



Nokia WAP Gateway Simulator Version 4.0

User's Guide

May 2003

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Preface

Product Overview

Nokia WAP Gateway Simulator, hereafter referred to as *NWGS*, is a single-user WAP Gateway based on the multi-user Nokia Activ Server. When installed on a computer, NWGS enables the user of that computer to access the mobile Internet through programs that communicate using the WAP protocol such as Nokia Mobile Browser Simulator 4.0 SDK.

NWGS includes a decoder for decoding incoming requests from WAP client user agents, such as mobile phone emulators (SDKs), so that these can be forwarded over the HTTP protocol to Internet servers. It also includes an encoder that is used to encode server (HTTP) responses before sending these back to requesting clients.

Audience

An application developer wishing to use a phone emulator (for example, the Nokia 7210 Content Authoring SDK) may wish to use NWGS in order to download or browse content on the Internet, especially if an external WAP gateway were not available.

Typographical Conventions

The following typographical conventions are used in this guide:

Notation	Explanation
<code>Courier</code>	<ul style="list-style-type: none">• Text that you enter (as opposed to system prompts and responses)• File paths• Commands• Program code
<i>Italic</i>	<ul style="list-style-type: none">• Names of books and documents• New terminology
Bold	Names of Windows menus, commands, buttons, and icons
URL link	Active link to an external URL.

Other Product Documents

- *Nokia WAP Gateway Simulator, Release Notes*
- *Nokia Mobile Internet Toolkit 4.0 User's Guide*

Nokia WAP Gateway Simulator

This chapter describes how to get started using Nokia WAP Gateway Simulator and addresses the following topics:

- [Overview](#) of NWGS, including a brief description of its major features.
- [Launching Nokia WAP Gateway Simulator](#).
- [Using Nokia WAP Gateway Simulator](#), including a description of its menu options.
- [Configuring NWGS MIME Types](#).

Overview

NWGS is a single-user version of Nokia Activ Server, which is a full featured, multi-user WAP Gateway. It provides a subset of the features provided by Nokia Activ Server such as the following:

- WAP 2.0 compliance with support for `wml`, `wmlscript`, `xhtml`, `css` and Push message content types.
- Encoders. NWGS encodes WML and WMLScript content on the way from the Origin Server to the client phone SDK.
- UDP/IP bearer adapter. This adapter enables communication between NWGS and other client user agents running in a local area network, such as Nokia Mobile Internet Toolkit (NMIT) and phone emulators. NWGS does not support other bearer adapters supported by Nokia Activ Server as these are designed to enable radio communication between devices and the mobile Internet.
- User administration through a GUI, providing the ability to stop and start traffic, configure proxy and cache settings, and view and configure log file settings.

Launching Nokia WAP Gateway Simulator

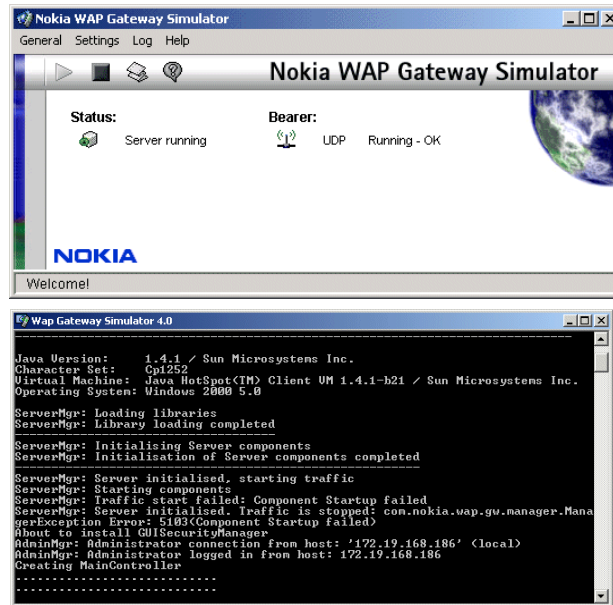
You can launch NWGS from the Windows **Start** menu or from the command line. Subsequent sections describe these methods.

