Nessus 3.0
Client Guide

October 15, 2007
(Revision 20)

The newest version of this document is available at the following URL:
http://www.nessus.org/documentation/nessus_3.0_client_guide.pdf

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Introduction

Welcome

Welcome to Tenable Network Security's **Nessus 3.0** Client Guide. As you read this document, please share your comments and suggestions with us by emailing them to support@tenablesecurity.com.

This document will discuss the different clients that are available for the Nessus vulnerability scanner. Tenable Network Security, Inc. is the author and manager of the Nessus Security Scanner. In addition to constantly improving the Nessus engine, Tenable is in charge of writing most of the plugins available to the scanner.

A basic understanding of UNIX, Windows, and vulnerability scanning is assumed.

Standards and Conventions

Throughout the documentation, filenames, daemons, and executables are indicated with an italicized font such as *setup.exe.*

Command line options and keywords are printed with the following font. Command line options may or may not include the command line prompt and output text from the results of the command. Often, the command being run will be **boldfaced** to indicate what the user typed. Below is an example running of the UNIX *pwd* command.

```
# pwd
/opt/nessus/
```

Important notes and considerations are highlighted with this symbol and grey text boxes.

Nessus Windows

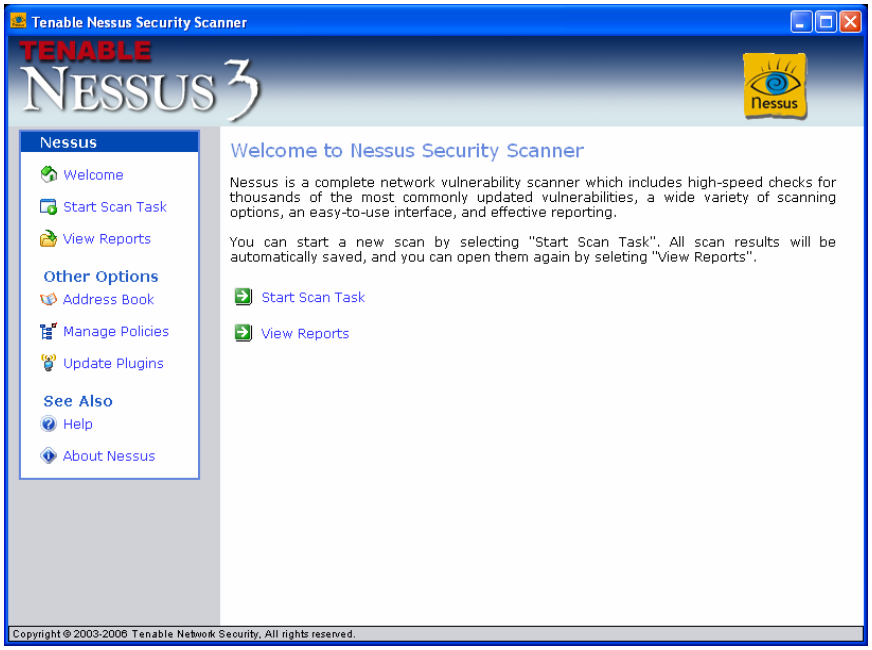
Installation

Instructions for installation are included in the "Nessus Installation Guide". These instructions will install both the server and the client for Nessus Windows.

Quick Start Strategies

Starting Nessus

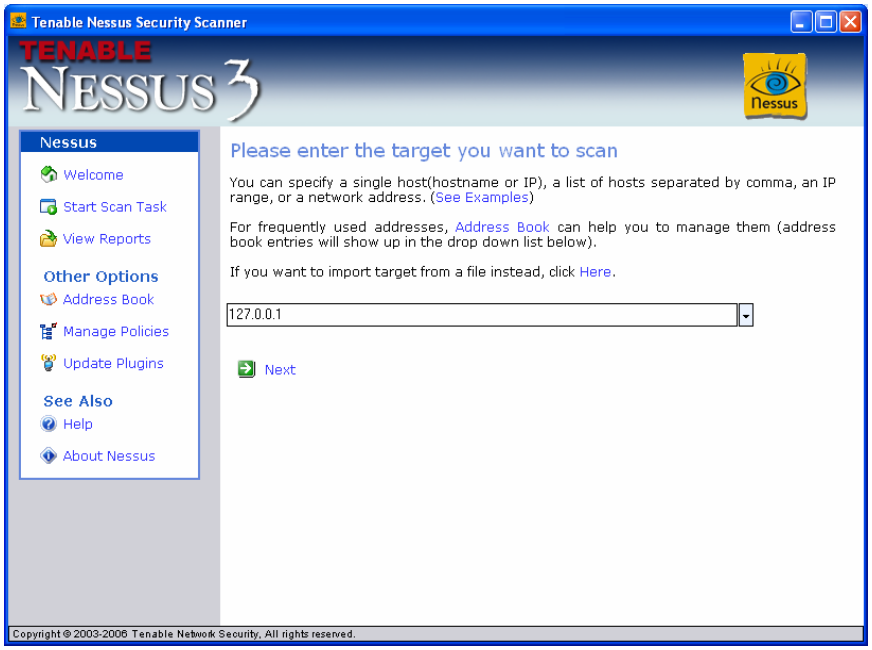
Start Nessus from the Desktop or Start menu. The following welcome screen should appear:



Launching a Vulnerability Scan

To launch a scan simply select the first option, “Start Scan Task”, on the Nessus welcome page. The next screen will prompt you for an IP address or range of IP addresses. The IP address can be entered in CIDR format or with the network mask following the address. A host name is also a valid entry as long as it is resolvable on the server or the fully qualified domain name is used such as nessus.tenable.com.

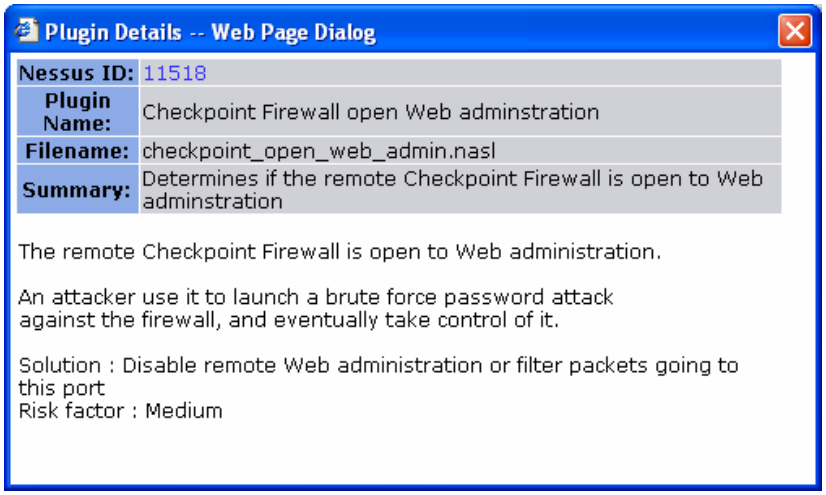
To scan the machine running Nessus, enter the internal IP address 127.0.0.1.



Nessus can also make use of an “Address Book” which contains multiple network target addresses. By clicking on the “Address Book” link, the user will be presented with a list of current network targets and can add, edit, and delete them. These targets can also be used to select the desired network(s) for scanning by Nessus.

If you have clicked on the “Address Book” section, let us continue by clicking on the “New Scan Task” link and entering in the localhost address, 127.0.0.1, as shown above. Once this is done, click on the “Next” link.

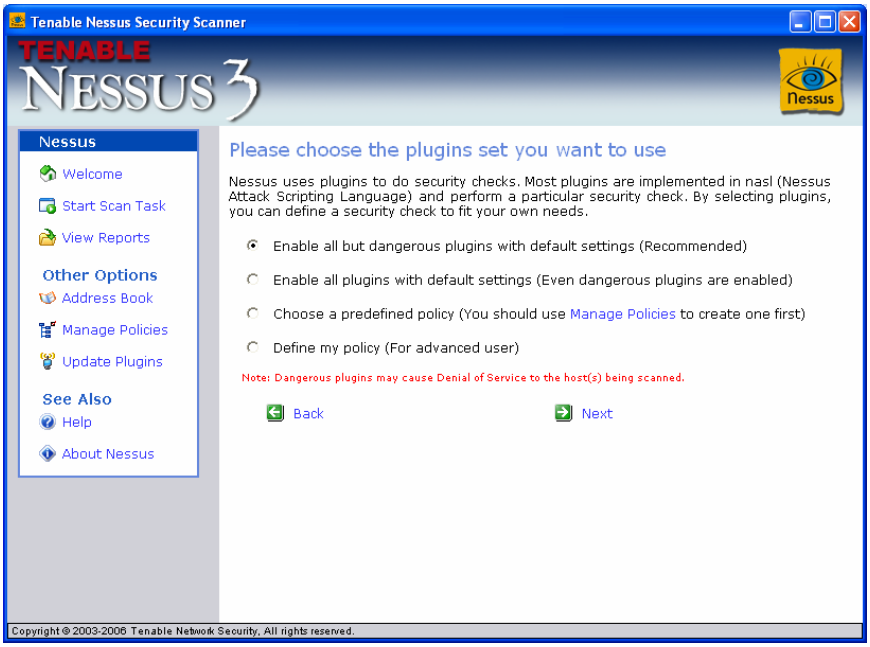
The next screen will prompt the reader to enter the plugin options. Nessus organizes its vulnerability checks by “plugin” and “plugin family”. A particular vulnerability may be checked by one or more plugins. All plugins have a unique “Nessus ID” and a short description. Here is an example plugin shown below:



All plugins check for the presence of information. Some checks are pure audits, such as finding an open port and other checks are for exploitable holes. Nessus labels these pieces of security data as informational, warnings, and holes.

