

Ignition 8.1 User Manual — Enterprise Administration Module

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Enterprise Administration



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Introduction to Enterprise Administration Module

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What is Enterprise Administration?

The Enterprise Administration Module (EAM) allows a user to control and monitor any number of Ignition Gateways from a central Gateway. The EAM takes advantage of the Gateway Network system to seamlessly deliver data between Gateways.

Benefits of EAM

EAM works great in systems with [multiple Gateways](#). EAM is not required for large Ignition systems, but there are several benefits to incorporating the module:

- **Gateway Version Control:** Upgrade modules on each Gateway to ensure each installation is on the same version.
- **Project Synchronization:** In cases where the same project is used on multiple Gateways, making updates to the project on each other Gateway is a hassle. With EAM, projects can automatically be pushed to select agents, greatly hastening how updates are pushed out.
- **Monitor Agent Health:** Overseeing the health of large systems can be a full-time job. With EAM, the controller monitors agent health, and will trigger alarms when an issue arises, such as high CPU or memory usage. Alarm notifications can also be sent, so you will always know immediately when an issue is detected.
- **Quick Recovery from System Failures:** Hardware failure can cause days of downtime. Agent Recovery allows for quick Gateway, license, and module restoration on new hardware to greatly reduce the amount of time the system is down.

What are Agents and Controllers?

EAM involves coordinating several different Gateways on the same network. Each Gateway is assigned a role:

- **Controller:** Manages or controls each connected agent Gateway. The controller is responsible for assigning tasks, as well as monitoring each agent. Only a single Gateway on each Gateway Network can be a controller.
- **Agent:** All other Gateways in the Gateway Network is an agent. Agents perform all assigned tasks, and report to the controller.

Task Management

EAM allows you to schedule common Gateway tasks to execute against remote agent Gateways. Tasks are requests sent to an agent by the controller. These requests cause the agent to perform some action such as activating a license. Tasks include:

- **Activate License**
- **Collect Backup**
- **Install Modules**
- **Remote Agent Upgrade**
- **Restart Agent**
- **Restore Backup**
- **Send Project**
- **Send Project Resources**
- **Send Tags**
- **Unactivate License**
- **Update License**

☒ **Activate License**

Activate a license key on selected agent Gateways.

☐ **Collect Backup**

Collect a Gateway backup from an agent machine.

☐ **Install Modules**

Install one or more modules on selected agent Gateways.

☐ **Restart agent**

Restarts the Ignition service on the agent machine.

☐ **Restore Backup**

Restore a Gateway backup on selected agent Gateways.

☐ **Send Project**

Distributes a project to remote servers. Replaces the project on the remote server as if an export/import was performed.

☐ **Send Project Resources**

Distributes project resources, like windows and templates, to remote servers.

☐ **Unactivate License**

Unactivate a license key on selected agent Gateways.

☐ **Update License**

Update the license on selected agent Gateways.

On-Demand or Scheduled

Gateway tasks can be executed immediately, scheduled to run once at a later time, or set up as part of a recurring schedule. The [Schedules](#) can be freely modified or paused. Scheduled tasks can also execute on-demand, allowing the tasks to be called at will.

Agent Tasks

Available Tasks					
Running and Scheduled Tasks					
Task History					
Name	Repeats?	Next Scheduled	Current State	Targets	
Collect Backup	true	11/2/16 2:00:00 AM	Scheduled	Agents [Agent99]	More ▾ edit
Send Project	false	11/4/16 2:00:00 AM	Scheduled	Agents [Agent99]	More ▾ edit
Send Project Resources	false	11/4/16 3:30:00 AM	Scheduled	Agents [Agent99]	More ▾ edit

→ [Create new Gateway Task...](#)

Disaster Recovery and Prevention

Every EAM agent sends information to the controller about its general health status. Whenever problems occur on an agent, the controller is notified of the agent's status in the form of Agent Events. Problems could include:

- High CPU usage on the Agent
- Large numbers of system errors in a short timeframe
- Unusually high usage of database connections

Loss of connectivity to the agent also triggers an Agent Event on the controller. Agent Events are recorded in an external database for analysis and reporting later. Agent Events can also be directly configured on the controller to automatically trigger alarms or send **alarm notifications**.

