

The Industry Standard in IT Infrastructure Monitoring

Purpose

This document describes how to use the User Macros component in Nagios XI. The component exposes the user and system macros available in Nagios Core to multiple areas of Nagios XI, allowing for more flexible configurations.

Target Audience

This document is intended for use by Nagios XI Administrators who want to take advantage of user and system macros in Nagios XI.

What Is A Macro ?

One of the main features that make Nagios so flexible is the ability to use macros in object definitions. If you are familiar with programming languages, a macro is just like a variable:

- A value is assigned to a macro
- The macro is used in object definitions
- If you update the macro, all the object definitions use the updated value in the macro

There are two types of macros in Nagios XI, **user** macros and **system** macros.

What Does The User Macros Component Do ?

The primary purpose of the User Macros component is to make the user and system macros available for use when using Configuration Wizards or when editing objects in Core Configuration Manager (CCM).

An auto-complete list will appear when you start typing with a \$ (dollar) character, see the screenshot to the right.



\$ARG1\$	\$
\$ARG2\$	\$HOSTADDRESS\$
	\$HOSTSTATE\$
\$ARG3\$	\$TIMET\$
	\$USER1\$
\$ARG4\$	\$USER7\$
	\$USER8\$
\$ARG5\$	

In the example shown to the right, a combination of user and system macros is shown. A more detailed explanation of user and system macros will be explained next.

The User Macros component allows you to edit the existing user macros and also add new macros. This functionality is performed in CCM and will be explained in this documentation.

User Macros

User macros are macros that can be defined by the Nagios XI administrator. They are stored by default in the `resource.cfg` file which is located in the `/usr/local/nagios/etc/` directory.

The syntax to define a macro in this file is:

```
$USERn$=x
```

`n` = a number between 1-256 (you cannot have the same number defined more than once, the first defined macro will always take precedence)

`x` = the value of the macro, no space after the '=' character

The `resource.cfg` file will have default macros defined in it already such as `$USER1$=/usr/local/nagios/libexec` and these should not be edited or removed without knowing the full consequences - this can break the core processes from running checks and could be a real headache.

The `$USER1$` macro is a great example of how a macro is used in a command definition, take a look at this command definition:

```
$USER1$/check_http -H $HOSTADDRESS$
```

Instead of typing `/usr/local/nagios/libexec` all you need to type is `$USER1$` in the command definition.

The maximum number of macros by default is 256. You can change this through configuration if you need more macros than the default (Note: the max number is a Nagios Core setting).

A feature of the **User Macros** component is the ability to update the `resource.cfg` file from within CCM, instead of having to edit the file from a terminal session, which will be explained in this documentation.

System Macros

System macros are macros that **cannot** be defined by the Nagios XI administrator, their values are inherited from object definitions and can also be dynamic. Some examples are:

- `$HOSTADDRESS$` = The value of the `address` directive in a host definition
- `$ARG1$` = The value of `argument #1` in a host or service definition
- `$HOSTSTATE$` = The current state of the `HOST` object, this dynamic macro is commonly used in a notification command

These macros are useful in a number of ways and are explained in detail here:

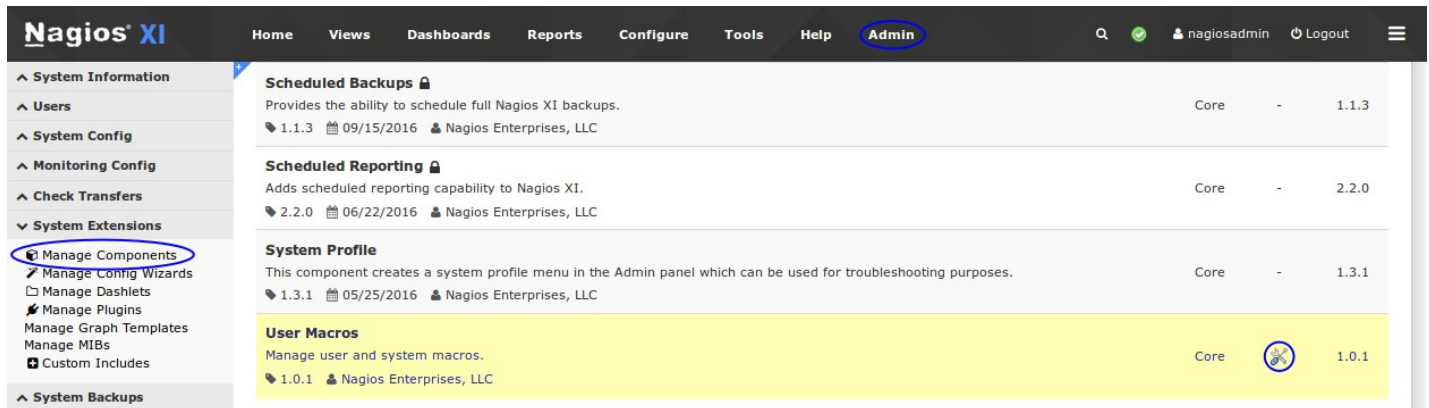
<https://assets.nagios.com/downloads/nagioscore/docs/nagioscore/4/en/macrolist.html>