There are more than 10,000 available plugins. Each plugin checks for one or more unique vulnerabilities. To help organize these security checks, Tenable places each of these plugins into “Families”. One of these families is the “Denial of Service attacks” family.

Choosing the first option, “Enable all but dangerous plugins with default settings”, will allow all the security checks to be performed, except the Denial of Service attacks, using the default configuration settings. The second option includes the Denial of Service attacks with the default configuration settings and could cause an interruption of service to the hosts being tested.



The third option allows the user to select a predefined policy that was created. A user creating a policy is able to first select specific configurations settings, and then select security checks by "family" or individual checks, and save it for future use. Then, a scan can be run using the predefined policy.

The fourth option, "Define my policy", will allow the user to create a policy with certain configuration options and checks for scanning. First the user will be able to choose the specific configuration settings to be used for the policy. Then, they can select the security checks by "family" or specific individual checks. The configuration settings are discussed in more detail in the section below entitled "Creating a Policy".

Select the Nessus Server

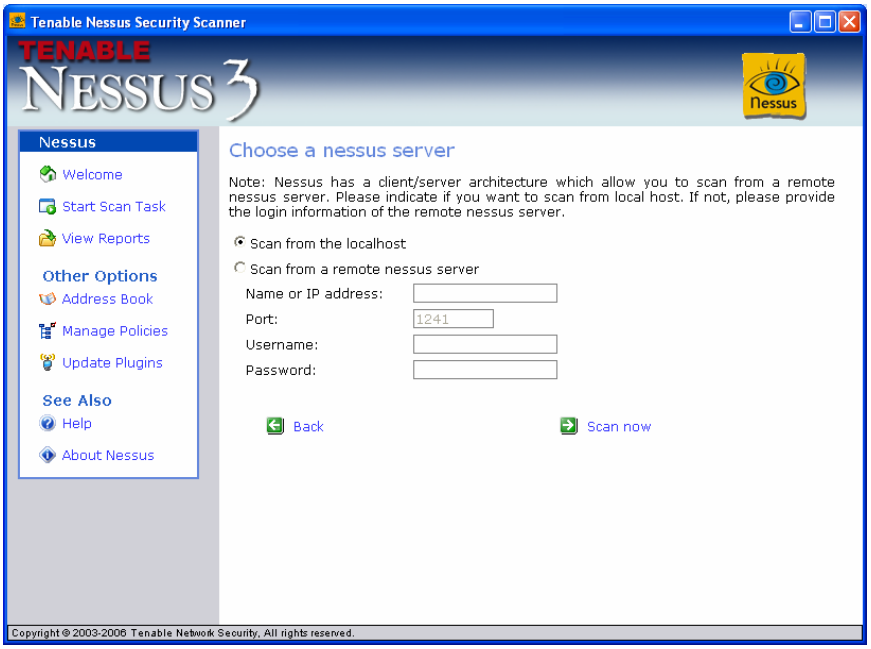
The next screen prompts the user to select the Nessus server that will perform the scan. Since Nessus has a client/server architecture, it is possible to use a remote Nessus server to scan a target. This can be a Nessus 3.x server on any OS that Tenable supplies a package for. Previous versions and user-compiled versions of Nessus are not supported.

The client and server for Nessus Windows are not entirely separate at this time. The client can control any Nessus server with regard to performing a scan, but it will not push plugins to or poll plugins from any other server other than the Nessus Windows server that is installed along with the client. This means that if Nessus Windows has the Direct Feed and the remote server only has the Registered Feed, then you will be able to configure your scan to include compliance checks and the most recent plugins (less than 7 days old), but the remote server will not be able to perform these checks.

Conversely, if Nessus Windows has the Registered Feed and the remote server has the Direct Feed, then you will not be able to set up a compliance scan or a regular scan using the most recent plugins (less than 7 days old). Therefore, if you would like to use the Nessus Windows client with a remote server, you must update the plugins on both Nessus installations and you must also have the same type of plugin feed (Direct or Registered) on both scanners.

To scan from a remote server you must provide its login information. Enter the name or IP address, username, and password for the remote server. Otherwise, choose the option to scan from the localhost.

For more information on configuring your Nessus servers to accept a scan job remotely from a Nessus client, please see "Appendix 1: Configuring Nessus Servers for Client Control" later in this document.



To launch the scan, click on the "Scan now" link. There will be a short pause and then the target host(s) will begin being probed.

Watching the Scan's Progress

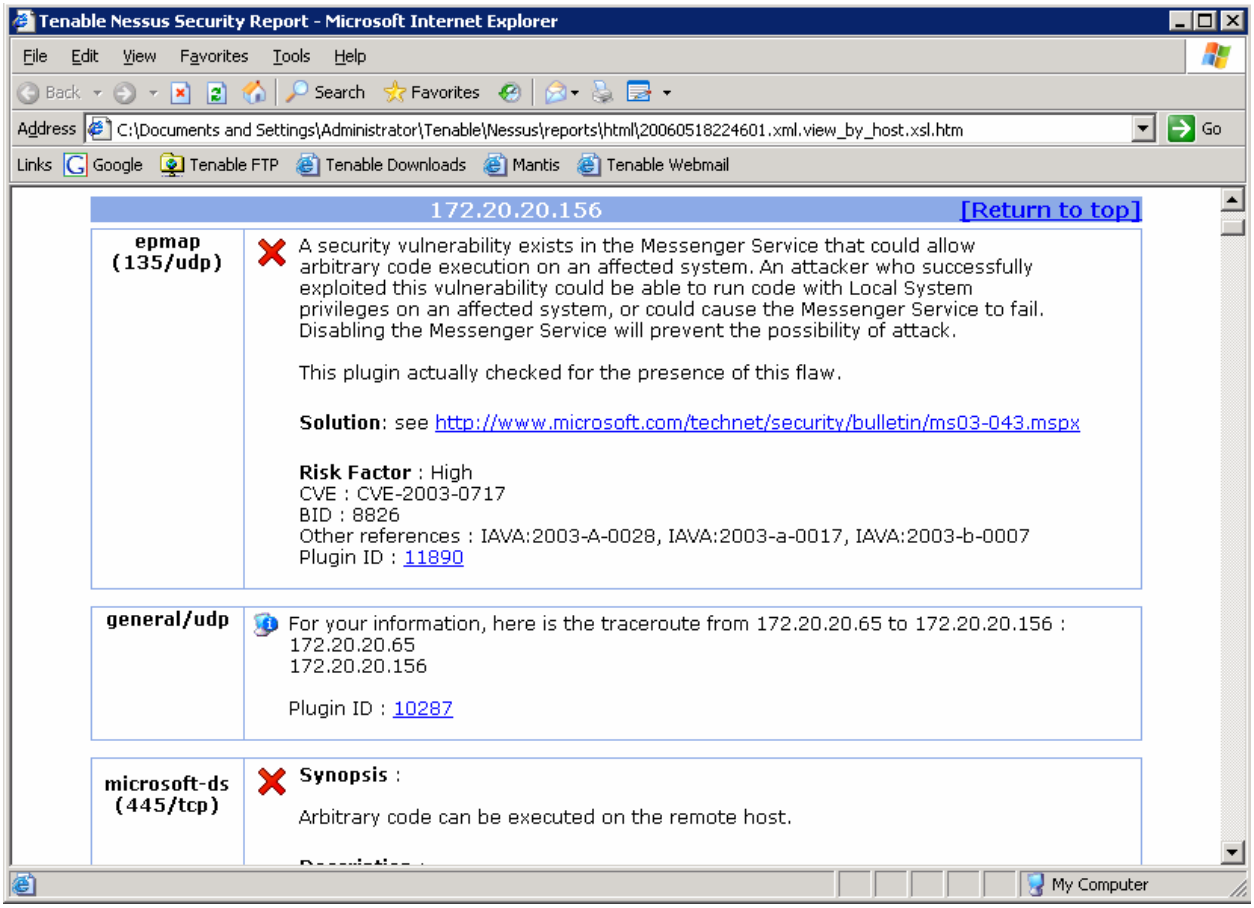
When a scan is launched, Nessus will display the total progress and a summary of the rolling results. The current list of IP addresses being scanned will be indicated. A progress bar which tracks the entire scanning process is also provided and will automatically refresh to indicate how close a scan is to completion. While the scan is progressing, the Nessus application can be minimized. When the scan is finished, Nessus will launch a new instance of Internet Explorer to view the scan results.

Stopping a Scan

While a scan is in progress, it can be paused or stopped. When a scan is stopped, the current results are saved by Nessus and are immediately viewable. When a scan is paused, it can be resumed when desired.