Note that NWGS is a single-instance application. Any attempt to launch a second instance will fail.

Launching Standalone From the Start Menu

You can launch NWGS from the **Start** menu in the following two ways:

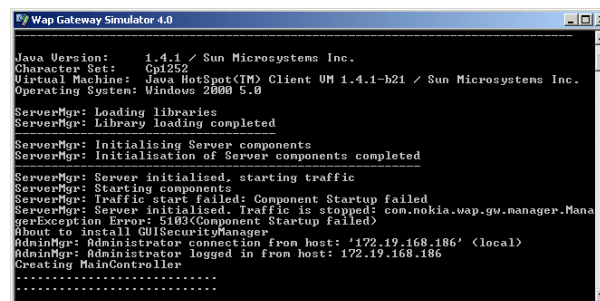
- 1 Choose **Start>Programs>Nokia>WAP Gateway Simulator Admin View**. NWGS starts and displays the following two windows:



The top window is the Administration window that you use to configure and manage the server. The bottom window is the running server display.

Choose this method if you need either to configure NWGS to use a proxy server or to configure and examine logging data. The section [Using Nokia WAP Gateway Simulator](#) describes how to use the Administration window.

- 2 Choose **Start>Programs>Nokia>WAP Gateway Simulator**. NWGS starts and displays the following window:



This window is the running server display.

Choose this method if you do not need to configure NWGS to use a proxy server or to configure and examine logging data.

For most users, this method is preferable because your computer has one fewer process running and so one fewer task item on the task bar.

Launching From the Command Line

To launch NWGS from the command line, you enter a command in the Windows Command Prompt dialog. One way to do this is as follows:

- Open the Windows Command Prompt by choosing **Start>Run** and then enter `cmd` in the **Run** dialog.
- Change directory to the NWGS install directory.
- Enter a command to start NWGS, using the following command syntax:
nwgs.exe [-parameter]

The following are the three possible commands (invalid or additional parameters are ignored):

<code>nwgs.exe</code>	Launches NWGS server with the Administration window. Note that an equivalent launching method in this case would be to double-click the file: <install-directory>\WapGateway\lib\i386\nwgs.exe
<code>nwgs.exe -nogui</code>	Launches only NWGS server.
<code>nwgs.exe -shutdown</code>	Closes NWGS (with or without its Administration window).

Using Nokia WAP Gateway Simulator

NWGS is a modified, single-user version of Nokia Activ Server. Nokia Activ Server is a full-featured, multi-user WAP Gateway intended for use in sophisticated network environments in which multiple users are supported, potentially connecting through multiple bearer protocols, and in which numerous administrative tasks are generally performed.

On the other hand, NWGS is intended for use by a single user running application development programs and SDKs such as Nokia phone emulators on a single, local computer. For this reason, NWGS supports only the UDP bearer adapter and has a limited set of monitoring and logging functions. (specifically, error logs)

The typical user will simply need to launch NWGS in order to start servicing WAP requests made by other programs unless the user's computer accesses the Internet via a proxy server in which case proxy server configuration is required. So long as NWGS is running, a phone SDK or other application development program may use it to connect to the mobile Internet. Nokia phone SDKs are configured by default to use a WAP Gateway at IP address 127.0.0.1.

Finally, you may choose to enable logging in order to capture NWGS error conditions to a file for future use.

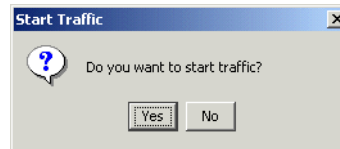
Following sections describe the NWGS menu options.

Menus

General Menu

The **General** menu displays the following options:

Start Traffic Displays the Start Traffic dialog, shown below:




Choose **Yes** to begin the processing of requests and responses.

Choose **No** to keep NWGS stopped.

