



Purpose

This document describes how to monitor websites effectively with Nagios XI. There are three different wizards to help you monitor the health of websites and to be notified when unexpected changes occur on the website or processes are not working as expected.

- Website Wizard is used to monitor the steady-state aspects of a website
- Website URL wizard is very similar and allows you to monitor the status and content of a specific URL
- Web Transaction Wizard monitors transactions and other interactive activities on your website

Target Audience

This document is intended for use by both Nagios Administrators and end-users.

Considerations

When monitoring websites, it is often recommended to check the operational status of several key metrics, including:

- HTTP response validity and load time
- DNS resolution and IP address match
- Website content
- SSL certificates
- Web transaction success and run time

Your monitoring needs will vary depending on the complexity of your website, its purpose, and its intended end-user.

Running A Wizard

To begin using one of the wizards, navigate via the top menu bar to **Configure** > **Run a configuration wizard** and select the required wizard from the list. In the following screenshot you can see how the search field allows you to quickly find a wizard.

The screenshot shows the Nagios XI interface. The top navigation bar includes 'Home', 'Views', 'Dashboards', 'Reports', 'Configure' (circled in blue), 'Tools', 'Help', and 'Admin'. A search bar on the right shows a green checkmark, the user 'nagiosadmin', and a 'Logout' button. The left sidebar has a 'Configure' dropdown menu with 'Configuration Options', 'Configuration Tools' (circled in blue), 'Advanced Configuration', and 'More Options'. Under 'Configuration Tools', 'Configuration Wizards' is circled in blue, with sub-items 'Auto-Discovery' and 'Manage Templates'. The main content area is titled 'Configuration Wizards - Select a Wizard' and contains a search bar with 'web' entered. Below the search bar are three wizard cards: 'Website' (Monitor a website.), 'Website URL' (Monitor a specific web URL.), and 'Web Transaction' (Monitor a synthetic web transaction.). A 'Get More Wizards' button is visible on the right.

The Website Wizard

This is the wizard you will use for most types of sites, where you are checking common server/site metrics. The best way to understand its capabilities is to see them, so a walk through of using this wizard follows.

Select the **Website** wizard from the list of wizards.

On **Step 1** enter the **URL** to your website. This can be either the front page of your the domain or any sub-page. The latter will only have a purpose of checking of existence of that page and content monitoring on it.

Click **Next** once you've entered a URL.

The screenshot shows the 'Configuration Wizard: Website - Step 1' interface. It features a title bar with a globe icon and a gear icon. Below the title is the instruction 'Monitor a website.' followed by a form field labeled 'Website URL:' containing the text 'https://www.nagios.com'. A note below the field reads 'The full URL of the website you'd like to monitor.' At the bottom of the form are two buttons: 'Back' and 'Next'.

Step 2 is where you define the monitoring options. Here you can define which services you want to add for this site, including whether:

- To use SSL (HTTPS) and what port to use
- What to do if a redirect response is received, in this example follow was chosen
- Credentials if required
- Test is responds with a valid HTTP response
- The option of a ping check
- DNS resolution check
- The DNS response matches the IP address that was resolved when you ran the wizard
- A particular string is found on the page (either literally or as a regular expression)
- The SSL certificate's expiry date is sufficiently far away

The **Use SSL** option and **SSL Certificate** check will **only** be available if the URL you gave in Step 2 began with `https`.



Configuration Wizard: Website - Step 2



Website Details

Website URL:

Host Name:
The name you'd like to have associated with this website.

IP Address:
The IP address associated with the website fully qualified domain name (FQDN).

Website Options

Use SSL: Monitor the website using SSL/HTTPS.

Port:
The port to use when contacting the website.

On Redirect:
How to handle redirected pages. sticky is like follow but will stick to the specified IP address. stickyport ensures the port stays the same.

Credentials:
Basic authentication only. The username and password to use to authenticate to the website (optional)

Website Services

Specify which services you'd like to monitor for the website.

HTTP
Includes basic monitoring of the website to ensure the web server responds with a valid HTTP response.

Ping
Monitors the website server with an ICMP ping. Useful for watching network latency and general uptime of your web server. Not all web servers support this.

