



INFUZE NGINX MODULE USER GUIDE

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WURFL InFuze Module for NGINX: User Guide

This document is aimed at developers and system administrators who intend to install and configure the WURFL InFuze module for NGINX on Unix, Linux, and other Unix-based systems.

If you are using NGINX Plus, please see the documentation for our NGINX Plus module [here](#).

Note: Unlike NGINX Plus, you will still need to compile and link the NGINX module.

Installing libwurfl

In order for the Module to work it is **ESSENTIAL** that the libwurfl library is installed on your system. libwurfl is provided in your Customer Vault/FileX.

If you have not already installed libwurfl, instructions can be found [here](#). Release notes for each API can be found [here](#).

WARNING

SINCE MODULE VERSION 1.8.4.1 YOU NEED TO ADD A `wurfl_enable on;` COMMAND TO THE `http` section OF YOUR CONFIGURATION FILE, OTHERWISE THE WURFL MODULE WILL NOT BE LOADED. THIS CHANGE IS PART OF A FEATURE ALIGNMENT, NECESSARY FOR ENTERPRISE USERS OF NGINX.

Build WURFL Module

We provide an installation script (`wurfl_nginx_mod_setup.sh`) which automatically installs the NGINX server and the WURFL NGINX module.

We strongly advise use of this script to quickly build NGINX with the WURFL module.

Execute `wurfl_nginx_mod_setup.sh`, specifying the NGINX version as the first script parameter, and WURFL version as the second parameter:

```
$ chmod +x ./wurfl_nginx_mod_setup.sh  
$ ./wurfl_nginx_mod_setup.sh 1.10.3 1.9.1.0
```

Tip: Since NGINX 1.9.11, dynamic modules are supported. For WURFL NGINX module versions 1.8.1.0 and greater, you can choose to build it as a dynamic module or embedded in NGINX. If you want to build WURFL module as an NGINX Dynamic module, edit the `wurfl_nginx_mod_setup.sh` file, uncomment the line `##./configure --with-debug --with-threads --with-cc-opt=-Wno-error --add-dynamic-module=../src` and comment the line `./configure --with-debug --with-threads --with-cc-opt=-Wno-error --add-module=../src`

Tip: By default, NGINX will be installed in `/usr/local/nginx`, which, although a good place, means that the main NGINX binary will be found in `/usr/local/nginx/sbin/nginx`. Have a look at the [Install Options](#) page of the NGINX wiki for full details.

Tip: For significant performance enhancement, you might want to consider reinstalling PCRE with "just-in-time compilation", and then edit the `wurfl_nginx_mod_setup.sh` file adding `--with-pcre-jit` option to your `./configure` call : `./configure --with-pcre-jit --with-debug --with-threads`

Tip: If you choosed to build `mod_wurfl` as an NGINX Dynamic module, you should find the `ngx_http_wurfl_module.so` file in `/usr/local/nginx/sbin/nginx/modules`.