Nagios XI – Understanding The User Macros Component

A feature of the **User Macros** component is the ability to define which of these system macros will be made available in areas like CCM and Configuration Wizards, which will be explained in this documentation.

Configuring User Macros Component

Login to Nagios XI and navigate to **Admin > System Extensions > Manage Components**.



Click the **Edit Settings** icon to configure the User Macros component, which will display the settings available for the component as follows:

User Macros ?

Detect, create, display and define system and user macros in Nagios XI.

This component will detect input of '\$USERn\$' user defined macros where 'n' is a number between 1 and 256. This number is defined in Nagios Core as MAX_USER_MACROS. It will also give a user a list of commonly used System Macros in the appropriate inputs. The system macros are displayed using autocomplete and the full list of available macros are defined in the System Macros tab.

Note: To manually enable detection functionality on a page inside Nagios XI or a custom component/tool you can add the class "usermacro-detection" to an HTML input.

\$ User Macro Control (CCM)

To view the macro files go to the User Macro section in the CCM by clicking this link.

Component Settings

These are the general settings for this component.

Disable Component

Redact Displayed Values (Enabled by Default)

This option will redact the USER macro values from being displayed to protect sensitive data for ALL users. With this option enabled you will still be able to add undefined macros when they are detected. This will override the Non-Admin user setting.

Redact Values for Non-Admin Users

This option will redact the USER macro values from being displayed to all but Administrator level users.

Apply Settings

Cancel

Disable Component:

This will turn off all detection of macros and the User Macro link in the CCM will not be available. This option is specifically useful if you need to vet the component or have security concerns with the content of your resources file where User macros are stored.

Redact Values:

User Macros often contain sensitive data such as passwords or tokens. They are also useful for using restricted characters that are normally not allowed for use in certain commands (example: Nagios Core interpreting a '!' character in a command). Since the information they hold can be sensitive, there are two options for obscuring the values of the macros:

Redact Displayed Values:

This will redact USER macro values from being displayed anywhere. Here is an example:

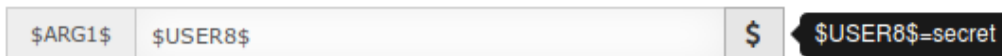


When you hover the mouse over the \$ box a message box will display the value with asterisk's.

When **Redact Displayed Values** is enabled, you can create a new User macro while using the detection in CCM and in Configuration wizards (explained in detail further on in this document). However you will not be able to directly edit the User macros via CCM > Tools > **User Macros**.

In a fresh Nagios XI install this will be turned on by default (enabled).

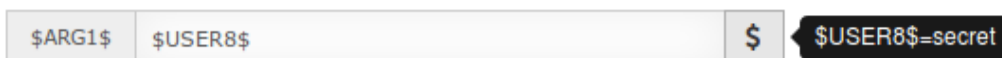
If you turn off (disable) this option all users will be able to see the macro values, for example:



Redact Displayed values for Non-Admin Users:

This feature works exactly like the default redact function, but is specifically designed to always show macro values to Admin level users and hide values from all non-admin users. This option can only be enabled when the **Redact Displayed Values** option is disabled.

Here is an example of what an Admin user will see:



Here is an example on what a NON-Admin user will see:



Configuration Wizard: Windows Server - Step 2



\$USER8\$=*****

This should be considered when giving admin rights to users since those users will be able to see all user macro values. This is similar to a user who has login access to the Nagios XI machine since they could just read the `resource.cfg` file from the command line.

Edit User Macros

Login to Nagios XI and navigate to **Configure > Core Configuration Manager > Tools > User Macros**.