Viewing the Results

The Nessus security reports will automatically pop up as a new instance of Microsoft Explorer. All reports are archived and available for viewing and printing. There is more information on reports in the "Reports" section. Below is an example scan report:

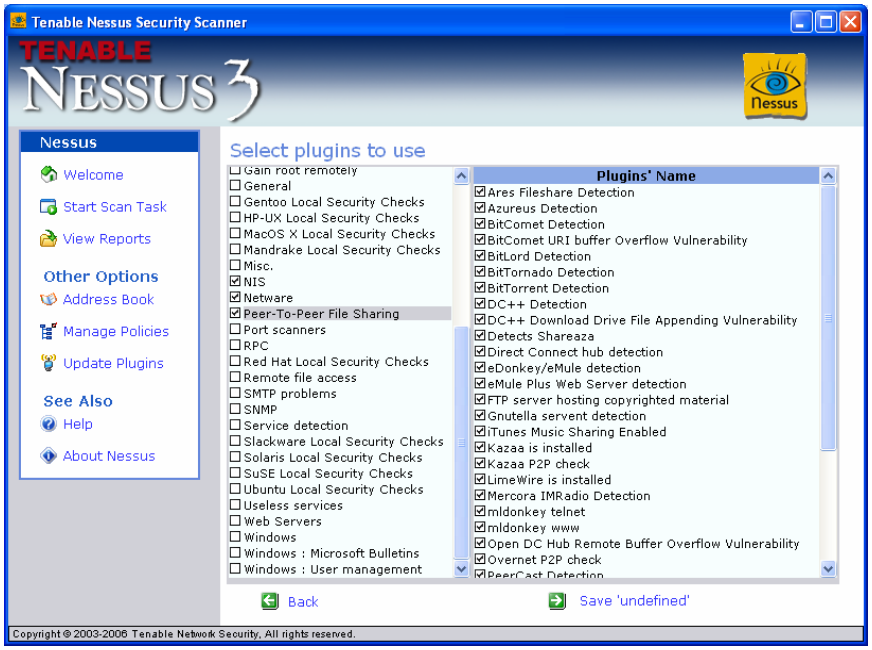


Creating a Policy

A scan policy for Nessus can be created by selecting the “Manage Policies” option. The user can either create a new policy or edit an existing policy. Once a new policy is created, click on “Edit Plugins”.

Edit Plugins

Here the user can choose specific security checks by “family” or individual checks. When selecting specific plugins, Nessus will display a split menu list of all available families and the individual plugins that comprise that family. If a family is turned on or off completely, all of the plugins within that family are enabled or disabled. If individual plugins within a family are enabled or disabled, the family plugin checkbox will become grayed out.

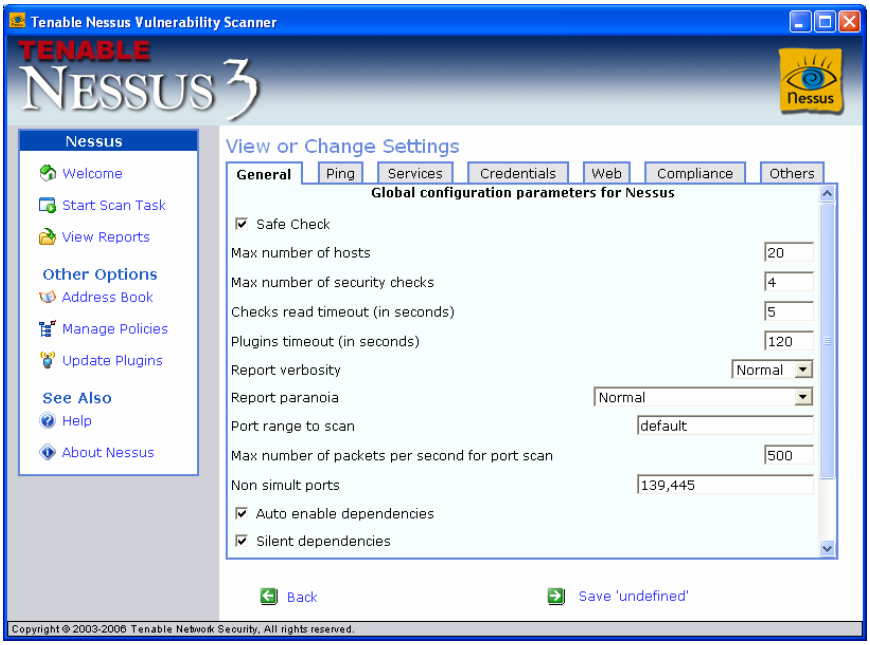


For example, it is possible to determine whether Kazaa is running on any system in the network by selecting the “Peer-To-Peer File Sharing” family and select only the Kazaa options.

The “Denial of Service” family should not be unleashed on any enterprise network. It has the potential to crash, reboot, or freeze a wide variety of networking, server, application, and desktop installations.

Edit Settings

Next, click on “Edit Settings” to change the configuration settings. There are several hundred configuration settings. Clicking on the configuration description will produce a window with the details pertaining to that particular setting. The configuration screen will appear as below:



There are seven configuration tabs that allow very granular configuration of Nessus: General, Ping, Services, Credentials, Web, Compliance, and Others. These are discussed in more detail in the next sections. Once the configuration settings are chosen, click on "Save <policy name>".

General

The configuration settings in "General" allow you to set global parameters for the plugins being run by Nessus. The first setting disables dangerous plugins that can cause Denial of Service attacks to the host(s) being scanned. The next setting sets the maximum number of hosts that will be scanned simultaneously. The third setting sets the maximum number of security plugins that will be run on each host simultaneously. Some hosts can become disabled, either temporarily or permanently, if too many plugins are launched at the same time.

Thus the total number of running processes will be equivalent to the "Max number of hosts" multiplied by the "Max number of security checks". In the example above there will be 50 processes running simultaneously. It is important to balance the two settings so the network is not overwhelmed. Also, checking the "Thorough tests" setting causes some plugins to perform addition testing, which will produce additional results but can slow down scan time.

There are a couple settings that control the reports that are generated. "Report verbosity" controls the amount of information that the plugins will generate for the reports. "Report paranoia" changes the sensitivity of some plugins to report potential vulnerabilities.

In addition, there are settings for advanced port scanning control. The "Port range to scan" option specifies which ports to scan. Also, "Max number of packets per second for port scan" can be reduced to improve port scan accuracy. Throttling back on this number may prevent network thrashing or other problems. Finally, you can list ports that should not have two plugins running simultaneously with the "No simult ports" option.

Ping

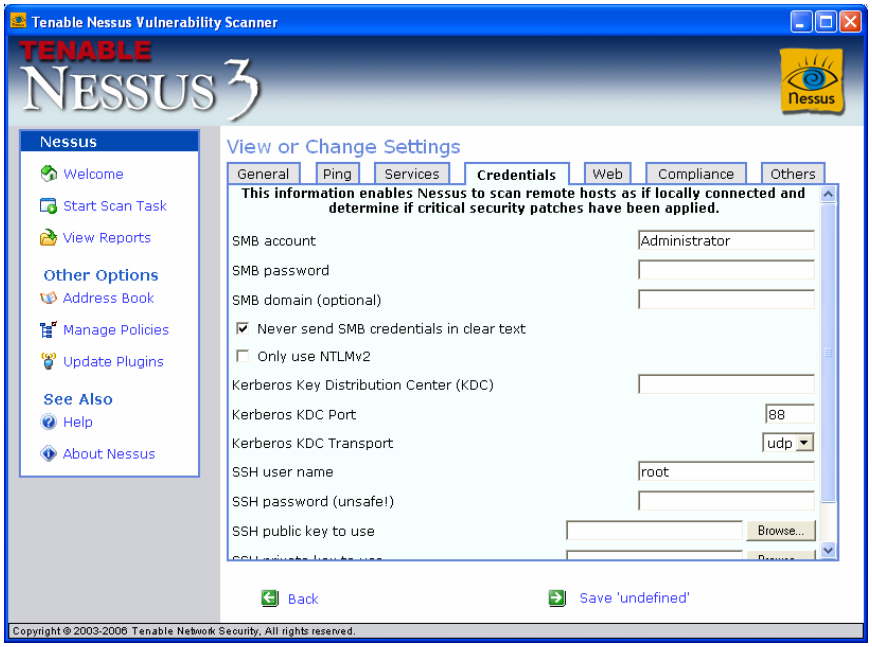
The ping protocol is used by Nessus to check if hosts and specific ports are alive. There are settings for ARP ping, ICMP ping, and TCP ping. If both ICMP ping and TCP ping are selected, Nessus will attempt to connect to hosts using both protocols.

Services

This tab defines parameters for the services related plugins. These plugins determine what services are running behind specified ports. A few of these settings will override the global parameters that were set for Nessus in the "General" screen for only the Services plugins. This provides a way to minimize the impact of security scans on printers or other devices that cannot support multiple open ports simultaneously.

Credentials

Server Message Block, or SMB, is a file sharing protocol that allows computers to share information transparently across the network. The Credentials tab has settings to provide Nessus with information such as SMB account name, password, and domain name. Providing this information to Nessus will allow it to find local information from a remote Windows host. For example, whether important security patches have been applied. Only expert security personnel should modify other SMB parameters from default settings.



If a maintenance SMB account is created with limited administrator privileges, Nessus can easily and securely scan multiple domains. Detailed configuration instructions are available at:

http://www.nessus.org/documentation/nessus_domain_whitepaper.pdf

Tenable recommends that network administrators consider creating specific domain accounts to facilitate testing. Nessus includes a variety of security checks for Windows NT,

2000, Server 2003, and XP which are more accurate if a domain account is provided. Nessus does attempt to try several checks in most cases if no account is provided.

Web

The settings in this tab allow you to provide site-specific information about the web services in the network being scanned. Filling out these parameters will enable Nessus to perform tests against Web services in the network. All requested information is optional, meaning it is not needed for proper Nessus operation.