When the server is started, the **Status** display indicates this state as follows:

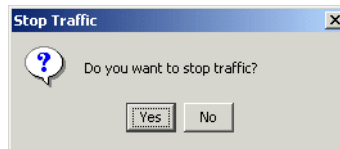
Status:

 Server running

Note that clicking the  button is equivalent to choosing the **Start Traffic** menu option.

Upon launch, the server is automatically started (this is the default).


Stop Traffic Displays the **Stop Traffic** dialog, shown below:



Choose **Yes** to stop NWGS. When the server is stopped, the **Status** display indicates this state as follows:

Status:

 Server stopped

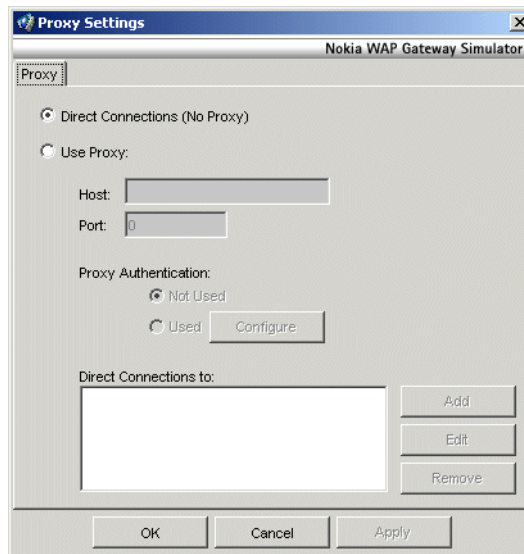
Note that clicking the  button is equivalent to choosing the **Stop Traffic** menu option.

Also note that you stop traffic and shut down NGWS by entering the command:
<install-directory>\WapGateway\nwgs.exe -stop in an MS-DOS window.

Exit Closes the WAP Gateway Simulator application.

Settings Menu

The **Settings** menu contains the single **Proxy** menu option which when chosen displays the **Proxy Settings** dialog, shown below:



Depending on your network configuration, you may need to specify an HTTP proxy server. This would be the case, for example, if your computer were located within a corporate Intranet that used an HTTP proxy server as a gateway to the Internet.

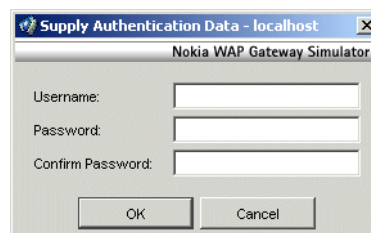
Direct Connections (No Proxy) Choose this radio button if there is no HTTP proxy server between your computer and the Internet. If you choose this option, all other fields within the dialog are grayed out, as they apply only to proxy configuration.

Use Proxy Chooses this radio button to configure an HTTP proxy server.

Host Port Having chosen the **Use Proxy** radio button, you must enter the name or IP address of the proxy server in the **Host** text entry box and the port number used by this proxy server in the **Port** text entry box.

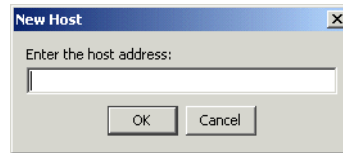
Proxy Authentication A proxy server may require NWGS to authenticate itself, that is, provide a username and password, each time NWGS submits a request to the proxy.

- Choose the **Not Used** radio button if authentication is not required.
- Choose the **Used** radio button if authentication is required and then choose the **Configure** button. The following dialog is displayed:



Enter a username and password, then the password again, and then choose **OK**.

Direct Connections Some Internet servers require that they be accessed directly and not through a proxy server. If you will be making requests of any such server, you must enter its IP address so it appears in the **Direct Connections to** list box. To do so, choose the **Add** button. The following dialog is displayed:



Enter either (1) the exact name or IP address of the Internet server requiring direct access or (2) a portion of the full name or address. For example, entering the partial address `nokia.com` causes NWGS to not route to the proxy server any request whose address ends with `nokia.com`; or, entering `212.212` causes NWGS to not route to the proxy server any request whose address begins with the characters `212.212`.

