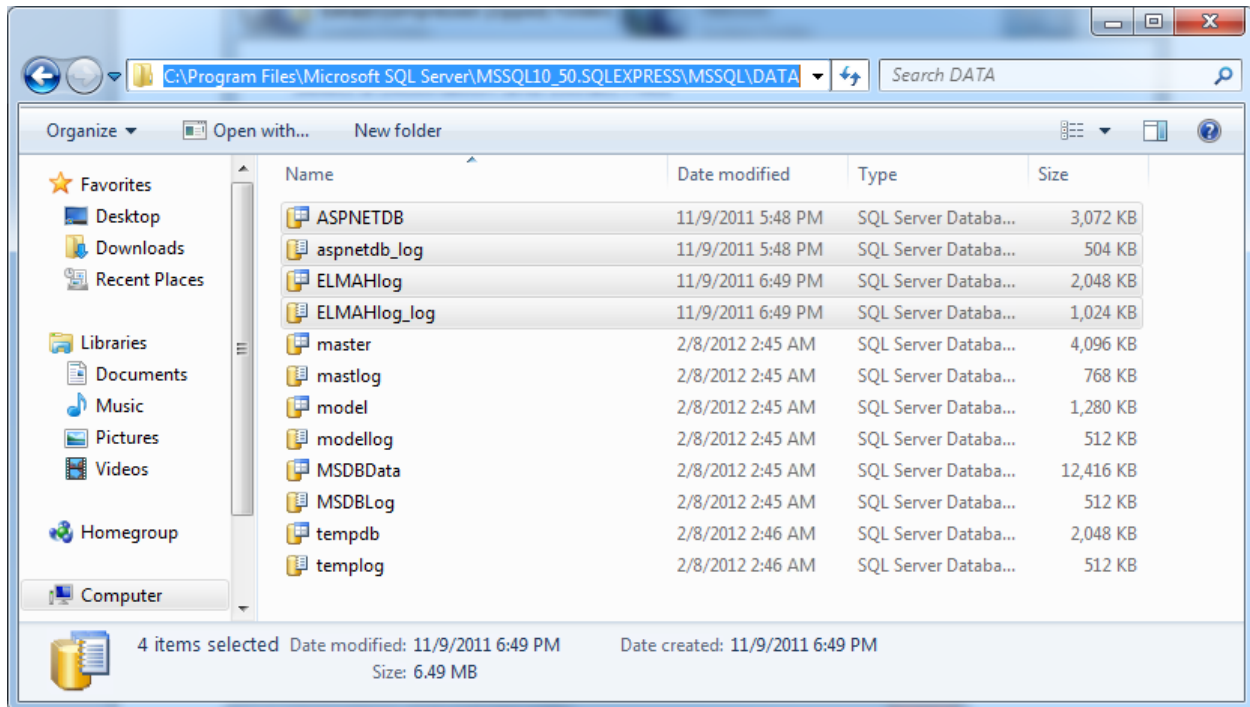
Use SQL Server Management Studio (SSMS) to attach the two databases.











(See steps at the beginning of this section for instructions on logging into SSMS)

Right-click on “Databases”, click on “Attach...”

Click “Add...”

Select “ASPNETDB.MDF” and click “OK”

Make no changes. Click “OK”

Verify that the aspnetdb is visible in the “Databases” branch of the Object Explorer

Repeat the same steps for the ELMAHlog.mdf file.

Right-click on “Databases”, click on “Attach...”

Click “Add...”

Select “ELMAHlog.MDF” and click “OK”

Make no changes. Click “OK”

Verify that the machetelog is visible in the “Databases” branch of the Object Explorer

5.8 Install the Machete Web Application binaries

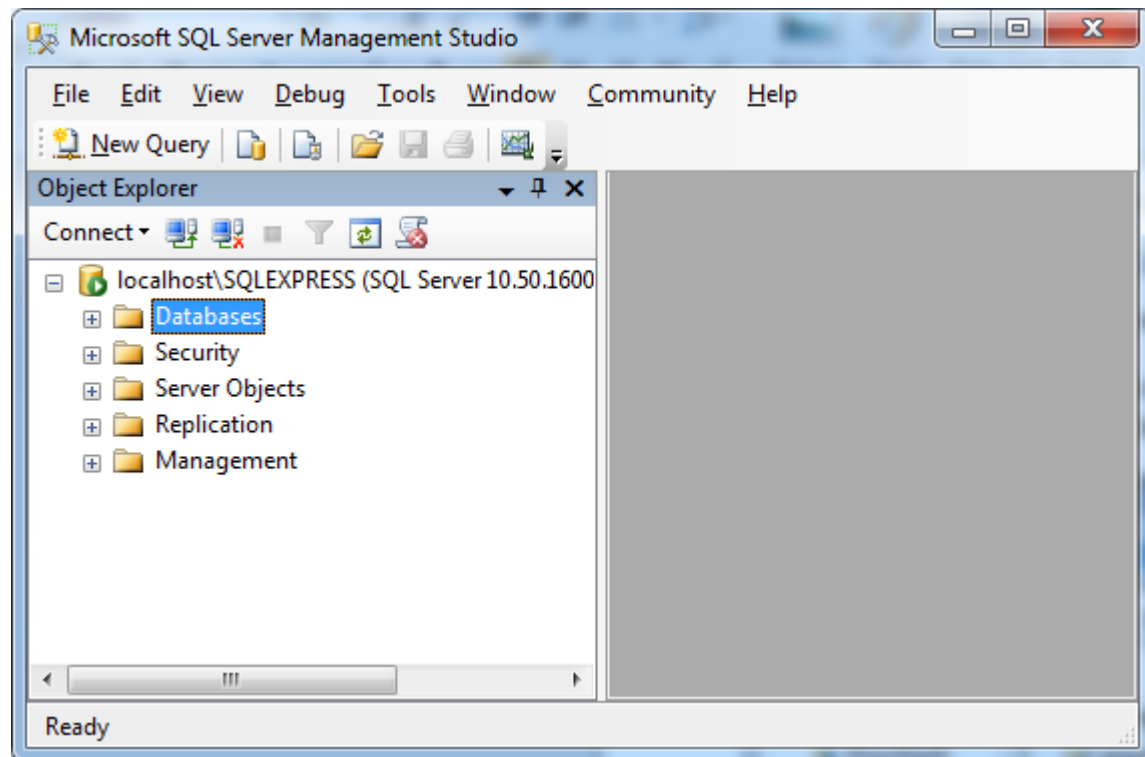
Get a current copy of the Machete web binaries

Extract the Machete binaries from the supplied ZIP file (machete-2012.xx.xx.zip)

Confirm security permission

Use Internet Explorer (or Firefox, or Chrome) to verify that Machete works

<http://machete/>



Verify that users can login successfully
click “Logon” in the upper right corner
use jadmin for the account and machete for the password
If you successfully logon, then everything is configured correctly

5.9 Install Google Chrome and Internet Explorer 9

Windows 7 comes with Internet Explorer 8 (IE8). You must upgrade to IE9, because Machete requires javascript and the IE8 defaults block javascript by default.

5.9.1 Internet Explorer 9

http://windows.microsoft.com/en-US/internet-explorer/products/ie/home?WT.mc_id=MSCOM_EN_US_DLC_FAMILIES_121LMUSO
(Be sure to uncheck the box that says “I would also like Bing and MSN defaults”)

5.9.2 Google Chrome

<https://www.google.com/chrome>

Make Google Chrome the default browser. Use Google chrome for the demonstration. It is faster and works perfectly from the installation.

