Add Context to Device Task Page Fields

A context is a device inside a device. A context can be hardware (with modules and slots) or virtual. If a context does not have an IP address, NA connects to the context through the parent device.

In general, the context appears as a standalone device to NA.

In the case of a Cisco Catalyst device containing Cisco Firewall Service Modules (FWSM), the Cisco FWSM can include contexts. As a result, the Cisco FWSM and its contexts appear to NA as a device because the Cisco FWSM and its contexts each have their own configurations.

The NA Module Status diagnostic discovers contexts on the parent device. NA automatically adds the discovered contexts to the NA database as devices and configures the connection paths. For information about connection through devices, see "New IP Address Page (New Connection Through)" in the NA User Guide.

The NA Module Status diagnostic also automatically adds internal device relationships. For information about adding and removing user-defined device relationships, see "Device Relationships Page Fields" in the NA User Guide.

When the NA Module Status diagnostic determines that a context has been removed, NA marks the corresponding device as inactive. If the NA Module Status diagnostic later sees the device, NA re-enables the device, thus preserving the device history.

The Add Context to Device task configures a new context on the device. Only some device types support contexts.

To access the Add Context to Device task page

1. On the Device Details page, click **Provision > Device Contexts**.

2. On the Device Contexts page, click the **Add Device Context** link.

Field	Description/Action
Task Name	Set the name of this task.
Save Options	Select one of the following options: • Save as task — The option is selected by default. • Save as task template — If selected, the task is saved as a task template and displayed on the Tasks Templates page. Refer to "Task Templates" in the NA User Guide for information on Task Templates.

HP Network Automation
Addition and Removal of Device Contexts in Device Task Page Fields

Template Tag	If you are creating a task template, the template tag for filtering tasks run from the template. Options include:

• General purpose—Do not apply a tag to this task template

• Existing—Select from the list of existing template tags.

• New—Enter a new template tag.

Note: If the save option is **Save as task**, NA ignores the template tag setting.

Applies to	Device — Enter an IP Address or Hostname on which to run the task against. Note that the device context tasks (add and remove) can only be run against a single device.

Start Date	Select one of the following options:

• Start As Soon As Possible (the default)

• Start At — Enter a date and time to start the task. Click the calendar icon next to the date box to open the calendar and select a date and time.

Task Priority	Enables you to set a priority for the task. Click the down arrow to select a task priority from 1 to 5, with 1 being the highest priority. The default value is 3. Higher priority tasks run before lower priority tasks. Refer to "Scheduling Tasks" in the NA User Guide for information on task scheduling.

Comments	Enter comments about the task.

Task Options

Session Log	To store the complete device session log, click the "Store complete device session log" check box. Keep in mind that all tasks that interact with a device can be run with session logging enabled. This provides a detailed log of the interaction with the device during the task. Session logs should be viewed as the first step to debugging device-specific issue. Session logs provide details on CLI, SNMP, and all transfer protocol actions taken during the task. (**Note**: Large amounts of data could be stored. Refer to "Logging" in the NA User Guide for detailed information on logging.)

Force Save	The device configuration update setting. This setting applies to only those devices that support a startup configuration. The default value of this setting is configurable per task type (as described in the *NA Administration Guide*).

• If NA should overwrite the startup configuration with the current running configuration at the completion of this task, select the Force Save check box.

• If NA should not change the startup configuration, clear the Force Save check box.

(**Note**: This setting is new in NA 9.20. It overrides all other approaches to determining whether to update the device startup configuration.)

HP Network Automation
Addition and Removal of Device Contexts in Device Task Page Fields

Variables	Variables are defined in the device driver and displayed in NA at run-time. As a result, variables are different for each device.
	For example, the CiscoPIX FWSM device uses the following variables to create a device context:
	• Context Name —Enter the name of the device context you want to create.
	• Config Location — Enter the location of the configuration for the device context. In this case, it is a set of protocols that specify how you plan to provide the configuration. For example, if the configuration is on the local disk, you would select "disk" from the drop-down menu.
	• Config Filename — Enter the filename of the configuration, for example: default.cfg
Estimated Duration	Enter the amount of time for which you want to reserve the device or device groups that this task is to run against. The default is 60 minutes.