To edit an existing entry in the **Direct Connections to** list box, select it and then choose **Edit**.

To delete an existing entry in the **Direct Connections to** list box, select it and then choose **Remove**.

Log Menu

The **Log** menu displays the following options, which are described in subsequent sections:

- View** Opens the **View Log** dialog which consists of two tab pages: **Access** and **Error**. Within this dialog, you can perform the following tasks for both Access and Error log entries:
- View entries based on query criteria
 - View descriptions of displayed entries
 - Clear entries
 - Open the configure dialog (see below).
- Configure** Opens the **Log Settings** dialog which consists of two tab pages: **Access** and **Error**. Within this dialog, you can perform the following tasks for both Access and Error log entries:
- Enable or disable logging
 - Determine which conditions should be logged by setting severity criteria
 - Specify a log file in which entries are stored
 - Set the maximum size of the log file
 - Selectively remove entries from the log
 - Archive log entries

Refer to the section titled [Working With Access Logs](#) for descriptions of both viewing and configuring the Access log.

Refer to the section titled [Working With Error Logs](#) for descriptions of both viewing and configuring the Error log.

Help Menu

The **Help** menu displays the following options:

- User's Guide (PDF)** Opens the *Nokia WAP Gateway Simulator User's Guide* (this document) in Adobe Acrobat.

- Nokia Update Manager** Launches Nokia Update Manager, a program that compares the Nokia programs installed on your computer with those available at the Forum Nokia web site, and then displays any updates, including related plug-ins, that you may wish to download and install.
- About WAP Gateway Simulator** Displays an information window about NWGS.

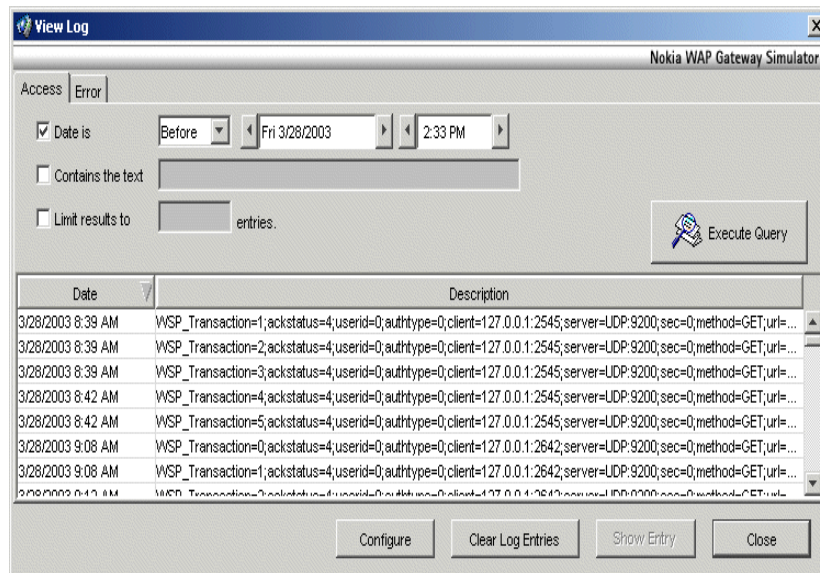
Working With Access Logs

Viewing Access Logs

To view access logs, you must first specify which logs you wish to view. To do this:

- 1 Choose **Log>View** and then the **Access** tab to open the **View Log** dialog.
- 2 Check one or more of the check boxes **Date is**, **Contains the text**, or **Limit results to**.
- 3 Enter values related to the check box title. For example, for **Date is**, specify the dates before which or after which you wish logs to be displayed.
- 4 Choose the **Execute Query** button.