Configuration Guide

Below is a sample `nginx.conf` configuration file for WURFL setup. Please refer to the Module Command Table below which explains each element in detail (Table 1), their parameters, constraints, and default recommended settings.

```
# ...

# -- Uncomment this if you are using NGINX Plus
# -- or you compiled WURFL module with --add-dynamic-module (WURFL API version 1.8.1.0 or above / NGINX OSS 1.9.11 or above).
#load_module modules/ngx_http_wurfl_module.so;

# ...

http {
    # ...

    # -- Command to enable WURFL module. Since WURFL module version 1.8.4.1, WURFL module is DISABLED BY DEFAULT.
    # -- Used to switch on/off WURFL module; if set 'off', NGINX will ignore all wurfl_* configuration.
    # -- If WURFL module is disabled, NGINX variables used to handle WURFL detection results (i.e: $wurfl_id , $wurfl_cap_is_smarttv...) are still valid but their values will be "empty string".
    # -- Valid values are on/off. Default value is off.
    wurfl_enable    on;

    # -- WURFL root definition, one per config. User MUST specify this path in order to make WURFL engine correctly start.
    wurfl_root      /usr/share/wurfl/wurfl.zip;

    # -- WURFL Updater allows for seamless update of the WURFL Engine with new data downloaded from ScientiaMobile.
    # -- Updater configuration must be done after wurfl_root.
    # -- WURFL file should be either .zip or .xml.gz and match the wurfl_root file type.
    # -- Apply the wurfl_updater by setting your personal updater URL from the ScientiaMobile Customer Vault. If your license is expired, NGINX won't start with the Updater configured.
    # -- Valid values for Updater's checking frequency (how often the updater checks for any new WURFL data file
    # -- to be downloaded and used by the engine) are DAILY or WEEKLY.
    # -- Updater log file (wurfl-updater.log) will be located in the "wurfl_root" folder. The folder and wurfl.zip file should be writable
    # -- by an NGINX process
    #wurfl_updater   https://data.scientiamobile.com/xxxxx/wurfl.zip DAILY;

    # -- WURFL patches definition (as much as needed, patches will be applied in the same order as specified in this conf file)
    #wurfl_patch     /path/to/patch1.xml;
    #wurfl_patch     /path/to/patch2.xml;
    #wurfl_patch     /path/to/patch3.xml;
```

```

# Increase the variable hash size
variables_hash_max_size 1024;
variables_hash_bucket_size 1024;

# -- WURFL UA priority: one of the following (default is wurfl_useragent_priority_override_sideloaded_browser_useragent)
wurfl_useragent_priority_override_sideloaded_browser_useragent;
#wurfl_useragent_priority_use_plain_useragent;

# -- WURFL cache: one of the following
wurfl_cache_lru 100000;
#wurfl_cache_null;

# -- WURFL properties (formerly "WURFL default variables")
# -- Since WURFL API version 1.8.0.0, WURFL default variables except "wurfl_id" are no longer injected by default
# -- and have to be explicitly specified.
#wurfl_request_property wurfl_root_id;
#wurfl_request_property wurfl_isdevroot;
#wurfl_request_property wurfl_useragent;
#wurfl_request_property wurfl_engine_target;
#wurfl_request_property wurfl_useragent_priority;
#wurfl_request_property wurfl_info;
#wurfl_request_property wurfl_api_version;
#wurfl_request_property wurfl_last_load_time;
#wurfl_request_property wurfl_normalized_useragent;

# -- WURFL user requested static capabilities (as an example, this is not a complete list)
#wurfl_request_capability is_tablet;
#wurfl_request_capability is_wireless_device;

# -- WURFL user requested virtual capabilities (as an example, this is not a complete list).
# -- Since WURFL API version 1.7.1.0, virtual capabilities are no longer injected by default
# -- and have to be explicitly specified.
#wurfl_request_capability advertised_device_os;
#wurfl_request_capability is_android;

# ...

server {

    # ...

    # -- WURFL injection rules
    #
    # -- The following rule lists define which urls hasn't/has to be injected with wurfl data.
    #
    # -- The urls will be processed in this manner:
    #
    # -- Check if a wurfl_do_not_process_url regex matches the url. If yes, the url
    # -- itself will not be injected and no further checks will be made
    # -- If no wurfl_do_not_process_url match, check if a wurfl_process_url regex
    # -- matches the url. If yes, the url itself will be injected
    #
    # -- The fallback behaviour in case the url doesn't match any
    # -- wurfl_do_not_process_url/wurfl_process_url rule is:
    # -- INJECTION if the list of wurfl_process_url is empty
    # -- NO INJECTION if the list of wurfl_process_url is not empty
    #
    #
    # ---- Black list: defines which urls hasn't to be injected with wurfl data
    # ---- syntax: wurfl_do_not_process_url <url regex> <rule name>
    #
    # wurfl_do_not_process_url .*\.(\.gif|\.jpeg|\.png|\.css) "Static contents";
    # wurfl_do_not_process_url .*img\.* "All in img folder;
    #