Approval Options
Approval options are only displayed if the task is part of a Workflow Approval Rule.

Request Approval	Checked by default if the task needs approval before it can run. To change the date by which the task must be approved, click the calendar icon next to the date to open the calendar and select a date and time. You can also select a task priority. Keep in mind that you can add different priority values, such as Urgent and Normal, when configuring Workflows. The NA Scheduler does not look at the values. They are basically a visual queue for you to determine which tasks need approval in a timely manner.
Override Approval	If the task allows override, select this option to override the approval process.
Save as Draft	If checked, you can save the task as a draft and return to it later. The task will not run in Draft mode.

Scheduling Options

Retry Count	If the task fails, NA will try the task again this many times, allowing for the Retry Interval between retries. Select one of the following options:
	• No Retry (the default)
	• Once
	• Twice
	• Three Times
Retry Interval	Enter the number of minutes to wait before trying again. The default is five minutes.
Recurring Options	Not available

HP Network Automation
Addition and Removal of Device Contexts in Device Task Page Fields

Task Completed Notification

Task Completed Notification	If you want NA to send an email message upon task completion, select the Send Email check box. **Tip**: The format of the email content is the same for all tasks. For information about changing the email content, see the *NA Administration Guide*.
Email Recipients	Enter a comma-separated list of email addresses to receive the message. The default value is the email address of the task originator.

Task Logging

Task Logging	If available, you can enable logs for a specific task scheduled to be run a single time. Select the "Store log output generated by this task" checkbox and select one or more logs using the Shift key. The logs you select are highlighted. Keep in mind when a task has been setup to run with logging, and the log is not able to be initiated, the task will fail immediately without any further processing. Refer to "Logging" in the NA User Guide for detailed information on logging.

Remove Context from Device Task Page Fields

For information about device contexts, see "Add Context to Device Task Page Fields" in the NA User Guide.

The Remove Context from Device task updates the device configuration to delete the context from the device. Only some device types support contexts.

To access the Remove Context from Device task

1. On the Device Details page, click **Provision > Device Contexts**.

2. On the Device Contexts page, in the Actions column, click **Remove from Device** for the context.

Field	Description/Action
Task Name	Set the name of this task.
Save Options	Select one of the following options: • Save as task — The option is selected by default. • Save as task template — If selected, the task is saved as a task template and displayed on the Tasks Templates page. Refer to "Task Templates" in the NA User Guide for information on Task Templates.
Template Tag	If you are creating a task template, the template tag for filtering tasks run from the template. Options include: • General purpose—Do not apply a tag to this task template • Existing—Select from the list of existing template tags. • New—Enter a new template tag. **Note**: If the save option is **Save as task**, NA ignores the template tag setting.
Applies to	Device — Enter an IP Address or Hostname on which to run the task against. Note that the device context tasks (add and remove) can only be run against a single device.
Start Date	Select one of the following options: • Start As Soon As Possible (the default) • Start At — Enter a date and time to start the task. Click the calendar icon next to the date box to open the calendar and select a date and time.

HP Network Automation
Addition and Removal of Device Contexts in Device Task Page Fields

Task Priority   Enables you to set a priority for the task. Click the down arrow to select a task priority from 1 to 5, with 1 being the highest priority. The default value is 3. Higher priority tasks run before lower priority tasks. Refer to "Scheduling Tasks" in the NA User Guide for information on task scheduling.

Comments   Enter comments about the task.

Task Options

Session Log   To store the complete device session log, click the "Store complete device session log" check box. Keep in mind that all tasks that interact with a device can be run with session logging enabled. This provides a detailed log of the interaction with the device during the task. Session logs should be viewed as the first step to debugging device-specific issue. Session logs provide details on CLI, SNMP, and all transfer protocol actions taken during the task. (**Note**: Large amounts of data could be stored. Refer to "Logging" in the NA User Guide for detailed information on logging.)

Force Save   The device configuration update setting. This setting applies to only those devices that support a startup configuration. The default value of this setting is configurable per task type (as described in the *NA Administration Guide*).