The View log window now displays the available log entries based on the criteria you specified. An example is shown below:



The following table lists the actions you can perform within this dialog:

Task	Description
View all entries	Choose the Execute Query button while no query criteria check boxes are checked.
View selected entries	Use the query criteria check boxes and drop-down menus to formulate which entries should be displayed. Then click the Execute Query button. Note that the Contains the text filter searches for text within entry descriptions only (Description field).
Sort entries	To sort log entries by date, click the Date column heading; by description, the Description heading.
View log entry details	Do either of the following: Select an entry and choose the Show Entry button. Double-click anywhere on a line displaying a log entry.
Clear log entries	Choose the Clear Log Entries button to open the Remove Entries dialog. Here you can specify that all entries should be cleared, those older than a specified number of days, or those earlier than a specified date.
Configure log settings	Choose the Configure button to open the Log Settings dialog (see next section). You can then specify which error conditions should be stored in the log.

Access Field Descriptions

The following table lists the fields in an Access Log Entry:

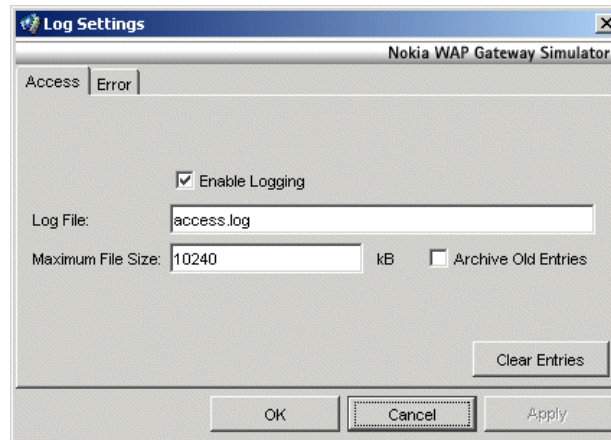
Field	Description
WSP_Transaction	WSP transaction ID
ackstatus	Status of interaction: 0 Confirmation received from the client 1 Transaction aborted by the server 2 Transaction aborted by the terminal 3 Connectionless protocol used; no acknowledgement expected
userid	Indicates the user ID as follows: 0 when authentication is not used 1 n when authentication is used. The number refers to the user ID generated by the Nokia Activ Server
authtype	User authentication method: 0 User was not authenticated 1 User was authenticated by the MSISDN of the terminal 2 User was authenticated using HTTP basic proxy authentication
server	Protocol that was used and the WAP port. Possible WAP port values: 9200 for temporary (connectionless) connections. 9202 for temporary (connectionless) secure connections. 9201 for continuous (connection oriented) connections. 9203 for continuous (connection oriented) secure connections.

Field	Description
sec	0 WTLS protocol not used 1 WTLS protocol used without encryption 2 weak encryption algorithms used 3 medium encryption algorithms used 4 strong encryption algorithms used
Kes	Key exchange suite used when the secure connection was created: 0 Null 1 SharedSecret 2 DHAnon 3 DHAnon512 4 DHAnon768 5 RSAAnon 6 RSAAnon512 7 RSAAnon768 8 RSA 9 RSA512 10 RSA768
bulk	Bulk encryption algorithm used for encrypting the data sent over the secure connection: 0 Null 1 RC5_cbc_40 2 RC5_cbc_56 3 RC5_cbc
mac	MAC algorithm used for checking the integrity of the data transferred over the secure connection: 0 SHA_0 1 SHA_40 2 SHA_80 3 SHA
method	HTTP method
url	Requested URL
reqsize	Size of the request sent by the client (header+content)
httpstatus	HTTP status code of the request
wspstatus	WSP status of the request
respsize	Size of the response sent to the client

Field	Description
servicedata	String created by a Nokia Activ Server servlet and attached to the transaction
processtime-	<p>Processing time taken by the request (in milliseconds). Contains the following fields:</p> <ul style="list-style-type: none"> Request buffering Request processing Content fetching (e.g. from WWW server) Response processing (including WML encoding etc.) Preparing the response for sending Either of the following: <ul style="list-style-type: none"> - In connection-oriented WSP: Time to complete the sending and receive the acknowledgement from the client. - In connectionless WSP: Time to complete the sending.