DNS Resolution
Monitors the website DNS name to ensure it resolves to a valid IP address.

DNS IP Match
Monitors the website DNS name to ensure it resolves to the current known IP address. Helps ensure your DNS doesn't change unexpectedly, which may mean a security breach has occurred.

Web Page Content
Monitors the website to ensure the specified string is found in the content of the web page. A content mismatch may indicate that your website has experienced a security breach or is not functioning correctly.
Content String To Expect:

Web Page Regular Expression Match
Monitors the website to ensure the specified regular expression is found in the content of the web page. A content mismatch may indicate that your website has experienced a security breach or is not functioning correctly.
Regular Expression To Expect:

SSL Certificate
Monitors the expiration date of the website's SSL certificate and alerts you if it expires within the specified number of days. Helps ensure that SSL certificates don't inadvertently go un-renewed.
Days To Expiration:

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Once you've finished making your selections click Next and then complete the wizard by choosing the required options in Step 3 – Step 5.

To finish up, click on **Finish** in the final step of the wizard. This will create the new hosts and services and begin monitoring. Once the wizard applies the configuration, click the **View status details for your website** link to see the new host and services that were created.

Host	Service	Status	Duration	Attempt	Last Check	Status Information
www.nagios.com	DNS IP Match	Ok	39s	1/5	2016-12-07 16:43:16	DNS OK: 0.011 seconds response time. www.nagios.com returns 45.33.1.79
	DNS Resolution	Ok	39s	1/5	2016-12-07 16:43:16	DNS OK: 0.016 seconds response time. www.nagios.com returns 45.33.1.79
	HTTP	Ok	39s	1/5	2016-12-07 16:43:16	HTTP OK: HTTP/1.1 200 OK - 57491 bytes in 1.477 second response time
	Ping	Ok	39s	1/5	2016-12-07 16:43:16	OK - www.nagios.com: rta 226.649ms, lost 0%
	SSL Certificate	Ok	39s	1/5	2016-12-07 16:43:16	OK - Certificate '*.nagios.com' will expire on Thu 10 May 2018 11:59:00 PM AEST.
	Web Page Content	Ok	39s	1/5	2016-12-07 16:43:16	HTTP OK: HTTP/1.1 200 OK - 57491 bytes in 1.456 second response time
	Web Page Regex Match	Ok	39s	1/5	2016-12-07 16:43:16	HTTP OK: HTTP/1.1 200 OK - 57491 bytes in 1.499 second response time

The Website URL Wizard

The Website URL wizard is very similar to the Website wizard. Select the **Website URL** wizard from the list of wizards.

On **Step 1** enter the **URL** to your website.

Click Next once you've entered a URL.



Configuration Wizard: Website URL - Step 1

URL Information

URL:

Enter the full URL you'd like to monitor.

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Step 2 is where you define the monitoring options. Here you can define which services you want to add for this site:

- Service Name Prefix
- To use SSL (HTTPS) and what port to use
- Credentials if required
- A URL Status service
- A particular string is found in the content of the page
- A particular string is found in the content of the page using a regular expression

Once you've finished making your selections click Next and then complete the wizard by choosing the required options in Step 3 – Step 5.

To finish up, click on **Finish** in the final step of the wizard. This will create the new hosts

and services and begin monitoring. Once the wizard applies the configuration, click the **View status details for your website** link to see the new host and services that were created.



Configuration Wizard: Website URL - Step 2



URL Details

URL:

Host Name:
The name you'd like to have associated with the website server.

Service Name Prefix:
The service name prefix that you'd like to have used for specific URL services you select below. This prefix helps to identify this URL when monitoring different URLs on the same web server.

IP Address:
The IP address associated with the website fully qualified domain name (FQDN).

URL Options

Use SSL: Monitor the URL using SSL/HTTPS.

Port:
The port to use when contacting the website.

Credentials:
The username and password to use to authenticate to the URL (optional). If specified, basic authentication is used.

URL Services

Specify which services you'd like to monitor for the URL.