```

```

#
# ---- White list: defines which urls has to be injected with wurfl data
# ---- syntax: wurfl_process_url <url regex> <rule name>
#
# wurfl_process_url .*\.php|php4|php5) "Php scripts";
# wurfl_process_url .*\.jsp|asp) "Jsp/Asp scripts";

# -- Trace wurfl injections (default value = off)
# -- The log format is:
# -- WURFL: Server <server name> - Whitelist hit - resource: <url> - regex: <url regex> (rule name:<rule name>)
# -- WURFL: Server <server name> - Blacklist hit - resource: <url> - regex: <url regex> (rule name:<rule name>)
# -- <server name> is the value of server_name property, or, if empty, a number indicating
# -- which server section the log is relative to
#
# wurfl_log_header_injection on;

# ...

# Example of uses with PHP FastCGI (Note: PHP is not a requirement!)
location ~ /\.php$ {
    root    html;
    fastcgi_pass 127.0.0.1:9000;
    fastcgi_index index.php;
    fastcgi_param SCRIPT_FILENAME /var/www$fastcgi_script_name;
    include fastcgi_params;

    ##### WURFL data passed to fastcgi PHP scripts
    #
    ##### WURFL properties (formerly "WURFL default variables"): add here to make them available to fastcgi PHP script
s.
    ##### Property "wurfl_id" is injected by default (see http section) and could be specified here
    fastcgi_param WURFL_ID $wurfl_id;
    #fastcgi_param WURFL_ROOT_ID $wurfl_root_id;
    #fastcgi_param WURFL_ISDEVROOT $wurfl_isdevroot;
    #fastcgi_param WURFL_ORIGINAL_USERAGENT $wurfl_useragent;
    #fastcgi_param WURFL_ENGINE_TARGET $wurfl_engine_target;
    #fastcgi_param WURFL_USERAGENT_PRIORITY $wurfl_useragent_priority;
    #fastcgi_param WURFL_INFO $wurfl_info;
    #fastcgi_param WURFL_API_VERSION $wurfl_api_version;
    #fastcgi_param WURFL_LAST_LOAD_TIME $wurfl_last_load_time;
    #fastcgi_param WURFL_NORMALIZED_USERAGENT $wurfl_normalized_useragent;
    #
    #
    ##### WURFL capabilities: headers injected by into Request by wurfl engine.
    ##### Add here to make them available to fastcgi PHP scripts.
    #
    ##### specify the static capabilities needed in webapp (as an example, this is not a complete list)
    #fastcgi_param WURFL_IS_TABLET $wurfl_cap_is_tablet;
    #fastcgi_param WURFL_IS_WIRELESS_DEVICE $wurfl_cap_is_wireless_device;
    #
    ##### specify the virtual capabilities needed in webapp (as an example, this is not a complete list)
    #fastcgi_param WURFL_ADVERTISED_DEVICE_OS $wurfl_cap_advertised_device_os;
    #fastcgi_param WURFL_IS_ANDROID $wurfl_cap_is_android;
}
# ...
}
}

```

WURFL NGINX Module command table

The following table shows directives which can be applied to configure and use the WURFL NGINX Module.

Section	Syntax	Description	Availability
http	wurfl_enable	Enable/Disable the WURFL module. Since version 1.8.4.1, the WURFL module is disabled by default and will need to be enabled: wurfl_enable on; Otherwise all WURFL commands will be ignored and the WURFL module will not be loaded. Possible values: on/off. Default value: off.	1.9
http	wurfl_root	Defines the location (path) of the WURFL data file.	1.4

Section	Syntax	Description	Availability
	wurfl_updater	<p>Allows seamless updates of the WURFL Engine with new data downloaded from Scientiamobile. This directive must follow wurfl_root.</p> <p>It takes two parameters:</p> <ul style="list-style-type: none"> • the data url (taken from your personal Scientiamobile Vault account, choosing between two data file types: .zip or .xml.gz) <p>Take care that wurfl_root file type and wurfl_updater data url file types match so you may need to change the wurfl_root file type accordingly.</p> <p>Please note that in the case your license is expired, NGINX won't start with Updater configured.</p> <ul style="list-style-type: none"> • the updater checking frequency (how often the updater checks for any new WURFL data file to be downloaded and used by the engine) which you can choose between DAILY and WEEKLY. <p>In order to let the Updater perform its activities both the wurfl_root folder and file must be writable by NGINX.</p> <p>The wurfl-updater.log file in wurfl_root folder will contains details on Updater activity.</p>	1.8.3
	wurfl_patch	<p>Adds one or more custom patch files to the WURFL repository.</p>	1.4