Configuring the Access Log

Choose **Log>Configure** and then the **Access** tab to display the following dialog:



The following table lists the actions you can perform within this dialog:

Task	Description
Enable or disable logging	Choose the Enable Logging check box to turn logging on, or uncheck it to disable logging. By default, logging is disabled.
Specify a log file name	When logging is enabled, you can name a file to be used for storing log entries. By default, <install-directory>\log\access.log is used.
Specify a maximum log file size	When logging is enabled, you can specify a maximum log file size by entering a value (in kilobytes) in the Maximum File Size box. Enter the value -1 to set the value to unlimited; in this case, the file size grows until you run out of disk space, clear the entries, or delete the file. When the file reaches the maximum size specified, half the contents of the file (the older entries) are either deleted or archived (if you have specified archiving, see below).

Task	Description
Specify archiving of log files	When logging is enabled, you can choose the Archive Old Entries check box to set up automatic archiving of log entries when the maximum log file size is reached. At that time, the current log file is named (assuming the current date is 19 January 2003 and that several archive files are created on that date) <code>access20030119.txt</code> , <code>access200301191.txt</code> , <code>access200301192.txt</code> , and so on. The file name changes as the date changes.
Remove entries from the current log file	When logging is enabled, you can choose the Clear Entries button to open the Remove Entries dialog. Here you can specify that all entries should be cleared, those older than a specified number of days, or those earlier than a specified date.

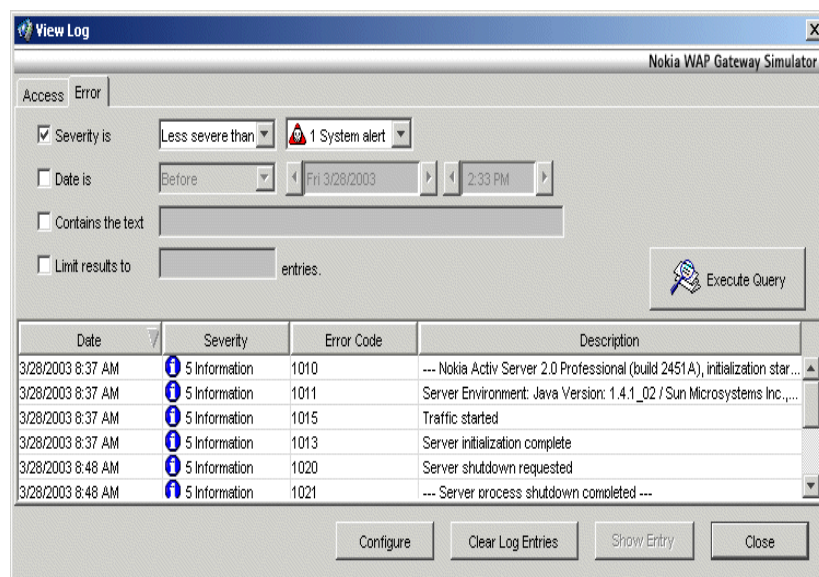
Working With Error Logs

Viewing Error Log Entries

To view error logs, you must first specify which logs you wish to view. To do this:

- 1 Choose **Log>View** and then the **Error** tab to open the **View Log** dialog.
- 2 Check one or more of the check boxes **Severity is**, **Date is**, **Contains the text**, or **Limit results to**.
- 3 Enter values related to the check box title. For example, for **Date is**, specify the dates before which or after which you wish logs to be displayed.
- 4 Choose the **Execute Query** button.