One of the settings used in this page is a username and password. When auditing a web site protected by a username or password, adding that information to Nessus allows for vulnerability testing of the privileged access. For example, a Nessus server scanning a vulnerable, but password protected Apache web server application, would not report on any vulnerability if it cannot log onto the system. By configuring Nessus with the username and password to the web server, all of the Apache server's vulnerabilities could be exploited. These vulnerabilities would only be exploitable by valid users, but could still pose a large threat.

Compliance

The phrases "Policy Compliance" and "Compliance Checks" are used interchangeably within this document.

This tab enables you to submit specific policy files (*.audit*) to check your systems for compliance with various standards. You can have up to 10 different policies to compare your systems against. There are 5 for Windows and 5 for UNIX/Linux. Simply click on the "Browse…" button and select the *.audit* file to assign to the policy and click "Open". You will see the path and filename listed in the text box.

Ensure you choose the plugin family "Policy Compliance" in order to use this policy file.

Compliance checks are only enabled for customers of the Nessus Direct Feed. To gain access to this, contact your local Tenable sales representative or contact licensing@tenablesecurity.com.

Others

This tab contains additional settings. There are some settings that determine if mail and news servers can be used to relay spam. Nessus will attempt to post a news message to the news server. There are settings to test whether it is possible to post a message to upstream news servers as well.

The SMTP tests will run on all devices within the scanned domain that are running SMTP services. Nessus will attempt to send spam through each SMTP device to the address listed in the "third party domain" parameter.

If the SMTP and Mail Servers receive error messages that the news or mail messages could not be delivered, then the hosts have been protected and cannot be used to relay spam. If the messages are sent without any errors, the spam attempt was successful.

There are settings in this tab that allow you to provide site specific information, such as account names and passwords, to Nessus. This information will be used by the plugins to provide more thorough testing of the enterprise. All requested login information is optional, meaning that it is not needed for proper Nessus operation.

Tenable highly recommends that the SNMP community string be configured if it is known. If Nessus can guess it during a scan, it will be applied to subsequent checks, but if it can be pre-configured, a very detailed audit can be performed. For example, there are approximately twenty Cisco router checks which determine the vulnerabilities present by simply considering the version string returned via SNMP. Without the SNMP community string, these audits could not occur.

Reports

To access the archived reports, select the "View Reports" option from the welcome menu. Reports can be viewed in multiple formats.

Report Templates

Nessus saves all of its vulnerability data in an XML format. When selecting the "View Reports" option, a list of all available reports will be provided. These reports can be viewed several different ways. Their results can be viewed "by Host", "by Port", "by Vulnerability", as "Plain XML", and as "Plain Text (NSR)". This allows a user to easily see the results of their scan.

Creating Report Differentials

Nessus can also create a differential report based on any two existing reports. This is extremely useful when determining what has changed on a network. It is extremely powerful to see not only which vulnerabilities have been fixed, but also which vulnerabilities are new.

When creating this new report, three options exist to tailor the output.

The first option allows either a "by unique Nessus ID" or "full text" differential. If the differential test occurs by Nessus ID, then the report will only show when a specific IP address has either a missing ID or a new ID. If this "by ID" check is not used, then a comparison of the full text of the plugin will be accomplished. This may be useful to find out if versions of specific services have changed. However, it may also provide misleading "new" information because certain fields of banners, such as time stamps, change all of the time.

The second option for differential report is to ignore the "host is dead" messages. This can dramatically clean up the report when large numbers of hosts have changed. Without this option, it would also be difficult to compare two scan results in which one report did log the fact that a host was dead and the other did not.

And finally, the third option for differential reporting is to specify the analysis of just the hosts which are common to both reports.

New XML Style Sheets

Nessus saves all vulnerability data in a flat XML data file. It uses "style sheets" to dynamically render interesting and useful reports in the Internet Explorer web browser. Tenable includes several style sheets with Nessus and is developing more reporting functionality, but it is useful to know how to add new style sheets for custom reporting.

It is easy to create new style sheets to change the look and format of the reports. Once you have created a new report format, you can add it as an option in the report drop down menu by taking the following steps:

1. Copy the new style sheet into the report styles directory , by default –

   ```
   C:\Program Files\Tenable\Nessus\report_styles
   ```

2. Add the following lines to the end of the *report_styles.xml* file. This file is in the report styles directory listed above –

   ```
   <style>
         <name>Your Style</name>
         <xsl_file>yourstyle.xsl</xsl_file>
   </style>
   ```

Replace "Your Style" with the title of the new report. Replace "yourstyle.xsl" with the new file name. You will see a template to add additional reports commented out at the end of the *report_styles.xml* file. The new report format will be available in the drop-down menu in the "View Reports" tool.

Importing Scan Data

Nessus can be used to import vulnerability data from existing Nessus or Lightning Console scans. To import a scan, while viewing reports, choose the "Import Report" function as shown below:

This will present the user with an opportunity to import a text file formatted for either Nessus's *.xml*, *.nbe*, or *.nsr* formats. The form also asks the user to provide a name to describe the imported data. Once the data has been imported, it will be available to perform differential scan reports, as well as to be viewed as if it were conducted by the Nessus scanner.

Sharing Nessus Reports with Other Users

It may be very useful to save a specific Nessus report and email it to a customer, administrator, or supervisor.

There are several ways to accomplish this, which are listed below:

- Web archives

  An easy way to share reports is to save the report as a Microsoft Web Archive *.mht* file. While viewing a report, which has been rendered in HTML, the Internet Explorer browser can save all of the text, layout, and images in a single file known as a "web archive". This archive can be easily emailed, shared, and viewed on other Windows systems. Web archives can be opened by many web browsers and also by recent versions of Microsoft Word and PowerPoint.

- Raw HTML

  While viewing a report, the direct HTML and images can be saved. This format is not ideal because, the data is spread between an *.html* file and a sub-directory named based on the saved file name, and that contains the images and content style sheets for the report.

- Printing to PDF

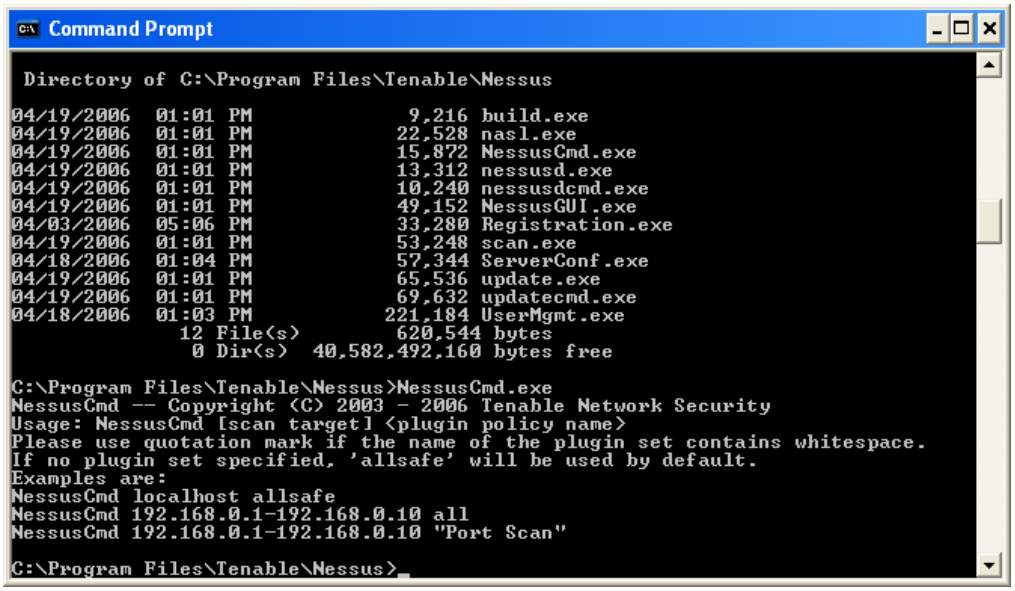
  Although not directly supported by Nessus, if the system which has Nessus installed on it also has a PDF print server, the actual report can be "printed" to a PDF file. This file can then be shared across any operating system which has a PDF viewer installed.

- XML Output

  Each Nessus report is available in raw XML form. This can be imported into Microsoft Office 2003 Excel and newer releases for manipulation and analysis.

Command Line Mode

Nessus can be launched from the DOS command line mode. To do this, simply execute the *NessusCmd.exe* file from the directory *C:\Program Files\Tenable\Nessus* as shown below:



This will cause a scan to be executed, but will not invoke the *nessusd.exe* file. The Nessus daemon must already be running in order for the command line mode to proceed.

In addition, there is an executable named *updatecmd.exe* which can be used to script the downloading and updating of vulnerability checks. Simply running this command will download the latest vulnerability checks and configure them for use by Nessus.

After a scan has completed, the report will be located in the following directory:

C:\Documents and Settings\<admin_username>\Tenable\Nessus\reports

NessusWX

NessusWX is a client program for Nessus which is designed specially for the Windows platform. It is distributed under the terms of GNU General Public License version 2. NessusWX was originally written by Victor Kirhenshtein, but Tenable has been maintaining it with bug fixes and new features. There is more information available for NessusWX at http://nessuswx.nessus.org.