The screenshot shows the Nagios XI interface. The top navigation bar includes 'Home', 'Views', 'Dashboards', 'Reports', 'Configure', 'Tools', 'Help', and 'Admin'. The 'Configure' menu is open, showing 'Configuration Wizards' and 'Core Config Manager'. The 'Core Config Manager' option is circled in yellow. Below the navigation, the 'User Macros Component' page is displayed. The 'Component Settings' section shows 'Component Enabled' checked and 'Redact Displayed Values' checked. The 'User Macros' tab is selected. The main content area shows the configuration file path `/usr/local/nagios/etc/resource.cfg` and its contents:

```
# Path to the plugins
$USER1$=/usr/local/nagios/libexec

# Path to event handlers
#$USER2$=/usr/local/nagios/libexec/eventhandlers

# Port for NSClient++
$USER7$=12489
# Password for NSClient++
$USER8$=secret
```

The 'Update' button is visible at the bottom of the configuration area.

The User Macros tab is the default tab selected. The User Macros section will appear differently depending on how the User Macros component is configured.

Redact Displayed Values option is Enabled:

- All of the values will be redacted and will appear with *****
- You cannot edit existing values or add new values
- The **Update** button is NOT displayed

Redact Displayed Values option is Disabled:

- All of the values will be shown
- You can edit existing values and add new values
- The **Update** button is displayed
- The screenshot above is an example of this.

Nagios XI – Understanding The User Macros Component

Updating an existing macro or adding a new macro is as easy as adding a new line. For example:

```
$USER10$=!ts@S3cr3t
```

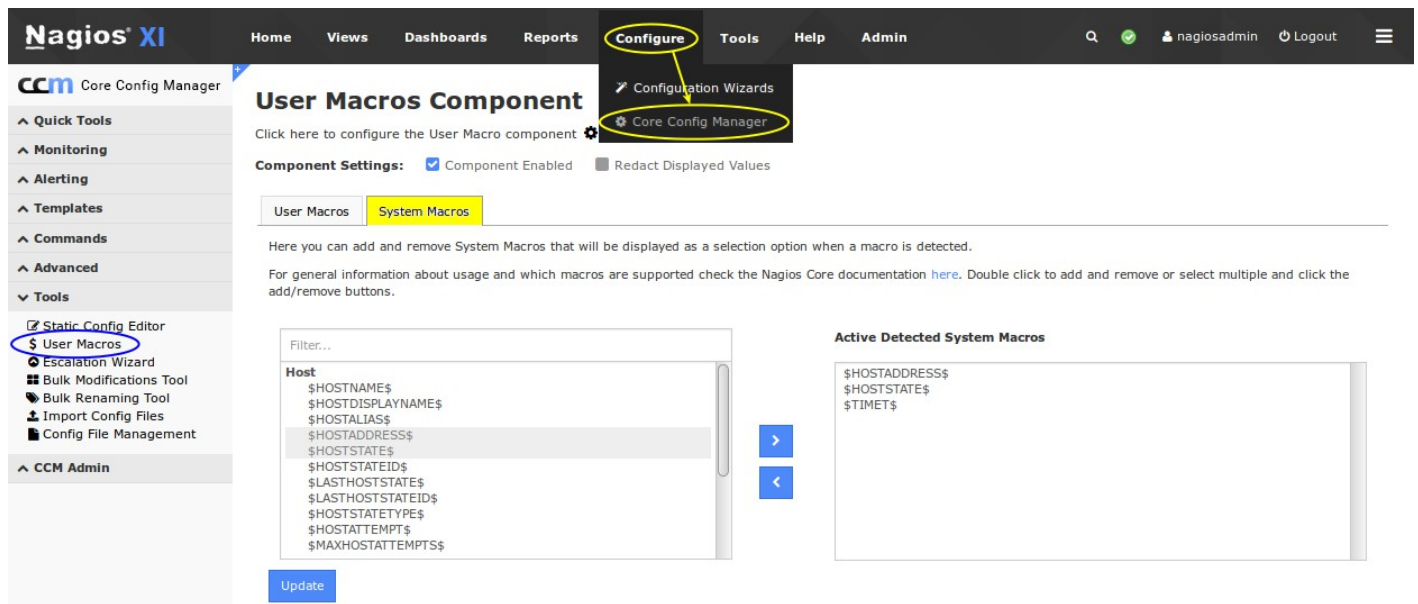
Click the **Update** button once you've made the changes.

Please refer to the **User Macros** section on page 2 of this document for the correct syntax.

After making changes, Nagios Core will need to be restarted so that the updated values are loaded from the `resource.cfg` file. This can be done via **CCM > Tools > Config File Management > Restart Nagios Core**.

System Macros

Login to Nagios XI and navigate to **Configure > Core Configuration Manager > Tools > User Macros** and then click the **System Macros** tab.



The purpose of the System Macros tab is to be able to select specific macros that you would like to be displayed when the auto-complete list appears.

In the above screenshot you can see that three macros were added to the **Active Detected System Macros**.