The **View log** window now displays the available log entries based on the criteria you specified. An example is shown below:

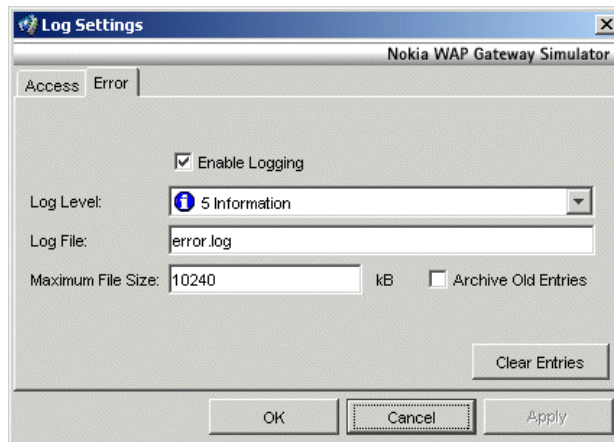


The following table lists the actions you can perform within this dialog:

Task	Description
View all entries	Choose the Execute Query button while no query criteria check boxes are checked.
View selected entries	Use the query criteria check boxes and drop-down menus to formulate which entries should be displayed. Then click the Execute Query button. Note that the Contains the text filter searches for text within entry descriptions only (Description field).
Sort entries	To sort log entries by date, click the Date column heading; by severity, the Severity column heading; by error code, the Error Code heading; by description, the Description heading.
View log entry details	Do either of the following: Select an entry and choose the Show Entry button. Double-click anywhere on a line displaying a log entry, that is, on the Date , Severity , Error Code , or Description columns.
Clear log entries	Choose the Clear Log Entries button to open the Remove Entries dialog. Here you can specify that all entries should be cleared, those older than a specified number of days, or those earlier than a specified date.
Configure log settings	Choose the Configure button to open the Log Settings dialog. You can then specify which error conditions should be stored in the log.

Configuring the Error Log

Choose **Log>Configure** and then the **Error** tab displays the following dialog:



The following table lists the actions you can perform within this dialog:

Task	Description
Enable or disable logging	Choose the Enable Logging check box to turn logging on, or uncheck it to disable logging. By default, logging is disabled.
Set the log level	When logging is enabled, you can use the drop-down Log Level selector to choose one of seven numbered severity levels, in decreasing order of severity from 1 System Alert to 7 Debug . Log entries at or below the selected value will be stored in the error log.

Task	Description
Specify a log file name	When logging is enabled, you can name a file to be used for storing log entries. By default, <install-directory>\log\error.log is used.
Specify a maximum log file size	When logging is enabled, you can specify a maximum log file size by entering a value (in kilobytes) in the Maximum File Size box. Enter the value -1 to set the value to unlimited; in this case, the file size grows until you run out of disk space, clear the entries, or delete the file. When the file reaches the maximum size specified, half the contents of the file (the older entries) are either deleted or archived (if you have specified archiving, see below).
Specify archiving of log files	When logging is enabled, you can choose the Archive Old Entries check box to set up automatic archiving of log entries when the maximum log file size is reached. At that time, the current log file is named (assuming the current date is 19 January 2003 and that several archive files are created on that date) error20030119.txt, error200301191.txt, error200301192.txt, and so on. The file name changes as the date changes.
Remove entries from the current log file	When logging is enabled, you can choose the Clear Entries button to open the Remove Entries dialog. Here you can specify that all entries should be cleared, those older than a specified number of days, or those earlier than a specified date.

Configuring NWGS MIME Types

NWGS, unlike typical WAP gateways, is capable of retrieving document content in local files. Whereas a typical WAP gateway accepts only WAP requests addressed by URL for retrieval from an Internet server, NWGS can also accept and process requests for local file content in a scheme such as `file://C:\mycontent\index.wml`. The processing algorithm is described in the following section.

NWGS Local File Processing

To handle a file requests, NWGS employs a file servlet module that processes file requests in the following manner:

- NWGS fetches the file and notes its file extension (for example, .wml).
- NWGS checks its `servlet.config` file (located at <NWGS-Install-Folder>\config\servlet.config) to see if there is a MIME type associated with the file extension .wml.
- If so, it processes the file as necessary (for example, encoding WML content), and then prepends to the file content the MIME type that is associated with the file extension to create a response in HTTP format.
If not, it returns an error “Unknown file format.”
- NWGS then transmits this packaged response to the requesting client user agent (such as a phone emulator).