Section	Syntax	Description	Availability
	<p>wurfl_target_default or wurfl_target_fast_desktop_browser_match or wurfl_target_performance DEPRECATED or wurfl_target_accuracy DEPRECATED</p>	<p>You can choose between <code>wurfl_target_default</code> suitable for generic traffic, and <code>wurfl_target_fast_desktop_browser_match</code> when you have significant amounts of desktop browser traffic compared to mobile device (this option will return <code>wurfl_id</code> for the majority of web browsers). For <code>wurfl_target_performance</code> and <code>wurfl_target_accuracy</code> options, please read note about Decommissioning of engine target. Note that <code>wurfl_target_performance</code> and <code>wurfl_target_accuracy</code> will trigger the new <code>wurfl_target_default</code> behavior.</p>	1.4

Section	Syntax	Description	Availability
	<p>wurfl_cache_lru or wurfl_cache_null</p>	<p>In order to increase performance while processing real HTTP traffic, we suggest setting up a LRU cache. The LRU caching strategy will speed up lookup operations on processed User Agents by keeping them in an LRU map. By default the cache will be set to 30000 entries which accounts for 7 to 10 MB of additional memory usage. Specific concerns regarding memory usage apart, users are advised to size their cache generously (100,000 or more) to increase performance. For more information, please see LRU Cache Mechanism.</p>	1.4
	<p>wurfl_request_capability</p>	<p>Enables injection of WURFL Static Capabilities/Virtual Capabilities in the HTTP request headers with your specified parameter(s). Syntax: wurfl_request_capability <static capability/virtual capability name> You can find the complete list of WURFL Static Capabilities and WURFL Virtual Capabilities here. If a Static Capability/Virtual Capability is specified in a <code>wurfl_request_capability</code> command, WURFL NGINX module set a NGINX variable whose name is wurfl_cap_</p>	1.4

Section	Syntax	Description	Availability
	<p>wurfl_useragent_priority_override_sideloaded_browser_useragent</p> <p>or</p> <p>wurfl_useragent_priority_use_plain_useragent</p>	<p>You can choose between</p> <p>wurfl_useragent_priority_override_sideloaded_browser_useragent</p> <p>(WURFL_USERAGENT_PRIORITY_OVERRIDE_SIDELOADED_BROWSER_USERAGENT)</p> <p>or</p> <p>wurfl_useragent_priority_use_plain_useragent</p> <p>(WURFL_USERAGENT_PRIORITY_USE_PLAIN_USERAGENT) user agent priorities. In High-Performance mode, desktop web browser detection is done programmatically without referencing the WURFL data. As a result, most desktop web browsers are returned as generic_web_browser WURFL ID for performance. The default user agent priority is wurfl_useragent_priority_override_sideloaded_browser_useragent.</p>	1.5.2
	<p>wurfl_request_property</p>	<p>Enables injection of WURFL Properties (see section WURFL Properties below) in the HTTP request headers.</p> <p>Syntax:</p> <p>wurfl_request_property <variable name></p> <p>Not mandatory.</p>	1.8

Section	Syntax	Description	Availability
server	<p>wurfl_do_not_process_url</p>	<p>A regular expression defining which URLs hasn't to be injected with wurfl data. Syntax: wurfl_do_not_process_url <url regex> <rule name></p> <p>Not mandatory.</p> <p>You can specify more than one wurfl_do_not_process_url</p> <p>The URLs will be processed in this manner:</p> <p>Check if a wurfl_do_not_process_url regex matches the URL.</p> <ul style="list-style-type: none"> • If yes, the URL itself will not be injected and no further checks will be made. • If no, check if a wurfl_process_url regex matches the url. • • If yes, the url itself will be injected <p>The fallback behaviour in case the url doesn't match any wurfl_do_not_process_url/wurfl_process_url rule is:</p> <ul style="list-style-type: none"> • INJECTION if the list of wurfl_process_url is empty • NO INJECTION if the list of wurfl_process_url is not empty 	1.8