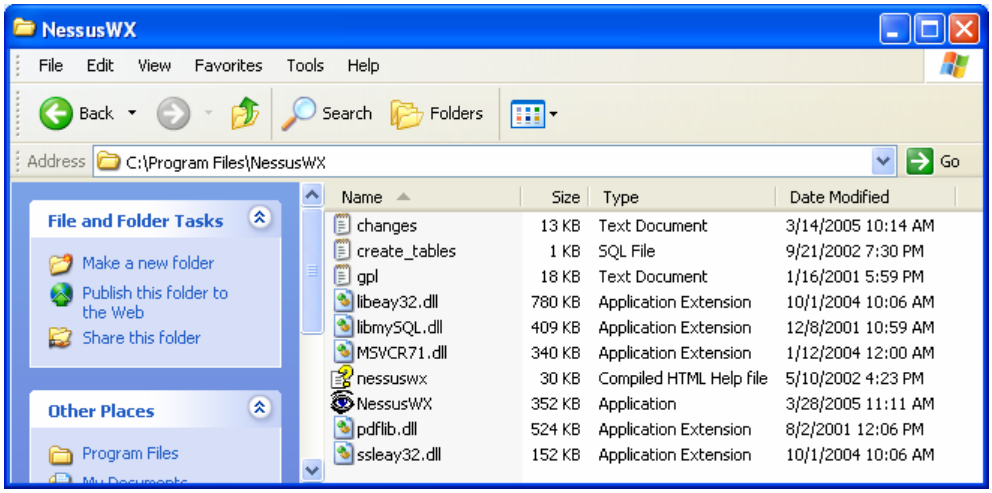
NessusWX uses a Windows-style user interface. It has support for both unencrypted and SSL communications as well as user authentication either by password or X.509 certificate. NessusWX is able to have multiple sessions each with their own specific settings and individual connection and plugins settings. There is a database where all session settings and results are saved for future use. NessusWX generates its reports in plain text, Adobe Acrobat (PDF), and HTML formats. These reports can be compared by creating reports with the differences between the two scans. In addition, scan results can be exported into NSR, extended NSR, NBE, CSV (Comma Separated Values), SQL command formats, or directly to a MySQL database. Results can be imported from NSR, extended NSR, or NBE formats.

Installation

Download the NessusWX client utility for Win32 platforms, which can be found at:

http://www.nessus.org/download/

The NessusWX client will download as a zip file. Unzip its entire contents, *dll*, *exe*, and other miscellaneous files into the same directory. There is no need to register the *dlls* or *exe*. The following is a screen shot of the NessusWX binaries and associated files unzipped in a Windows Directory.



Updating NessusWX with New Releases

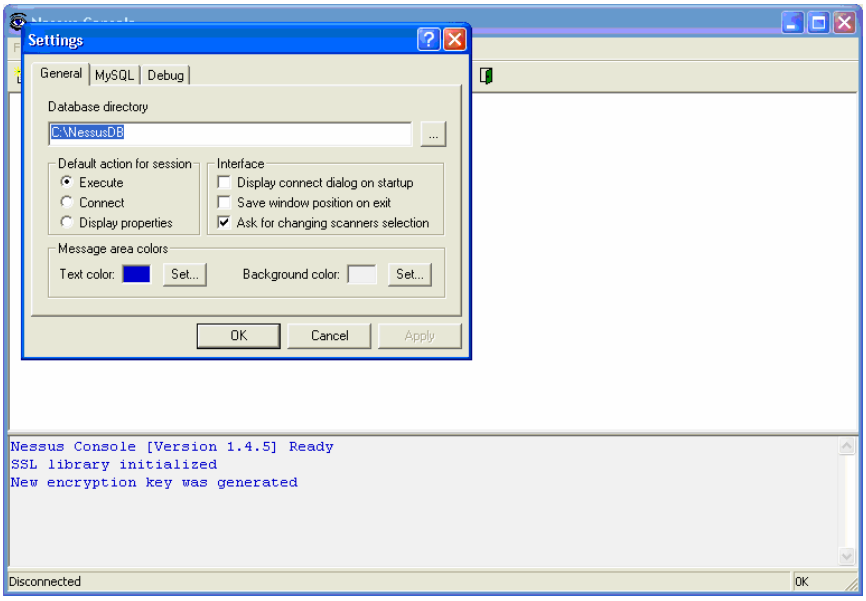
Download the newest version of the NessusWX utility which can be found at http://www.nessus.org/download/.

The NessusWX client will download as a zip file. Unzip its entire contents, *dll*, *exe*, and other miscellaneous files and copy them into the same directory where NessusWX is currently located (should be in C:\Program Files\NessusWX), overwriting the existing files. The database for Nessus is in a different location. Therefore, all the previous scan reports will be preserved.

Quick Start Strategies

Start NessusWX

Run the NessusWX executable by clicking on the NessusWX logo. The first time the executable is run you will be prompted for a database directory which the NessusWX client will use as a working directory for miscellaneous work files. Accept the default by clicking click OK, shown below. You will be asked to confirm your choice, click “Yes”.



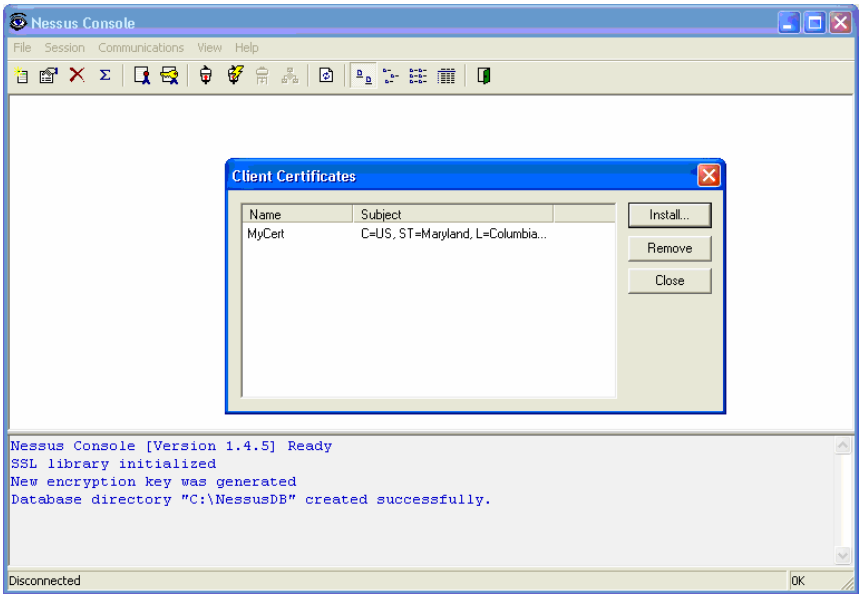
Check Connectivity to a Nessus Scanner

Before configuring the NessusWX client to connect to a Nessus scanner, ensure there is an IP route from the NessusWX host to the Nessus scanner's management interface IP. Open a Command Prompt window and use the `tracert` command, using the IP address where the Nessus scanner is located.

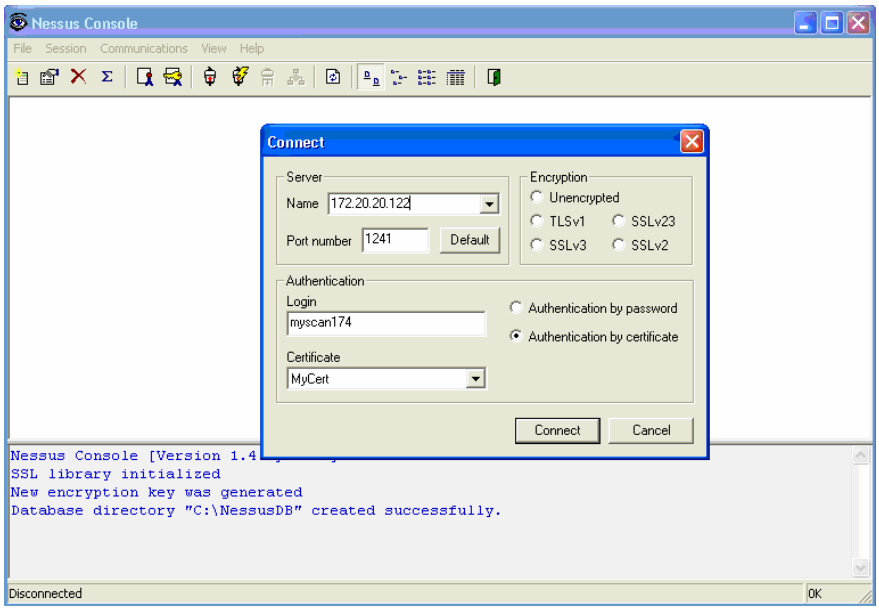
```
C:\>tracert 10.10.20.102

Tracing route to 10.10.20.102 over a maximum of 30 hops

1   <1 ms   <1 ms   <1 ms 10.10.101.1
2   1 ms   <1 ms   <1 ms 10.10.20.102

Trace complete.

C:\>
```