The screenshot displays the 'Agent Events' interface. At the top, there are four columns: 'Active Time', 'Display Path', 'Current State', and 'Priority'. Below these columns, a list of events is shown. The first event is highlighted in teal and has a checkmark in the 'Active Time' column. The event details are as follows:

Active Time	Display Path	Current State	Priority
6/29/16 3:55 PM	Site A/cpu [ERROR]	Cleared, Unackno...	High
6/29/16 3:55 PM	Site A/cpu [ERROR]	Cleared, Unackno...	High
6/29/16 3:55 PM	Site A/cpu [WARNING]	Cleared, Unackno...	Low
6/29/16 3:55 PM	Site A/cpu [WARNING]	Cleared, Unackno...	Low

Below the list, there are two tabs: 'Details' and 'Notes'. The 'Details' tab is selected, showing the configuration properties for the selected event. The properties are as follows:

Property	Value
Source Path	sys:Site A:/prov:EAM:/alm:cpu-error
Display Path	Site A/cpu [ERROR]
Name	cpu-error
Mode	Any Change

At the bottom of the interface, there are two buttons: 'Acknowledge' and 'Shelve'. There are also some icons on the right side of the interface.

The **Collect Backup** Gateway task does more than simply collect a Gateway backup from agents. Whenever the task runs, the Gateway backup, all installed modules, and the current license are

collected from the agent and stored in the archive system on the controller. This system allows for quick recovery later if an agent machine catastrophically fails and must be reinstalled.

Creating a Controller



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Creating a Controller

[Watch the video](#)

To set up the EAM, you must first designate one machine as the controller. Keep track of the IP address of this machine, as you must enter this address on each agent during agent installation.

Install the EAM module in the Gateway if it has not already been installed. After module installation, you must designate a database connection that will be used by the controller to store agent event history. Navigate to **Config > Databases > Connections**, and set up a connection to the database that you intend to use.



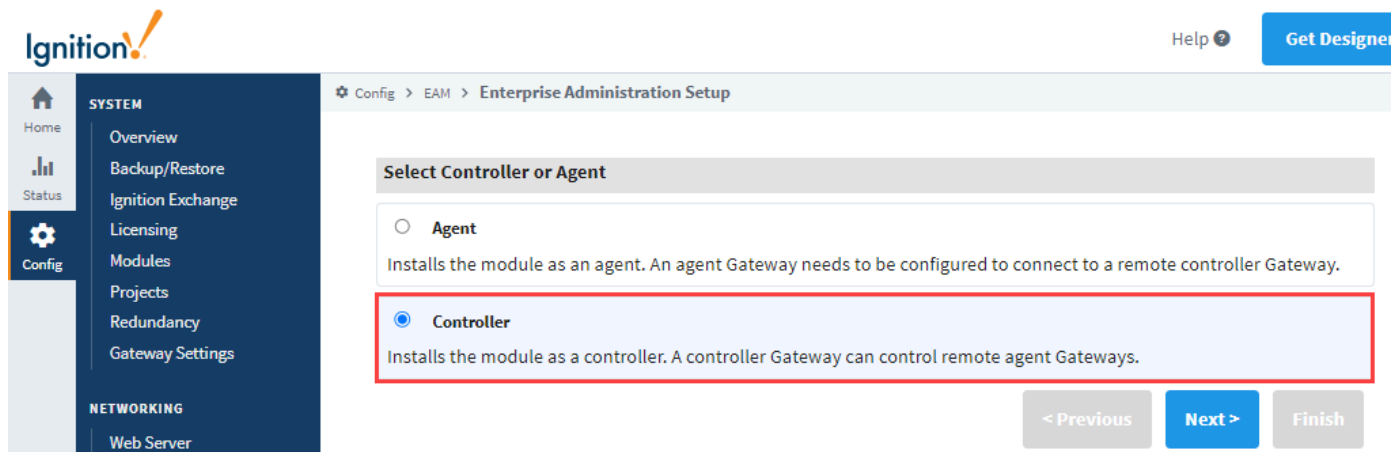
TIP

Tips for Configuring Controllers and Agents

- If you have any existing installations of Ignition running, it's a good idea to perform a backup before you begin this process.
- If you have 2 or more Gateway Webpages open in your browser, you may want to have the Controller and Agents on separate monitors so you don't get confused which one you are working on.
- It's always a good idea to verify that all your modules are loaded correctly. Go to **Config > Modules** to check which modules you have installed.

Set Up a Controller

1. Navigate to **Config > Enterprise Administration > Setup**. You will now enter the EAM Setup Wizard.
2. Since you are installing the controller, select **Controller** on this screen. Click **Next**.



3. Next you need to set up the controller.

- i. **Default Database** - For the default database, you must select the database connection that you created before entering the EAM Setup Wizard. If you forgot to create the database connection, you can do so now and return to the EAM Setup Wizard later.
- ii. **Archive Path** - This is a file path on the Gateway's local machine where all archived files will be stored. You can use a locally mounted network share for archiving. Use a value such as **C:\eam-archive**. It is strongly recommended that you put a system into place to externally monitor the free size of the disk that contains the archive. Gateway backups can potentially be many megabytes in size, and can eat up large volumes of space when using many agents.