Section	Syntax	Description	Availability
	wurfl_process_url	<p>A regular expression defining which URLs has to be injected with wurfl data.</p> <p>Syntax: wurfl_process_url <url regex> <rule name></p> <p>Not mandatory. You can specify more than one wurfl_process_url. The urls will be processed in this manner: Check if a wurfl_do_not_process_url regex matches the URL.</p> <ul style="list-style-type: none"> • If yes, the URL itself will not be injected and no further checks will be made. • If no, check if a wurfl_process_url regex matches the URL. • • If yes, the URL itself will be injected <p>The fallback behaviour in case the URL doesn't match any wurfl_do_not_process_url/wurfl_process_url rule is:</p> <ul style="list-style-type: none"> • INJECTION if the list of wurfl_process_url is empty • NO INJECTION if the list of wurfl_process_url is not empty 	1.8
	wurfl_log_header_injection	<p>Enable/disable logging of occurred injections. You can choose between on/off</p> <p>Not mandatory. (default value is off)</p>	1.8

WURFL Properties

The WURFL NGINX module sets some useful convenience NGINX variables to retrieve information regarding the currently active WURFL configuration.

These variables are automatically calculated and are injected in HTTP requests if specified in a wurfl_request_property

command.

Please note that the `wurfl_id` variable is injected by default so you don't have to specify it in a `wurfl_request_property` command.

WURFL Properties Table

Variable Name	Contents	Availability
<code>wurfl_id</code>	Contains the device ID of the matched device. It is injected by default so you don't have to specify it in a <code>wurfl_request_property</code> command	1.4
<code>wurfl_root_id</code>	Contains the device root ID of the matched device.	1.4
<code>wurfl_isdevroot</code>	Tells if the matched device is a root device. Possible values are "TRUE" or "FALSE"	1.4
<code>wurfl_useragent</code>	The original useragent coming with this particular web request	1.5.1
<code>wurfl_api_version</code>	Contains a string representing the currently used libwurfl API version	1.5.1
<code>wurfl_engine_target</code>	Contains a string representing the currently set WURFL Engine Target. Possible values are "HIGH_ACCURACY", "HIGH_PERFORMANCE" or "INVALID"	1.5.1
<code>wurfl_info</code>	A string containing information on the parsed WURFL data file and its full path	1.5.1
<code>wurfl_last_load_time</code>	Contains the UNIX timestamp of the last time WURFL has been loaded successfully.	1.5.1
<code>wurfl_normalized_useragent</code>	The normalized useragent.	1.5.1.3
<code>wurfl_useragent_priority</code>	The user agent priority used by WURFL.	1.5.2

Running NGINX Web Server

Once you have configured NGINX and are ready to test the installation by launching the webserver, use the following

command:

```
sudo /usr/local/nginx/sbin/nginx
```

Tip: This guide only instructs you on how to start and stop NGINX manually. There are many different online guides that shows how to build init scripts for NGINX, here is an [example site](#).

To see if NGINX is running, go to your server's IP address. You should see a 'welcome to NGINX' message, indicating that NGINX is installed. Alternatively, check to see if the NGINX process is running by executing this command:

```
sudo ps aux | grep nginx
```

To stop the NGINX service manually, you can take advantage of the pid file to identify process ID.