URL Status
Includes basic monitoring of the URL to ensure the web server responds with a valid HTTP response.
Service Name:

URL Content
Monitors the URL to ensure the specified string is found in the content of the web page. A content mismatch may indicate that your website has experienced a security breach or is not functioning correctly.
Service Name: **Content String To Expect:**

URL Content Regular Expression Match
Monitors the URL to ensure the specified regular expression is found in the content of the web page. A content mismatch may indicate that your website has experienced a security breach or is not functioning correctly.
Service Name: **Regular Expression To Expect:**

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Host	Service	Status	Duration	Attempt	Last Check	Status Information
exchange.nagios.org	_directory URL Content	Ok	19s	1/5	2016-12-07 16:52:45	HTTP OK: HTTP/1.1 200 OK - 45131 bytes in 2.142 second response time
	_directory URL Content Regex	Ok	1m 17s	1/5	2016-12-07 16:51:35	HTTP OK: HTTP/1.1 200 OK - 45131 bytes in 2.190 second response time
	_directory URL Status	Ok	1m 17s	1/5	2016-12-07 16:51:35	HTTP OK: HTTP/1.1 200 OK - 45131 bytes in 2.355 second response time

The Web Transaction wizard

A more complex use case of website monitoring would be if you expect the content to be dynamic with user input and actions, and want to test that those actions complete as expected. For instance, you might test that a search box works (and what results are returned), whether the purchase and checkout process of your web store is behaving properly, or that a user can log in successfully. The **Web Transaction** wizard can be used for these types of checks. Additionally, it allows for checking all three of those in succession, and other multi-step procedures where each stage may be dependent on the previous one.

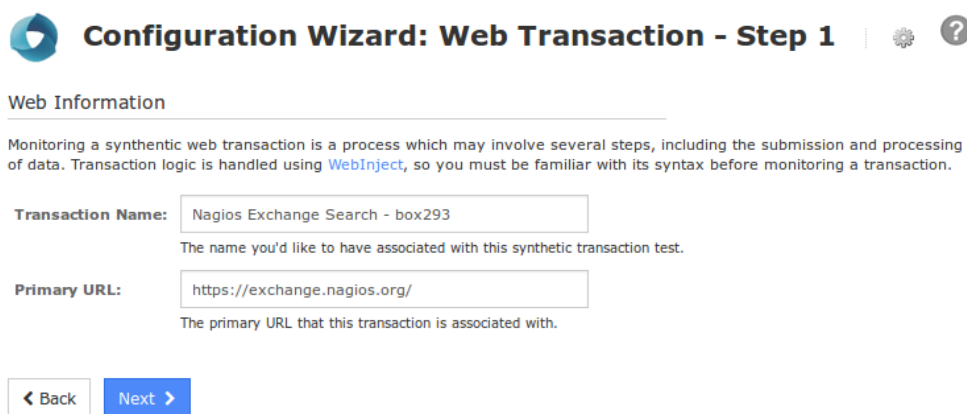
This wizard relies on a tool called WebInject, which handles the transition logic between stages of the transaction. Therefore you will need to understand how to write the configuration XML in the WebInject syntax to configure these kinds of checks. Some examples are given below, and the WebInject manual can be found online at <http://www.webinject.org/manual.html>.

Note that certain special characters need to be escaped. For instance, the < should be replaced with \x3C so as not to interfere with the XML. Within POST data URL escapes are used, so for instance @ becomes %40.

Providing an example of such a process can get pretty complicated somewhat quickly. Here is a simple example where we will search the Nagios Exchange for "**box293**". I know that the search results will come back with the word "box293" in the result so I am going to look for this. If for some reason "box293" was not present on the web page the service will go into a critical state.

Select the **Website Transaction** wizard from the list of wizards.

On **Step 1** enter the **Transaction Name** you want to assign to this WebInject test. You will also need to provide the **Primary URL** for this website. Click Next.



Configuration Wizard: Web Transaction - Step 1

Web Information

Monitoring a synthetic web transaction is a process which may involve several steps, including the submission and processing of data. Transaction logic is handled using [WebInject](#), so you must be familiar with its syntax before monitoring a transaction.

Transaction Name:
The name you'd like to have associated with this synthetic transaction test.