Config > EAM > Enterprise Administration Setup

Controller Setup

Main

Default Database	MSSQL	The database connection to use for recording agent history.
------------------	-------	---

Archiving

Archive Location	Manual	If "Automatic", the system will manage the location of the Agent archive. If "Manual", the path below will be used.
Archive Path	C:\eam-archive	The file path to save Gateway backups, archived modules, and other files.
Low Disk Space Threshold	1024	Value is in megabytes. Errors will be reported in this Gateway when the disk used for archiving drops below this value.
Maximum Retention Count	5	Maximum number of backups that will be retained for each agent. If the number of backups exceeds this number, the oldest backups will be deleted first until the number of backups equals this number. A value less than or equal to zero disables this feature, effectively allowing an unlimited number of backups.
Maximum Retention Age	0	Maximum age of backups that will be retained for each agent. Any backup older than the age specified here will be deleted. A value less than or equal to zero disables this feature, effectively retaining backups no matter their age. Note: if the max retention count setting is enabled, and if the count of backups exceeds the max retention count, the oldest backups will be deleted until the count of backups is equal to the max retention count, even if the oldest backups are younger than the max retention age setting. Similarly, if the max retention count setting is enabled, and if the count of backups is less than or equal to the max retention count, any backup older than the max retention age will be deleted.
Maximum Retention Age Time Unit	Days	

< Previous Next > Finish

- After you have determined your settings, click the **Finish** button to save the controller settings and exit the wizard. This machine is now ready to accept agents.
- Once you set up your Controller, the **Setup** option disappears in the menu and is replaced with a list of Enterprise Administration menu options.



Remove a Controller

- To remove a Controller, from the Gateway, go to **Config** section.

2. Scroll down and select **Enterprise Administration > Controller Settings**.

3. Click the **Uninstall Controller** link.

Config > EAM > Controller Settings

Controller Settings

[→ Uninstall Controller](#)

Main

Default Database	MSSQL
------------------	-------

The database connection to use for recording agent history.

Archiving

Archive Location	Manual
------------------	--------

If "Automatic", the system will manage the location of the Agent archive. If "Manual", the path below will be used.

| Archive Path | C:\eam-archive |
| Low Disk Space Threshold | 1024 |

Value is in megabytes. Errors will be reported in this Gateway when the disk used for archiving drops below this value.

| Maximum Retention Count | 5 |

Maximum number of backups that will be retained for each agent. If the number of backups exceeds this number, the oldest backups will be deleted first until the number of backups equals this number. A value less than or equal to zero disables this feature, effectively allowing an unlimited number of backups.

| Maximum Retention Age | 0 |

Maximum age of backups that will be retained for each agent. Any backup older than the age specified here will be deleted. A value less than or equal to zero disables this feature, effectively retaining backups no matter their age. Note: if the max retention count setting is enabled, and if the count of backups exceeds the max retention count, the oldest backups will be deleted until the count of backups is equal to the max retention count, even if the oldest backups are younger than the max retention age setting. Similarly, if the max retention count setting is enabled, and if the count of backups is less than or equal to the max retention count, any backup older than the max retention age will be deleted.

| Maximum Retention Age Time Unit | Days |

Save

4. A confirmation window will appear. Click **Confirm** to complete uninstalling the controller.

Uninstall Controller

Are you sure you want to uninstall this controller? You will lose all controller settings, and agents will no longer communicate with this Gateway.

Confirm

Cancel

Controller Settings

The table below lists the main properties found in the **Controller Settings**:

Setting	Description
Default Database	The database connection to use for recording agent history.

The table below lists the archiving properties found in the **Controller Settings**:

Setting	Description
Archive Location	Choose between Automatic and Manual . If Automatic , the system will manage the location of the Agent archive. If Manual , the path from the "Archive Path" setting will be used.
Archive Path	The file path to save Gateway backups, archived modules, and other files. Disabled if the Archive Location setting is set to Automatic .
Low Disk Space Threshold	Value is in megabytes. Default value is 1024. Errors will be reported in this Gateway when the disk used for archiving drops below this value.
Maximum Retention Count	New in 8.1.19 Maximum number of backups that will be retained. If the number of backups exceeds this number, the oldest backups will be deleted first until the number of backups equals this number. A value less than or equal to zero disables this feature, effectively allowing an unlimited number of backups. Default is 5.
Maximum Retention Age	New in 8.1.19 Maximum age of backups that will be retained. Any backup older than the age specified here will be deleted. A value less than or equal to zero disables this feature, effectively retaining backups no matter their age. Note: if the Maximum Retention Count setting is enabled, and if the count of backups exceeds the max retention count, the oldest backups will be deleted until the count of backups is equal to the max retention count, even if the oldest backups are younger than the "Max Retention Age" setting. Similarly, if "Max Retention Count" is enabled, and if the count of backups is less than or equal to the max retention count, any backup older than the max retention age will be deleted.
Maximum Retention Age Time Unit	New in 8.1.19 The time unit to use when specifying the Maximum Retention Age setting. Choose between Days, Weeks, Months, or Years. Default is Days.