In the screenshot to the right you can see that these three macros are made available in the auto-complete list:

\$ARG1\$	\$
\$ARG2\$	\$HOSTADDRESS\$ \$HOSTSTATE\$
\$ARG3\$	\$TIMET\$ \$USER1\$
\$ARG4\$	\$USER7\$ \$USER8\$
\$ARG5\$	

It's important to note that adding system macros to the **Active Detected System Macros** list is purely to make it easy to select a system macro from the auto-complete list. All system macros will work in any configuration area of Nagios XI regardless if they are in this list or not.

Creating New User Macros On The Fly

In the **Edit User Macros** section of this document you were shown how to add a new macro. Another feature of the User Macros component is the ability to create a new User macro when you are in the middle of running a configuration wizard OR editing an object in CCM. Here's how it works when you are in CCM.

First you start off by typing \$U to make the auto-complete list appear. You can see in the screenshot to the right that \$USER1\$, \$USER7\$ and \$USER8\$ already exist.

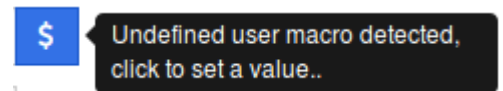
\$ARG1\$	\$U
\$ARG2\$	\$USER1\$ \$USER7\$
\$ARG3\$	\$USER8\$

This example is going to add \$USER11\$ as it does not exist.

Simply finish typing the name of the user Macro and as soon as you type the closing \$ a blue \$ button will appear to the right.

\$ARG1\$	\$USER11\$	\$
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When you hover your mouse over the blue \$ button a message window will appear informing you that the macro is undefined and to click it to set a value.



Click the blue **\$** button and the **Create New User Macro** window will appear.

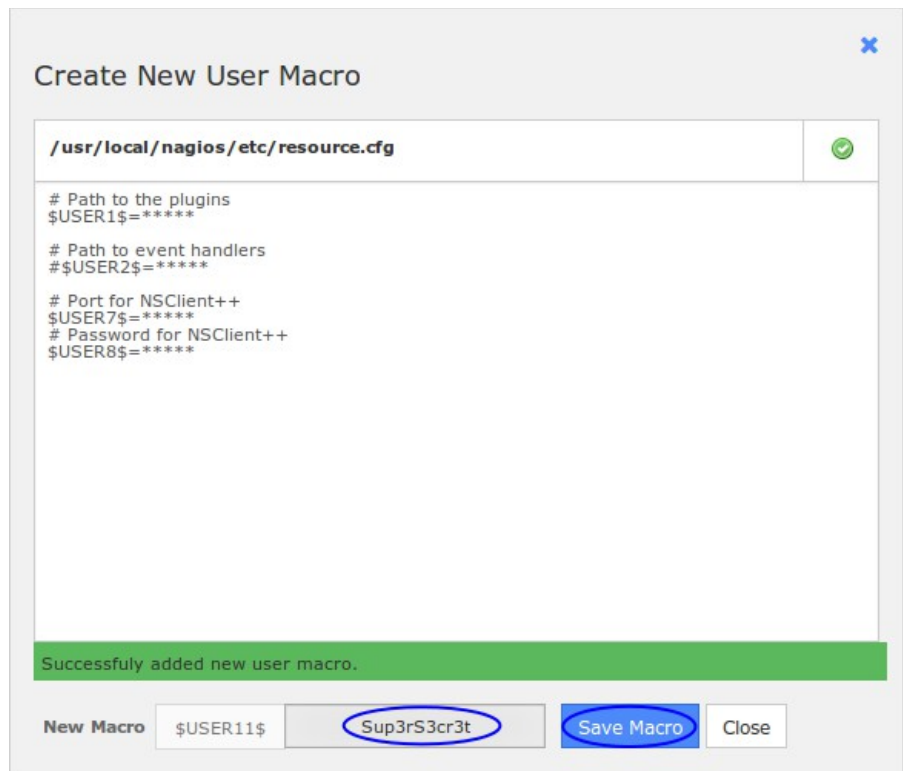
Type a value in the field at the bottom of the window and then click the **Save Macro** button.

You will receive a success message once the new macro has been added.

Click the **Close** button when done.

NOTE: The new macro will not be active until Nagios Core is restarted. This will occur when you Apply Configuration OR you finish a Configuration Wizard.

The ability to add new user macros will be available as long as the User Macros component is enabled, see the **Configuring User Macros Component** section for more information on this.



Finishing Up

This completes the documentation on the User Macros component. If you have additional support related questions please visit us at the Nagios Support Forums:

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