Primary URL:
The primary URL that this transaction is associated with.

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On **Step 2** you will need to make sure the Host Name and IP Address fields are correctly populated.

You will then need to provide the Test Case Data that will be used for this transaction. The text field will be already be populated with the first **case** of **id 1**.

In the screenshot to the right you can see an additional case of **id 2** has been added. The full text is included on the following page.

The magic being performed here is: `url` = This is the URL that is being used for this test case.

`postbody` = These are the fields / commands that are posted to the url. This varies depending on your actual website. In this example it is searching for the word **box293**.

`verifypositive` = This is what needs to exist in the data returned, in this example the word **box293** must exist for this case to be completed successfully.

You can also specify the timeout periods that apply.

Configuration Wizard: Web Transaction - Step 2

Transaction Host Details

Primary URL:
The primary URL that this transaction is associated with.

Host Name:
The name you'd like to have associated with the primary URL.

IP Address:
The IP address associated with the primary URL's fully qualified domain name (FQDN).

Transaction Details

Specify the details of how the transaction should be monitored.

Transaction Name:
The name you'd like to have associated with this synthetic transaction test.

Test Case Data: Transaction test case data must be formatted according to [WebInject](#) standards. [Read the WebInject test case documentation](#) for more information on creating test case data.

```
<testcases repeat="1">
  <case
    id="1"
    url="https://exchange.nagios.org/"
  />
  <case
    id="2"
    method="post"
    url="https://exchange.nagios.org/index.php"
    postbody="option=com_mtree&task=search&searchword=box293"
    verifypositive="box293"
  />
</testcases>
```

Timeout: seconds
The response timeout for each test case.

Global Timeout: seconds
A global timeout for running all tests. A warning message will be returned if total execution time exceeds this value.

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Once you've finished making your selections click **Next** and then complete the wizard by choosing the required options in Step 3 – Step 5. To finish up, click on **Finish** in the final step of the wizard. This will create the new hosts and services and begin monitoring.

Once the wizard applies the configuration, click the **View status details for the Nagios Exchange** link to see the new host and services that were created.

Host	Service	Status	Duration	Attempt	Last Check	Status Information
exchange.nagios.org	Nagios Exchange Search - box293	Ok	1m 10s	1/5	2016-12-08 14:50:51	WebInject OK - All tests passed successfully in 11.837 seconds

Here is the test case data shown on the screenshot on step 2 of the wizard.

```
<testcases repeat="1">
```

```
<case
```

```
  id="1"
```

```
  url="https://exchange.nagios.org/"
```

```
/>
```

```
<case
```

```
  id="2"
```

```
  method="post"
```

```
  url="https://exchange.nagios.org/index.php"
```

```
  postbody="option=com_mtrees&task=search&searchword=box293"
```

```
  verifypositive="box293"
```

```
/>
```

```
</testcases>
```


Troubleshooting WebInject Transactions

If for some reason the transaction did not work correctly, you will need to go and adjust the test case data in the configuration file that was created by the wizard. You may also want to run the transaction at the command line to see exactly what is happening. All transaction configuration files are located in the following directory on the Nagios XI server:

```
/usr/local/nagiosxi/etc/components/webinject/
```

In the wizard that was just run, two files were created:

```
exchange_nagios_org__Nagios_Exchange_Search___box293_config.xml
exchange_nagios_org__Nagios_Exchange_Search___box293_testdata.xml
```

The file that ends in `_testdata.xml` is what contains the test case data, it's exactly as you pasted it into the configuration wizard. The file that ends in `_config.xml` is what tells WebInject how to run the test data.

To demonstrate that the test case data is actually working, I will change the `postbody =` line to search for the word "box294", which should return a critical result as there is nothing on the Nagios Exchange contaminating the word "box294".