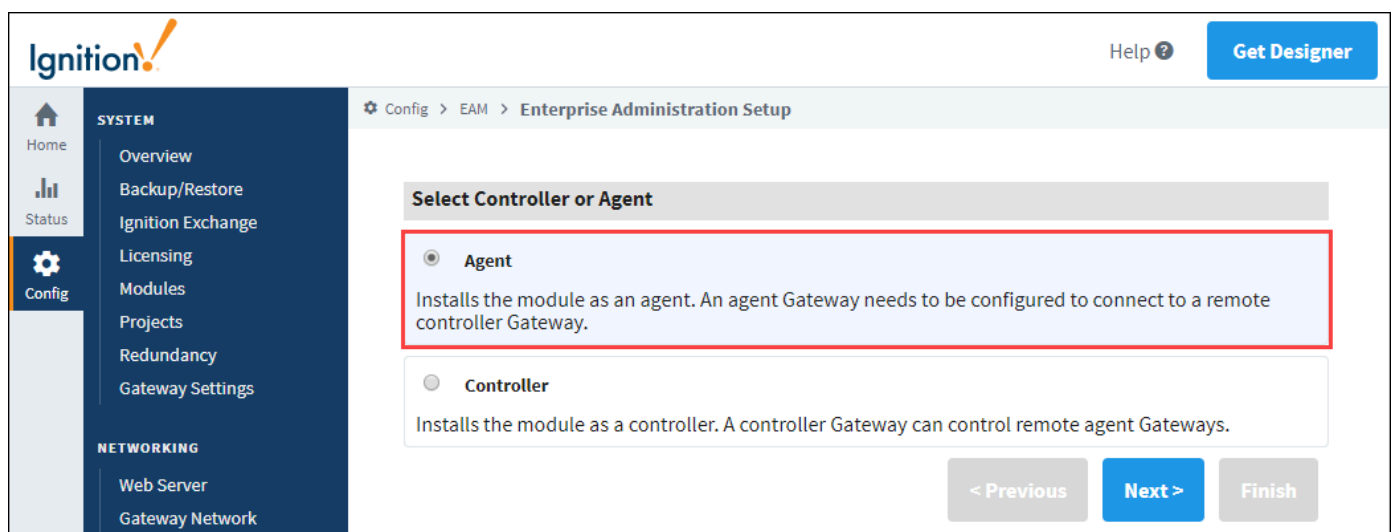
Adding an Agent

Agent Setup

To communicate with the controller, agents send data across a Gateway Network connection. If your Gateway Network setup requires that connections be manually approved in advance on the controller Gateway, you will need to [set up the Gateway Network connection](#) before starting the EAM Setup Wizard. You will be able to select the existing Gateway Network connection within the wizard.

Navigate to **Config > Enterprise Administration > Setup** to begin the EAM Setup Wizard.

1. Since you are installing an agent, select **Agent** on this screen. Click the **Next** button.



2. Select New Agent or Agent Recovery.
 - i. Select **New Agent** if you are setting up a machine that is unknown to the controller.
 - ii. Select **Agent Recovery** if you are reinstalling an existing agent (possibly on a different machine), and the machine has been known to the controller in the past. This option also gives an opportunity to perform a system recovery (restore Gateway backup, reinstall missing modules and license) if possible.
3. After you made your selection, click the **Next** button.

The screenshot shows the Ignition Enterprise Administration Setup wizard. The left sidebar contains navigation links for Home, Status, Config, and a menu for SYSTEM (Overview, Backup/Restore, Ignition Exchange, Licensing, Modules, Projects, Redundancy, Gateway Settings) and NETWORKING (Web Server, Gateway Network). The main content area is titled 'Agent Installation Mode' and has two radio button options: 'New Agent' (selected) with the description 'I am installing a new agent.' and 'Agent Recovery' with the description 'I am reinstalling an existing agent. Backup files can also be automatically reinstalled during recovery if available.' At the bottom right are three buttons: '< Previous', 'Next >', and 'Finish'.