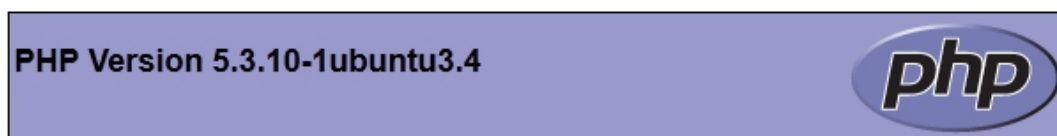
```
sudo kill `cat /usr/local/nginx/logs/nginx.pid`
```

Verify WURFL Installation

At the end of the installation procedure, your NGINX web server will be enhanced with the new WURFL API capabilities to support a variety of use-cases that rely on your NGINX instance becoming aware of device information. Among other things, NGINX will augment HTTP requests with new headers such as: X-Wurfl-Is-Tablet, X-Is-Full-Desktop and the relative values as defined in WURFL. This will enable services deployed downstream to take advantage of device detection in the simplest way possible (getHeader() and similar).

Note: Pre-selected capabilities and header names are shown for this example (the actual choice of header names is configurable).

The WURFL module for NGINX enables organizations to leverage device and browser information within the very tools, frameworks and programming languages that they have previously elected to use. For example, assuming that a RIM BlackBerry 8830 device requests a PHP phpinfo() page (assuming that PHP is installed), the following information would be returned by the system thanks to the WURFL NGINX module:



System	Linux ip-10-252-59-109 3.2.0-31-virtual #50-Ubuntu SMP Fri Sep 7 16:36:36 UTC 2012 x86_64
--------	---

PHP Variables

Variable	Value
_SERVER["WURFL_ROOT_ID"]	blackberry8300_ver1
_SERVER["WURFL_ID"]	blackberry8300_ver1_vid102
_SERVER["WURFL_ISDEVROOT"]	FALSE
_SERVER["WURFL_CAP_BRAND_NAME"]	RIM
_SERVER["GATEWAY_INTERFACE"]	CGI/1.1
_SERVER["SERVER_SOFTWARE"]	nginx

PHP variables now include HTTP headers that contain device information. This information can be leveraged by downstream applications to tailor the content to the capabilities of the requesting device. For example, assuming we

choose the X-Wurfl-* notation for the environment variables or HTTP headers, the following PHP code can be used to determine if the requesting device is a tablet:

```
// PHP
if ($_SERVER['X-Wurfl-Is-Tablet'] == 'true') {
    //Do whatever makes sense for a tablet
}
```

Java, ASP.NET, Perl, Python and everything that can run in a CGI environment can take advantage of the functionality.

Running PHP Script on NGINX

In order to run the example script above, you will need to install PHP FastCGI. It is highly recommended that you use PHP-FPM (FastCGI Process Manager) for its features and ease of installation. Use the following command to install the latest PHP-FPM package:

```
sudo apt-get install php5-fpm
```

Then run PHP5-FPM in the background, using the following init.d script to start the process:

```
sudo /etc/init.d/php-fpm start
```

At this point, we are ready to create a simple test script. Test the capabilities filters with the following PHP script test.php to put in /usr/local/nginx/html:

```
//PHP - test.php
phpinfo(INFO_ENVIRONMENT);
```

The test.php script will return an extended result of what can be seen in Figure 1. You can use any kind of mobile device to load the site and see their unique device capabilities.

IMPORTANT - Decommissioning of engine target options

Prior to version 0.8 of the API, users could choose between wurfl_target_performance and wurfl_target_accuracy engine optimization options. These options had been introduced years ago to manage the behavior of certain web browsers and their tendency to present "always different" User-Agent strings that would baffle strategies to cache similar WURFL queries in memory. As the problem has been solved by browser vendors, the need to adopt this strategy has diminished and ultimately disappeared (i.e. there was no longer much to be gained with the high-performance mode in most circumstances) and ScientiaMobile elected to "remove" this option to simplify configuration and go in the direction of uniform API behavior in different contexts.

When we wrote "remove" in the previous sentence, we were not being totally accurate. Customers who may find themselves in the unlikely situation of having to analyze significant amounts of legacy web traffic, may still enable the old wurfl_target_performance behavior by calling wurfl_target_fast_desktop_browser_match in their configuration.

Please note that users with the old wurfl_target_performance target engine will not receive an error. The old behavior will not be triggered, though. The wurfl_target_default target (corresponding to the old wurfl_target_accuracy) will be used instead.

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