Connect to a Nessus Scanner

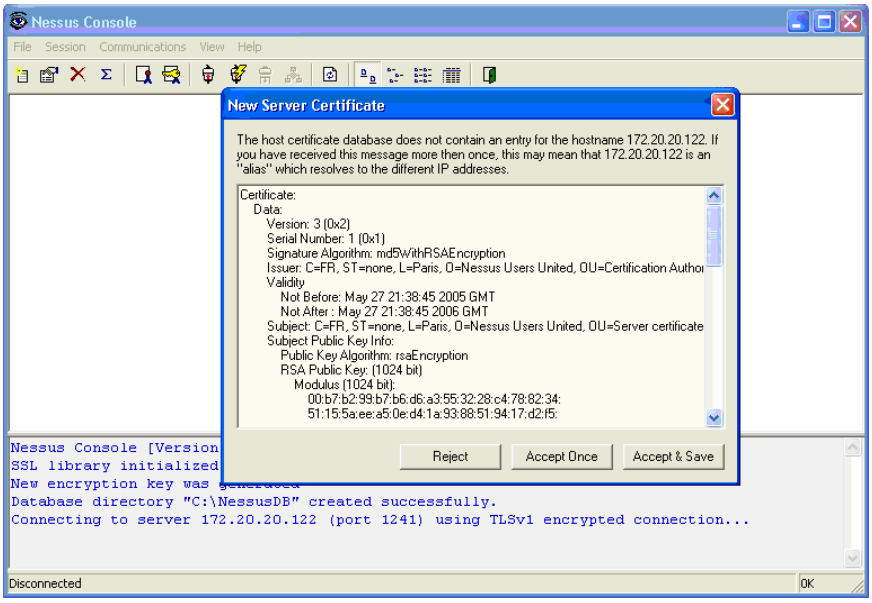
If you configured the Nessus scanner with a user for certificate authentication, copy the *cert_nessuswx_**user**.pem* certificate file to the NessusWX host. Then, import it into the NessusWX client using the client certificate install function. To do this, go to the "File" menu and click on "Client certificate". Here is an example screen shot below:



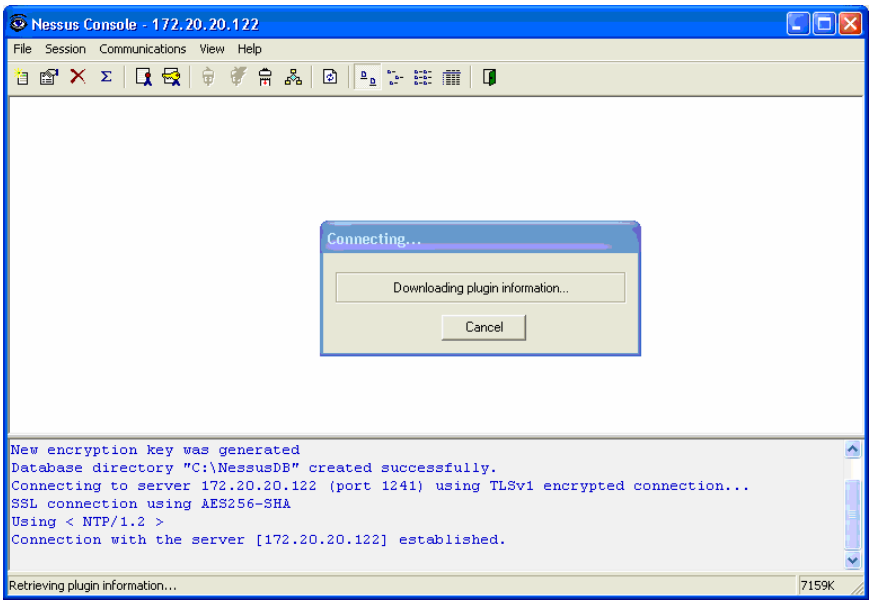
In the NessusWX GUI go to the "Communications" menu and choose "Connect". Enter the Nessus scanner IP and port (1241 is the default port). Enter the Nessus user details which will be used to authenticate the connection to the Nessus scanner. If you are using the certificate based authentication and installed the client certificate, then it should be listed in the certificate drop down list when the "Authentication by certificate" radio button is clicked, as seen below. Otherwise, enter the password.



Click "Connect" and NessusWX will attempt to connect to the Nessus scanner. If a successful connection is made you will be prompted to accept the Nessus server certificate, as shown below. Click Accept Once.



The Nessus plugins will be retrieved from the scanner and a pop-up window will indicate that NessusWX is downloading the plugins.



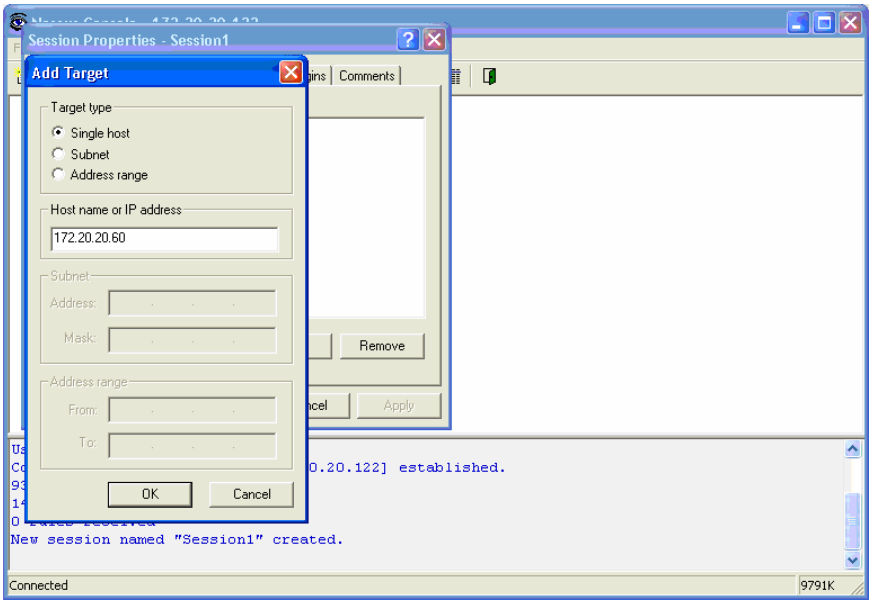
NessusWX downloads the Nessus scanner's plugin titles so that when configuring a scan you will have the ability to pick and choose plugins to be executed.

Creating an Initial Test Scan Session

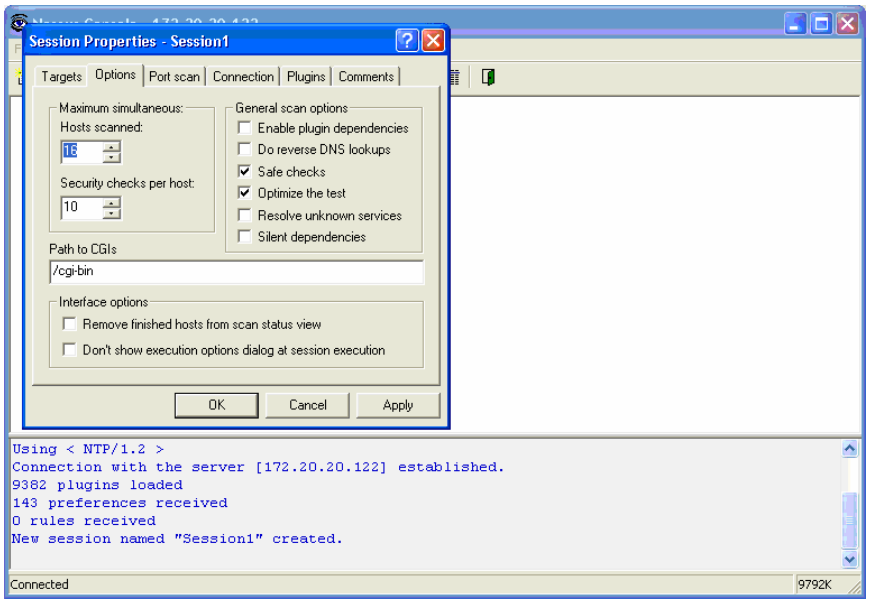
Please note that when the previous section is completed a connection is left open to a Nessus scanner. This connection must be up to follow the next step precisely.

To run a test vulnerability scan, you first create a scan session using the NessusWX client. Go to the "Session" menu and choose "New". Accept the default name and click "Create".

Under the “Targets” tab click the “Add” button and enter the IP of a host you can safely run a test scan against and click “OK”.



It would be wise to look under the “Options” tab to ensure that “Safe checks” is checked. Refer to the “Configuring NessusWX” for more information on the configuration options.



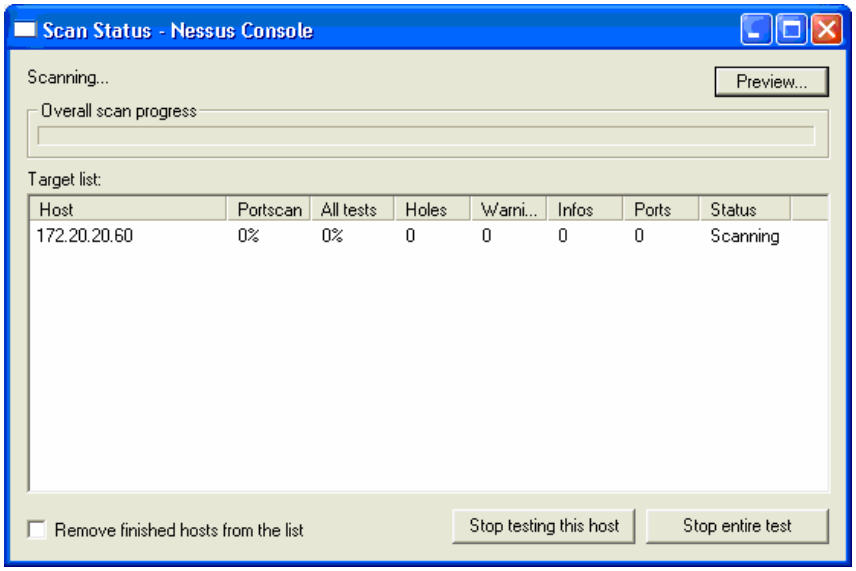
Click “Apply” to accept the changes made for the host to be scanned, the target, and then click “OK”.