4. As mentioned previously, a Gateway Network connection is required to communicate with a controller. On this page, you can either select an existing connection from the dropdown list, or click **Create New Connection** to create a new Gateway Network connection. If you are using an existing connection, enter the **System Name** that identifies your Agent to the controller.

5. Click **Finish**.

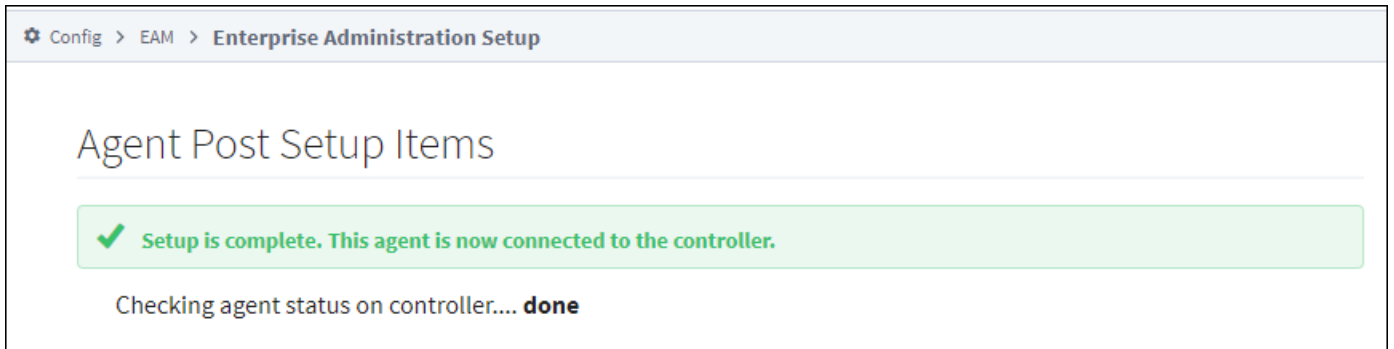
The screenshot shows the 'Agent Settings' configuration page. At the top is a header 'Agent Settings'. Below it is a light blue informational box with a lightbulb icon and text: 'If you don't see your EAM controller in the list below, you must configure a Gateway Network connection to the controller before entering the Setup Wizard. Click [here](#) to visit the Gateway Network configuration page.' The main form area has a dark grey header 'Agent Settings' and two sections. The first section is labeled 'Controller' and contains a dropdown menu with 'Controller' selected and a description: 'The Gateway Network server running the EAM controller'. The second section is labeled 'System Name' and contains a text input field with 'Ignition-TR-89MC8R2-W5' and a description: 'The system name uniquely identifies this agent to the controller and other agents. Note that this setting also changes the system name under general Gateway Settings.' At the bottom right are three buttons: '< Previous', 'Next >', and 'Finish'.

Agent Post Setup

The EAM module will now attempt to register the local Gateway as an EAM agent on the controller, and download files if performing a system recovery.

- If you are running in **New Agent mode**, you will see the agent status check on the screen. When the agent status check is complete, you will need to navigate to the controller Gateway and

approve the agent on the Gateway Agents page, as discussed in the section below. Click the **Retry** button to recheck agent status on the controller if the first status check failed.



- If you are running in **Agent Recovery mode**, and you selected the **System Recovery** option, you will see the download status of the license file, installed modules, and the most recently collected Gateway backup file. Depending on the contents of your archive, some files may not be available. Click the **Apply Files** button to apply downloaded files. Note that this operation will require a Gateway restart if a Gateway backup file needs to be applied. Click the **Ignore Files** button to close this page and not apply downloaded files. Note that the agent settings have already been saved, so it is safe to not apply downloaded files if you choose. Click the **Retry** button to attempt to download the recovery files again.

CAUTION

Set up a Regularly Scheduled Collect Backup Task for Agents

After you set up your agents, it is very strongly recommended that you set up a regularly scheduled Collect Backup task for your agents. System recovery through the EAM Setup Wizard will not work if there are no archived backup files! To learn more about performing agent backups, refer to [Agent Task - Backup and Restore](#).

Agent Approval

When an unknown agent first contacts the controller, it is saved in pending status. No interaction with the controller is allowed until you approve the agent. Agent version and license information fields will remain empty until the agent is approved.

1. To approve the agent, go to your controller on the **Config** section of the Gateway Webpage.
2. Scroll down to **Enterprise Administration > Agent Management**.
3. Click **approve** the right side next to the name of your agent. After a few moments, the agent's status should change to **Connected**.

Config > EAM > Agent Management					
Gateway	Status	Group	Version	License	Last comm
Agent133	Pending	Default Group			N/A
					approve delete
Ignition-ubuntu	Disconnected	Default Group			10/12/16 3:22:00 PM
					More ▼ delete

→ Edit agent groups...