Once I've made the change I'll run the test from the command line using the following commands:

```
cd /usr/local/nagiosxi/etc/components/webinject/
./webinject.pl -c exchange_nagios_org__Nagios_Exchange_Search___box293_config.xml
```

You should receive the following output:

```
WebInject CRITICAL - Test case number 2 failed |time=10.126;30;;0
```

If you wanted more verbose output, you need to edit the `_config.xml` file and change the `reporttype` to **standard**:

```
<reporttype>standard</reporttype>
```

Now when you run the command above the output will be something like:

```
Starting WebInject Engine...
```

```
-----  
Test:  exchange_nagios_org__Nagios_Exchange_Search__box293_testdata.xml - 1  
Passed HTTP Response Code Verification (not in error range)  
TEST CASE PASSED  
Response Time = 3.482 sec
```

```
-----  
Test:  exchange_nagios_org__Nagios_Exchange_Search__box293_testdata.xml - 2  
Verify : "box293"  
Failed Positive Verification  
Passed HTTP Response Code Verification (not in error range)  
TEST CASE FAILED  
Response Time = 3.337 sec
```

```
-----  
Start Time: Thu Dec  8 17:09:14 2016
```

```
Total Run Time: 6.862 seconds
```

```
Test Cases Run: 2  
Test Cases Passed: 1  
Test Cases Failed: 1  
Verifications Passed: 2  
Verifications Failed: 1
```

When you've finished troubleshooting don't forget to change the `reporttype` back to `nagios`:

```
<reporttype>nagios</reporttype>
```

Example: Using An Online Store

This example provides a more comprehensive demonstration of how WebInject could be used on an online store and put an item in a shopping cart via the O'Reilly Media's web site. It's worth noting that this example was created some time in the past and may not actually work now due to the fact that the website may have been updated by now, however the concept is still the same and worth retaining in the documentation.

- Step 1 confirms that the login page loads
- Step 2 provides your authentication credentials and then checks that they were accepted, and follows the redirect to the members page in step 3
- Step 4 checks the price on "Nagios, Second Edition (by Wolfgang Barth)"
- Step 5 adds it to your shopping cart
- Step 6 confirming it remains in your cart properly after that and appears to be in stock
- Finally, the last two steps log you out and check that the home page loads

By carefully crafting the different steps and plenty of sufficiently specific `verifypositive` and `verifynegative` parameters, a great deal of information can be confirmed through this single Nagios service.

```
<testcases repeat="1">
  <testvar varname="USER">1rc94d+86yw3m9jrj18@sharklasers.com</testvar>
  <testvar varname="PASS">holden123</testvar>

  <case
    id="1"
    description1="Login page"
```

```

url="https://members.oreilly.com/account/login"
parseresponse='_authentication_token' type="hidden" value="|" |escape'
verifypositive="Sign in"
/>
<case
  id="2"
  description1="Sign in"
  url="https://members.oreilly.com/account/login"
  method="post"
  postbody="email=${USER}&password=${PASS}&_authentication_token={PARSEDRESULT}"
  verifypositive="https://members.oreilly.com/account/benefits"
  parseresponse="found at |;"
/>
<case
  id="3"
  description1="Members page"
  url="{PARSEDRESULT}"
  verifypositive="view or edit your account information"
/>
<case
  id="4"
  description1="Book price"
  url="http://oreilly.com/catalog/9781593271794/"
  verifypositive="59.95"
/>
<case
  id="5"
  description1="Book added to cart"
  url="https://epoch.oreilly.com/shop/cart.orm?prod=9781593271794.BOOK"
  verifypositive="Nagios, 2Ed"
/>
<case
  id="6"

```

```
description1="Book still in cart"
url="https://epoch.oreilly.com/shop/cart.orm"
verifypositive="Nagios, 2Ed"
verifynegative="Backorder"
/>
<case
  id="7"
  description1="Logout"
  url="https://members.oreilly.com/account/logout"
  verifypositive="http://oreilly.com/"
  parseresponse="found at |;"
/>
<case
  id="8"
  description1="Main page"
  url="{PARSEDRESULT}"
  verifypositive="News & Commentary"
/>
</testcases>
```

Finishing Up

This completes the documentation on the different ways to monitor websites with Nagios XI.

If you have additional questions or other support related questions, please visit us at our Nagios Support Forums:

<https://support.nagios.com/forum>

The Nagios Support Knowledgebase is also a great support resource:

<https://support.nagios.com/kb>