Start a Scan

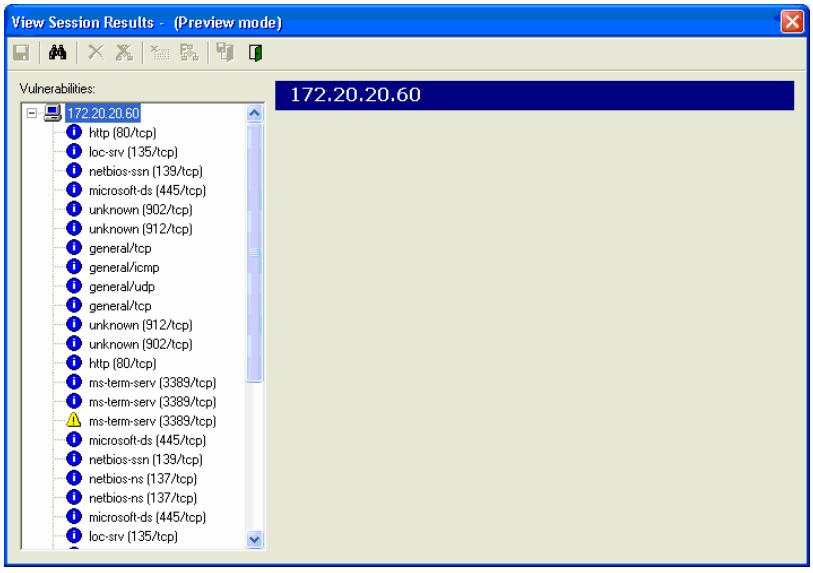
To start a scan with the session attributes we just configured right click on the session icon and select “Execute”. The scan is going to use the existing connection to the Nessus scanner, provided the connection is still active, and will start executing. If the connection is

not available, return to the previous step to reinitiate a connection. Please note for multiple scanners it is possible to set up connection attributes on a per session configuration basis. But, by default a session will be configured to use the current Nessus scanner connection initiated in the NessusWX client from the main menu bar.

At the pop-up "Execute Session" window accept all defaults and click Execute. A window will indicate the progress of your scan, as seen below:



When the scan status is "Finished" click the preview button to see the results of the scan.



Configuring NessusWX

To configure a specific scan session, right click on the session and choose "Properties…". You will be presented with various tabs that each contain different configuration options.

Targets

The “Targets” tab is where you add the IP of a host you want to run a scan against. You can choose to enter a single host, a subnet, or a mask to scan. You can also import, edit, and remove the targets.

Options

In the “Options” tab you choose how many simultaneous hosts you want scanned and how many simultaneous security checks per host to perform at the same time. You can also choose options such as enabling plugin dependencies, safe checks, optimize the test, silent dependencies, etc. In addition, this is where you specify the path to check for CGIs, choose to remove finished hosts from the scan status view, and choose to not show the execution options dialog at session execution.

Port Scan

Within the “Port scan” tab you can specify the port range to scan. You can choose to scan well-known services, privileged ports, or a specific range of ports. Then, you select the port scanners you want to use. Port scanners are a category of plugins specific to scanning ports. Therefore, they are kept separate from the rest of the plugins.

Connection

The next tab is the “Connection” tab. If you want each session to be connected to a different server, this is where you choose to do that. After you check the box “Use session-specific connection information”, you enter in the connection information for the server.

Plugins

In the “Plugins” tab you can choose to use specific plugins for the session. After checking the box “Use session-specific plugin set”, you can browse and choose the plugin families or individual plugins that you want. Also, you can disable all of the Denial of Service plugins.

Comments

The final tab is the “Comments” tab. Here you can add any additional comments about the particular session.

Nessus GTK Client

NessusClient is a new X11/GTK UNIX GUI for Nessus that is based on the historic “nessus” client. The Nessus GTK Client has been available for several years and has been maintained by Tenable. In the fall of 2005, with the help of Tenable, Intevation GmbH extended this client to include support for scanning sessions and ported released a GTK build for the Windows platform.

NessusClient has a nicer and easier to use GUI. It contains support for “Scopes” and “Tasks” which will keep track of all the past scans and past plugin settings. NessusClient has the ability to run multiple scans at the same time. The reports can be exported as PDF, HTML, XML, etc. In addition, NessusClient contains a “Scan Assistant” feature that takes you through a step by step process of creating a task, a scope, and running a scan.

You can download NessusClient RPM from http://www.nessus.org/download/. For further information on using the NessusClient, there is a user guide included with the download under the "Help" menu item.

UNIX Command Line Operation

Running a Scan

Users are not required to use a client to connect to the *nessusd* server and run a scan. They can choose to use command line operation to do this.

In order to run a scan using command line operation, you must run the scan in batch mode. To do this, use the following command:

 # /opt/nessus/bin/nessus –q [-pPS] <host> <port> <user> <password> <targets-file> <result-file>

The table below explains the various arguments used to run a scan in batch mode.

Argument	Description
-p	Obtain a list of the plugins installed on the server.
-P	Obtain a list of the server and plugin preferences.
-S	Issue SQL output for -p and -P.
<host>	The *nessusd* host to connect to.
<port>	The port to which you will connect to on the remote *nessusd* host.
<user>	The user name to connect to *nessusd* with.
<password>	The password associated with user name.
<targets>	The name of the file containing the target machines to be scanned.
<results>	The name of the file where the results will be stored at the completion of the scan.

There are other options that are also available when running a scan in batch mode. These are explained in the following table.

Option	Description
-V	Make the batch mode display status messages to the screen.
-x	Do not check SSL certificates.

-v	Display the version number and exit.
-h	Show a summary of the commands and exit.
-T <type>	Save the data as <type>, where <type> can be “nbe”, “text”, “xml”, or “nsr”.

Converting a Report

You can use Nessus to do a conversion between report formats. Nessus can take any NSR or NBE reports and change them into XML, NSR, NBE, or text reports.

Use the following command to convert a report:

```
# /opt/nessus/bin/nessus –i in.[nsr|nbe] –o out.[xml|nsr|nbe|txt]
```

The option –i specifies the file that is being converted, which can be either NSR or NBE reports. The option –o specifies the file name and type that the report will be converted to, which can be XML, NSR, NBE, or text reports.

For Further Information

Tenable hopes your experience with Nessus is very positive, and we strongly encourage you to contact us via email or phone to discuss any issues you have. Tenable has produced a variety of other documents detailing Nessus’ installation, deployment, configuration, user operation, and overall testing. These are listed here:

- **Nessus Installation Guide** – step by step walk through of installation
- **Nessus Advanced User Guide** – elaborates on some of Nessus’ “dustier corners” by explaining additional features
- **Nessus Credential Checks for UNIX and Windows –** information on how to perform authenticated network scans with the Nessus vulnerability scanner
- **Real-Time Compliance Monitoring** – outlines how Tenable’s solutions can be used to assist in meeting many different types of government and financial regulations

Please feel free to contact us at support@tenablesecurity.com, sales@tenablesecurity.com or visit our web site at http://www.tenablesecurity.com. For more information about Nessus, please visit http://www.nessus.org.

About Tenable Network Security

Tenable, headquartered in Columbia, Md., USA, is the world leader in Unified Security Monitoring. Tenable provides agent-less solutions for continuous monitoring of vulnerabilities, configurations, data leakage, log analysis, and compromise detection. For more information, please visit us at http://www.tenablesecurity.com.

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Appendix 1: Configuring Nessus Servers for Client Control

Nessus UNIX Servers

To enable any UNIX Nessus scanner for control by a Nessus client, a username and password combination must be created. The user account created for administration when the Nessus server was installed can be used for this purpose.

Also, you may use the `nessus-adduser` utility on the Nessus server to be managed by the client to create the credentials. This utility will be located in the */opt/nessus/sbin/* directory. For example, on Red Hat Linux systems, this utility will be located at */opt/nessus/sbin/nessus-adduser*.

If a Nessus scanner is configured to only scan certain IP ranges, it can still be used by the remote client. However, if an attempt is made to scan outside of those ranges, no vulnerability data will be reported.

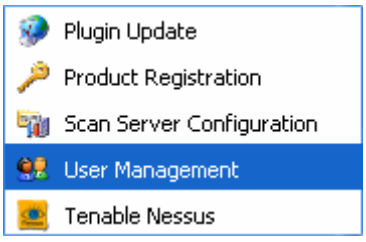
The Nessus scanner must be restarted for these changes to take effect. It can be restarted with the `kill` command as in `kill –HUP <process id of nessusd>`.

Nessus Windows Servers

Nessus Windows can be configured to receive scan job requests from remote clients. To do this, we need to complete two tasks. First, we need to add an account for the remote client to log into Nessus with, and then we need to enable Nessus to listen to inbound network connections. By default, Nessus only listens to localhost connections.

Adding User Accounts

To manage the user accounts for Nessus, invoke the "User Management" tool which is accessible from the Start button by following the Start / All Programs / Tenable Network Security / Nessus series of options as shown below:



Please note that user accounts for Nessus refer to a specific username and password to be used by the client to log in remotely to launch scans and retrieve vulnerability data.