Delete an Agent

1. To remove an agent, go to your controller on the **Config** section of the Gateway Webpage.
2. Click the **delete** button on the right side.

Config > EAM > Agent Management					
Gateway	Status	Group	Version	License	Last comm
Agent133	Pending	Default Group			N/A
					approve delete
Ignition-ubuntu	Disconnected	Default Group			10/12/16 3:22:00 PM
					More ▼ delete

→ Edit agent groups...

If the agent machine is still active, the agent will reappear on the list in pending status, but will no longer be able to interact with the controller.

To remove the agent permanently, you must navigate to the agent Gateway and uninstall the agent via the Agent Settings page.

Modifying Agent Settings

You can modify Agent Settings by going to the agent, and under the **Config** section on the Gateway webpage, select **Enterprise Administration > Agent Settings**. Here you can change the Gateway Network Server name and the Send Stats Interval. After you make your changes, click **Save**.

- Gateway Network Server is the Gateway Network Server running the EAM controller. You can select your controller machine from this dropdown list.
- Send Stats Interval is the interval in seconds that the agent will send its statistics to the controller Gateway.
- After you make your changes, click **Save**.

- **Perform System Recovery:** This checkbox is only shown when running in Agent Recovery mode.

Config > EAM > Agent Settings

Agent Settings

[→ Uninstall Agent](#)

Main	
Controller	Controller ▼ The Gateway Network server running the EAM controller
Send Stats Interval	5 The interval in seconds that the agent will send its statistics to the controller Gateway.

Save

After you make your selections, click the **Finish** button. The Gateway will attempt to download the most recent Gateway backup, previously installed modules, and the license file.

Agent Tasks

Using The Gateway Network

Once the Gateway Network is up, and there is at least one Controller and one Agent configured, there are a variety of actions that can be performed on your agents in the form of Agent Tasks.

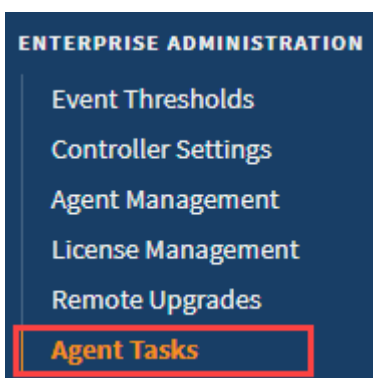
Agent Tasks involve performing a specific task to one or more specific Agents. The Agent Tasks page contains three tabs:

- Available Tasks which contain tasks waiting to run.
- Running and Scheduled Tasks which include any tasks that are currently running or scheduled to be run.
- Task History, which provides a list of all previously run tasks.

There are many different types of tasks to choose from, but they mostly involve doing Gateway level actions such as taking a Gateway backup or activating a license.

Create an Agent Task

1. To create an Agent task, go to the Controller, and select the **Config** section on the Gateway Webpage.
2. Scroll down to **Enterprise Administration > Agent Tasks**. This opens the Agent Tasks window.



3. Click the **Create new Gateway Task** link to create an agent task.



Help [Get Designer](#)



Home



Status



Config

SYSTEM

Overview

Backup/Restore

Ignition Exchange

Licensing

Modules

Projects

Redundancy

Gateway Settings

NETWORKING

Web Server

Gateway Network

Config > EAM > Agent Tasks

Available Tasks

Running and Scheduled Tasks

Task History

Name	Repeats?	Next Scheduled	Current State	Targets
No Gateway Tasks				
→ Create new Gateway Task...				

The options for Agent tasks are listed in the following table.

Task	Description
Activate License	Activate a license key on selected agent Gateways.
Collect Backup	Collect a Gateway backup from an agent machine.
Install Modules	Install one or more modules on selected agent Gateways.
Remote Agent Upgrade	Prepare a full system upgrade on selected agent Gateways.
Restart Agent	Restarts the Ignition service on the agent machine.
Restore Backup	Restore a Gateway backup on selected agent Gateways.
Send Project	Distributes a project to remote servers. Replaces the project on the remote server as if an export/import was performed.
Send Project Resources	Distributes project resources, like windows and templates, to remote servers. Note: This is typically performed from a controller Gateway to an agent Gateway, but you can also send project resources from agent Gateway to agent Gateway.
Send Tags	Distributes controller tags to agents.
Unactivate License	Unactivate a license key on selected agent Gateways.
Update License	Update the license on selected agent Gateways.

4. Select task and then click **Next**. The Task scheduling screen is displayed. Tasks can then be scheduled to run in a few different ways depending on your needs. In the example below, the task is set to execute twice per day.