       • If NA should overwrite the startup configuration with the current running configuration at the completion of this task, select the Force Save check box.

       • If NA should not change the startup configuration, clear the Force Save check box.

       (**Note**: This setting is new in NA 9.20. It overrides all other approaches to determining whether to update the device startup configuration.)

Variables   The variables list is pre-populated for the selected device context.

Estimated Duration   Enter the amount of time for which you want to reserve the device or device groups that this task is to run against. The default is 60 minutes.

Approval Options
Approval options are only displayed if the task is part of a Workflow Approval Rule.

Request Approval   Checked by default if the task needs approval before it can run. To change the date by which the task must be approved, click the calendar icon next to the date to open the calendar and select a date and time. You can also select a task priority. Keep in mind that you can add different priority values, such as Urgent and Normal, when configuring Workflows. The NA Scheduler does not look at the values. They are basically a visual queue for you to determine which tasks need approval in a timely manner.

Override Approval   If the task allows override, select this option to override the approval process.

HP Network Automation
Addition and Removal of Device Contexts in Device Task Page Fields

Save as Draft	If checked, you can save the task as a draft and return to it later. The task will not run in Draft mode.

Scheduling Options

Retry Count	If the task fails, NA will try the task again this many times, allowing for the Retry Interval between retries. Select one of the following options: • No Retry (the default) • Once • Twice • Three Times
Retry Interval	Enter the number of minutes to wait before trying again. The default is five minutes.
Recurring Options	Not available

Task Completed Notification

Task Completed Notification	If you want NA to send an email message upon task completion, select the Send Email check box. **Tip**: The format of the email content is the same for all tasks. For information about changing the email content, see the *NA Administration Guide*.
Email Recipients	Enter a comma-separated list of email addresses to receive the message. The default value is the email address of the task originator.

Task Logging

Task Logging	If available, you can enable logs for a specific task scheduled to be run a single time. Select the "Store log output generated by this task" checkbox and select one or more logs using the Shift key. The logs you select are highlighted. Keep in mind when a task has been setup to run with logging, and the log is not able to be initiated, the task will fail immediately without any further processing. Refer to "Logging" in the NA User Guide for detailed information on logging.

Device Specific Context Information

The Driver Support Documents (DSD) contain specific information regarding contexts on each particular device. Please reference each DSD per device you are using contexts in order to meet your specific needs.

For example here is an excerpt from the DSD for Cisco Nexus devices (DSD_CiscoNexus.html).

Cisco Nexus Switches, 1000, 3000, 5000, 6000, 7000, & 9000 series, NX-OS version 4.x, 5.x, 6.x, 7.x

General Access

Virtual Device Context IP interface detection

Cisco Nexus devices support creating contexts that can be independently addressable. When the inventory diagnostic is run, the driver will detect virtual device contexts (VDC) and log into to each context to determine its IP address. The first address reported for the external interface (default: "mgmt0") will be recorded as the address by which the context can be reached. To change this default, set the device access variable "extinterface" to the name of the interface that contains the IP address desired to reach the context. If no suitable IP address can be found, the context device will be managed through the admin context.

Retrieve Running Configuration

Password Assignment when creating Virtual Device Contexts

When creating a device context, the option is offered to specify a default password for the admin account. If left blank, the context will be created but not initialized, meaning that manual login must be performed to step through the device's configuration setup process. If a password is specified when the context is created, then the setup will be done automatically as part of the context creation task. Note that if this password does not meet the device's password criteria, the context setup process will be abandoned with a warning message.

Virtual Routing Context for Device Management

The Nexus series of switches support named routing contexts. NA uses the name "management" by default; if NA must connect to the device through another routing context, set the "vrf" custom access variable to contain the context used for device access.

HP Network Automation
Addition and Removal of Device Contexts in Device Task Page Fields

Additional Information not in the DSD:

Disabling context management

The context management feature adds independent device entries for contexts on the device automatically by using the inventory diagnostic. This feature can be disabled by adding the access variable "disable_context" and setting it to true. Disabling the feature will remove any previously created context devices permanently and will result in the inability to directly manage contexts with NA. Changes will take effect the next time the inventory diagnostic task is run.