Choose a unique username and password that will be used when the remote Nessus client requests this server to perform scans.

Please note that Nessus uses an internal administrative account for local communication between the Nessus GUI and the Tenable Nessus Service. This account cannot be used for remote connection from the Security Center.

Enabling Network Connections

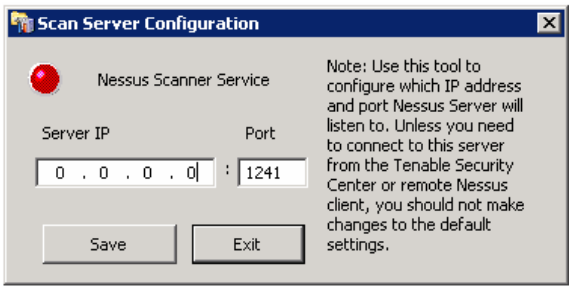
To allow a remote connection to Nessus from remote Nessus clients, run the "Scan Server Configuration" tool. This tool allows the port and bound interface of the Nessus daemon to be configured. By default, the Nessus daemon listens to connections on localhost (127.0.0.1) and port 1241.

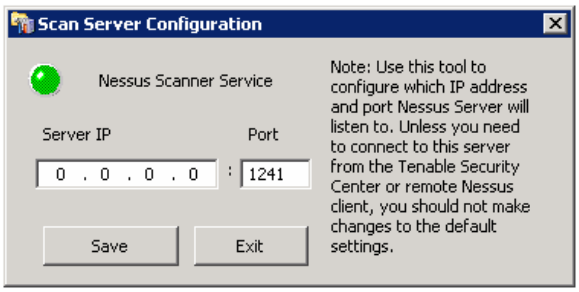
Nessus must be configured to listen for connections either on one network interface, or any interface. Type in the IP address of the Nessus network interface it should be bound to.

- If your server only has one IP address and network card, then type in that IP address.
- If your server has multiple IP addresses and you only want it to listen for connections on port 1241 on one of those, type in the IP address of that interface.
- If your server has multiple IP addresses and you want it to listen on all interfaces, use an IP address of 0.0.0.0.

Here are two screen shots of the "Scan Server Configuration" tool. They both have been bound to all network cards with an IP address of 0.0.0.0, and they are both listening on port 1241.

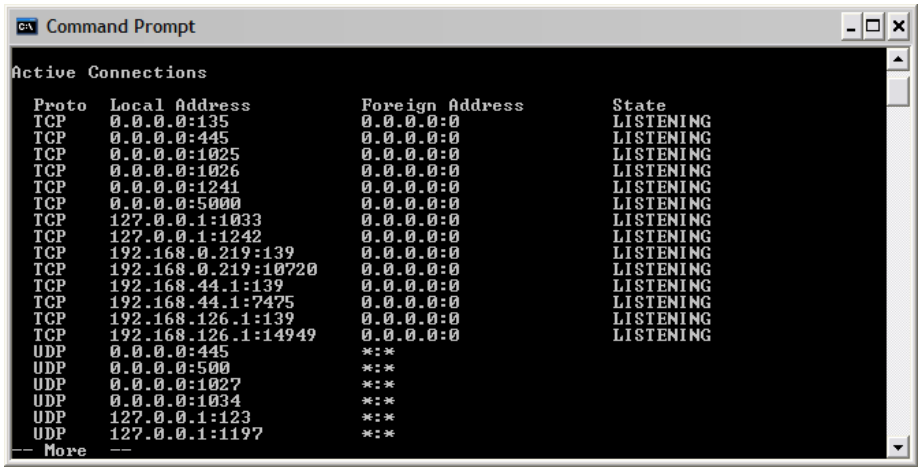
The image on the left with the red indicator shows that the "Tenable Nessus" service is not running. Clicking on the red button will start the service. If this is attempted, the indicator will turn yellow and then green if successful.





Any change to the information in the dialogue box of the "Scan Server Configuration" tool will also prompt the user to see if they want to restart the "Tenable Nessus" service.

To verify that Nessus is indeed listening on port 1241, from the Windows command line use the *netstat –an* command as shown below:



Notice that the fifth TCP line contains “0.0.0.0:1241” which means a server is listening on that port.

Host-Based Firewalls

If your Nessus server is configured with a local firewall such as Zone Alarm, Sygate, BlackICE, the Windows XP firewall, or any other, it is required that connections be opened from the remote client’s IP address.

By default, port 1241 is used. On Microsoft XP service pack 2 systems running the “Security Center” icon available in the Control Panel will present the user with the opportunity to manage the “Windows Firewall” settings. To open up port 1241 choose the “Exceptions” tab and then add port 1241 to the list.

Appendix 2: Nessus Windows Troubleshooting

Installation Issues

Issue: I am receiving the following error when I try to install Nessus Windows:

"1607: Unable to install InstallShield Scripting Runtime"

Solution: This error code can be produced if the Windows Management Instrumentation (WMI) service has been disabled for any reason. Please verify that the service is running.

If the WMI service is running, then this may be a problem between the Microsoft Windows Operating System settings and the InstallShield product that is used for installing and removing Nessus Windows. There are knowledge base articles from both Microsoft and InstallShield which both detail potential causes and the resolution of the issue.

- Microsoft Knowledge Base Article ID 910816: http://support.microsoft.com/?scid=kb;en-us;910816
- InstallShield Knowledge Base Article ID Q108340: http://consumer.installshield.com/kb.asp?id=Q108340

Scanning Issues

Issue: While starting or operating Nessus Windows I receive the following error:

"A Runtime Error Has Occurred. Do you wish to debug?
Line 31: Error: Object doesn't support this property or method"

Clicking on Continue launches the debugger. If you choose not to debug by clicking "No", you are returned to the main Nessus screen.

Attempting subsequent Nessus operations, such as New Scan Task, returns the following error:

"Error: line 154"

Continuing through the above error message returns:

"No scan control"

Solution: COM registration for Nessus has failed on the system during installation. Since the installer can not fix the problem, please perform the following steps:

1. From Start menu, click on "All Programs", then "Accessories".
2. Right click on "Command Prompt" and select "Run as Administrator".
3. Type "cd c:\Program File\Tenable\Nessus".
4. Type "regsvr32 scan.dll".

The steps above will install the COM component manually. Nessus should now start and operate without issue.

Issue: When attempting to perform a scan using Nessus Windows I receive the following error message:

"Error: Automation server can't create object"

Or

"Error 1935. An error occurred during the installation of assembly "Microsoft.MSXML..."

Solution: This is an issue with the XML Parser on the system Nessus Windows is installed on. Either it is not up to date or it may need to be re-installed.

If the system is up to date, please refer to the following Microsoft knowledge base article for more information regarding the msxml.dll parser:

http://support.microsoft.com/kb/269238/

To re-install the MS XML Parser on the system, access a command prompt and execute the following command:

```
regsvr32 %windir%\system32\msxml4.dll
```

Issue: I cannot scan over my PPP or PPTP connection.

Solution: Currently, this is not supported. Future revisions of Nessus Windows will include this functionality.

Issue: A virus-scan of my system reports a large number of viruses in Nessus Windows.

Solution: Certain anti-virus applications may show some of the Nessus plugins as viruses. You should exclude the plugins directory from virus scans. There are no executable programs in this directory.

Issue: I am scanning an unusual device, such as a RAID controller, and the scan is aborted because it because Nessus has detected it as a printer.

Solution: Disable "Safe Checks" in the scan policy before scanning the device. A scan of a printer will usually result in the printer needing to be restarted therefore when "Safe Checks" is set devices detected as printers are not scanned.

Issue: I am not able to use Nmap to conduct port scans as with previous versions of Nessus.

Solution: Please see the following URL:

http://www.nessus.org/documentation/index.php?doc=nmap-usage

Issue: I am not able to conduct a TCP Connect scan using Nessus Windows.

Solution: Because of the limitations of the Windows TCP/IP stack, Nessus Windows cannot perform TCP Connect scans.

Issue: SYN scans do not appear to wait for the port connection to be established in Nessus Windows.

Solution: This is correct in that the SYN scan does not establish a full TCP connect, however it does not change the scan results.

Issue: When performing a scan, what factors affect false negative results when running Nessus Windows on a Windows XP system?

Solution: Microsoft has added changes to Windows XP Service Pack 2 (Home & Pro) that can impact the performance of Nessus Windows and cause false negatives. The TCP/IP stack now limits the number of simultaneous incomplete outbound TCP connection attempts. After the limit has been reached, subsequent connection attempts are put in a queue and will be resolved at a fixed rate (10 per second). If too many enter the queue, they may be dropped. See the following Microsoft TechNet page for more information:

http://www.microsoft.com/technet/prodtechnol/winxppro/maintain/sp2netwk.mspx

This has the effect of causing a Nessus scan on Windows XP to potentially have false negatives as XP only allows for 10 new connections per second that are incomplete (in a SYN state). For better accuracy it is recommended that Nessus on a Windows XP system have its port scan throttle setting down to the following which is found in the individual scan configuration for each scan policy:

Max number of hosts: 10
Max number of security checks: 4
Max number of packets per second for a port scan: 50

For increased performance and scan reliability it is highly recommended that Nessus Windows be installed on a server product from the Microsoft Windows family like Windows Server 2003.