Changed in 8.1.17 Cron Expressions starting with the "/", "-", or "," characters are no longer considered valid.

Config > EAM > Agent Tasks

Task Scheduling

Task Name:

☐ Execute Immediately

☐ Execute On Demand

☐ Execute Once, Scheduled

 :

☐ Execute Once, Delayed

SECONDS

☒ Execute On Schedule

Common Settings

Minutes 

Hours 

Days 

Months 

Weekdays 

Expression Descriptor: At 12:00 am and 12:00 pm (0 0,12 * * *)

< Previous **Next >** Finish

5. Click **Next**. The EAM wizard will guide you through setting up your task.

6. Lastly, a Task Summary window appears. If you're ready to go, click **Finish**. Your task will be submitted according to the schedule type you defined.

Config > EAM > Agent Tasks

Task Summary

Task Name	Task Type	Schedule	Target Groups/Agents	Force Backup
Collect Backup	Collect Backup	Execute at 12:00 am and 12:00 pm	Default Group	true

< Previous

Next >

Finish

Agent Task Status

On the Status section of the Gateway Webpage there is a page called **EAM Tasks**. This page is useful, as it shows information on what tasks are currently running, which tasks are scheduled to run, and a history of tasks that have been run. The **EAM Tasks** page can be used to allow users to see what is going on with the various agents without giving them the ability to configure them.

Systems

EAM Tasks

Configuration

Executing Agent Tasks

0

Scheduled Agent Tasks

2

Executing Agent Tasks

Task Name	Task Type	Task State	Execution Start	Progress	Message
No items to display.					

Scheduled Agent Tasks

Task Name	Task Type	Repeats	Next Execution Start	Status
Collect Backup	Collect Backup	true	20Oct2016 00:00:00	🕒 Scheduled Pause
Restart agent	Restart agent	false	22Oct2016 00:00:00	🕒 Scheduled Pause

Recently Completed Tasks

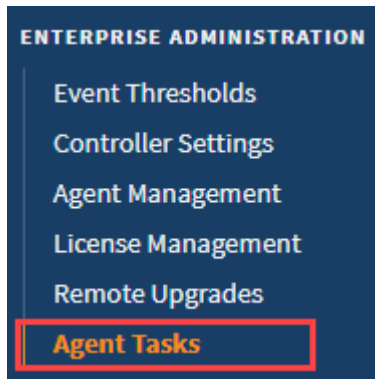
Task Name	Task Type	Task Start	Agent	Task Result
Collect Backup	backup	19Oct2016 11:52:01	Agent133	✔ Success
Collect Backup	backup	19Oct2016 11:50:01	Agent133	✔ Success
Collect Backup	backup	19Oct2016 11:48:01	Agent133	✔ Success
Collect Backup	backup	19Oct2016 11:45:01	Agent133	✔ Success
Collect Backup	backup	19Oct2016 11:41:49	Agent133	✔ Success

Retrying Agent Tasks

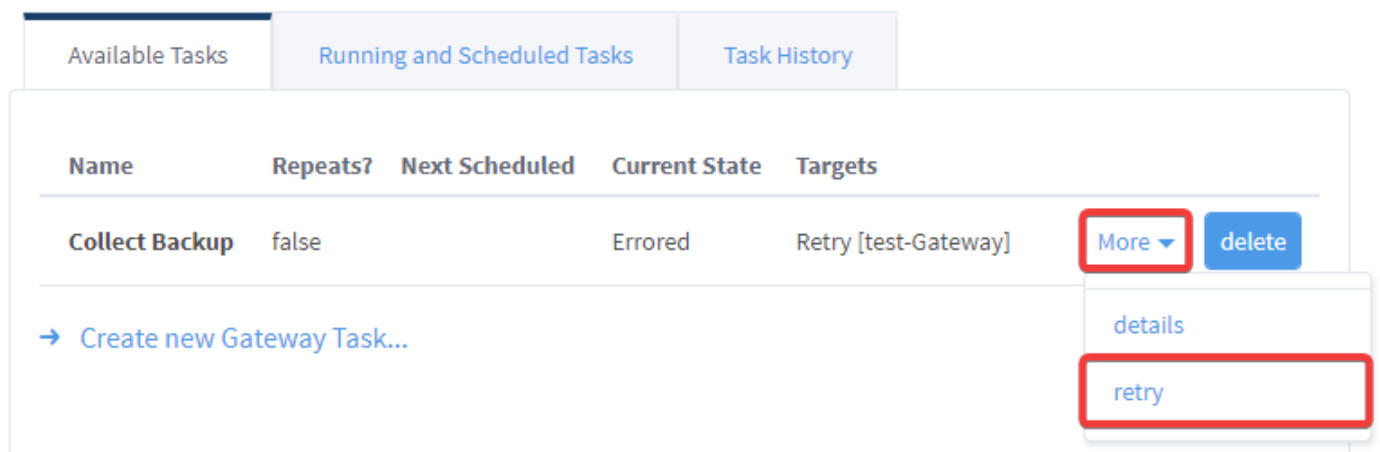
New in 8.1.33

Should a task fail, you can directly execute the task again without needing to set the task back up by using the **retry** option.