Modifying the `servlet.config` File

You can modify the `servlet.config` file by adding or deleting the individual “file-extension to MIME-type” mappings. Adding a new mapping has the effect of enabling NWGS to process a local file having the file extension specified by the new mapping. Deleting a mapping removes the capability of NWGS to process local files with the associated file extension.

Each mapping is listed, usually on a separate line, each line (except the last) ending with a comma (,). The following is an example of a `servlet.config` file:

```
#Configuration of Servlets
#Thu Mar 06 13:07:05 EST 2003
servlet.names=FileServlet
servlet.FileServlet.code=com.nokia.wap.server.FileServlet
servlet.FileServlet.initArgs=rootdir\=wap_root,indexfile\=index.wml,
.wml\=text/vnd.wap.wml,
.wmls\=text/vnd.wap.wmlscript,
.wmlc\=application/vnd.wap.wmlc,.wmlsc\=application/vnd.wap
.jpeg\=image/jpeg,
.html\=text/html,.htm\=text/html,.css\=text/css,
.xhtml\=application/xhtml+xml,.txt\=text/plain,
.bin\=application,
.vcs\=text/x-vcalendar,.vcf\=text/x-vcard
```

Note the following with respect to the above file content:

- The first mapping maps the file extension `.wml` to the MIME type `text/vnd.wap.wml`.
- The last mapping maps the file extension `.vcf` to the MIME type `text/x-vcard`.
- The character string `\=` separates a file extension from the associated MIME type.
- A comma follows each MIME type except the last (`text/x-vcard`).

Addressing Schemes for Network File Access

NWGS listens at IP address 127.0.0.1 on ports 9200 and 9201 for requests (and responses) addressed to it. These can take the following two forms:

- `http://server.domain/path/document.xxx`
- `http://toolkit/<Network-File-Path>`

The first is a typically formulated WAP request or response. This type is handled by NWGS and any other WAP gateway and has nothing to do with network file access.

The second is unique to NWGS and is the mechanism used to enable NWGS network file access. It may be used by any local client application. For example, it is used by NMIT and some Nokia phone emulators (SDKs). It works in the following way:

Any local client application may send a request for a local file by formulating the request, as an example, in the following way: `http://toolkit/C:\MyWMLFiles\anil.wml`. NWGS receives and processes this request, returning a response containing encoded WML content, following the “file-extension to MIME-type” mapping procedure previously described in the section titled [NWGS Local File Processing](#).

Processing of Network Files With a `.http` File Extension

NWGS handles the new Nokia-proprietary file extension `.http` similarly to that described in the previous section but with some significant differences. This section summarizes the purpose of this new file extension and the way it is handled by NWGS.

The `.http` file extension was developed by Nokia as a method for enabling the new **SDK Control Panel** feature in NMIT. This feature provides the capability to display content simultaneously to multiple phone emulators (SDKs). More specifically, the `.http` file extension was needed to enable the preservation of user header information in Push messages when the target phone emulators were the previously released Nokia 3510i and 7210 Content Authoring SDKs.

The mechanism works as follows:

- NMIT issues a load command to target emulators, directing them to load a `.http` file. The emulators then make a request to NWGS for the file. An example request might be `http://toolkit/C:\MyPushMessages\Friends.http`.
- NWGS, recognizing the file extension, processes the file by preserving user headers before encoding the message content (remember Push message content is encoded).
- NWGS then prepends the Push message content type to the encoded message content (this is standard behavior for all WAP gateways), but then also adds (directly following the content type header) a separate header line for each user header found in the `.http` file.
- NWGS then packages the response, prepending everything with a line containing the text `HTTP/1.0 200 OK` and then passes this as the response to the requesting client (phone emulator).

The following is an example of the message format received by the requesting client:

```
HTTP/1.0 200 OK
Content-Type: application/vnd.wap.sic
MyFriendList: MikeysFriends
FriendOne:Pete
```

This is the encoded message content.

An Appendix in the *Nokia Mobile Internet Toolkit User's Guide* describes formally the Nokia-proprietary `.http` file format.