1. On the Gateway webpage, navigate to **Config > Enterprise Administration > Agent Tasks**.



2. Expand the **More** dropdown for the task you want to retry, and select **retry**.



3. The Gateway will ask for a confirmation. Click **Confirm**.

Retry Task

Are you sure you want to retry this task? The task will only be run against agents that previously failed.

Confirm

Cancel

The controller will now attempt to run the task again.

Resuming Failed File Transfer Tasks

New in 8.1.33

If a task that involves file transfers fails to complete, Ignition will now resume the file transfer task when you choose the **retry** option. In this situation, Ignition will resume transferring the specified file(s) from the point where the process was interrupted. Currently, this feature is available only for the **Remote Upgrade** task.

Agent Task - Backup and Restore



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Agent Task - Backup and Restore

[Watch the video](#)

The Backup and Restore tasks are an extremely important part of the Enterprise Administration Module. Performing a Collect Backup is required if you want to do an Agent recovery.

The Gateway Tasks discussed in this section are the [Collect Backup](#), [Restore Backup](#), [Install Modules](#) and [Restart Agent](#).

Collect Backup

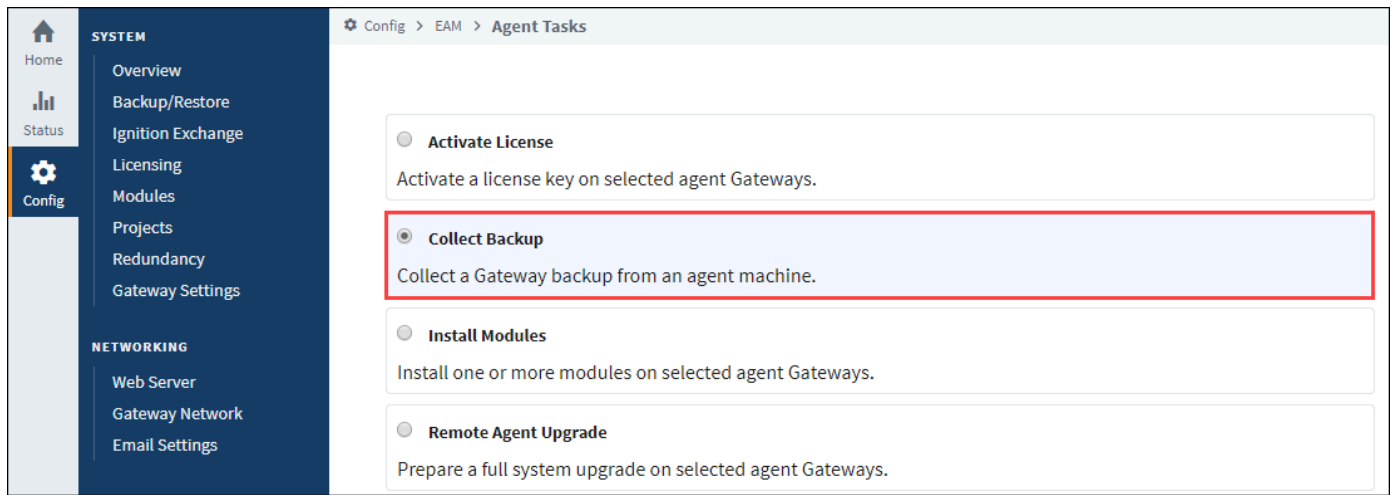
Collect Backup is a Gateway Task that performs a Gateway backup on the selected Agent's machine. Additionally, this task will archive copies of the Agent's modules.

New in 8.1.17 Collect Backup now times out by default after waiting 60 minutes for the Agent to generate the backup, plus another 60 minutes for the Agent to transfer the backup to the controller over the Gateway network if the backup generation did not timeout.

Transfer timeout is configurable using the [system property](#)

`ignition.eam.task.collectBackup.transferTimeout`.

1. On the **Controller**, navigate to **Config > Enterprise Administration > Agent Tasks**
2. Click **Create new Gateway Task**.
3. Collect Backup is one of the several Gateway tasks you can perform. Select **Collect Backup**, and press **Next**. The EAM Task Wizard will walk you through each step of the Collect Backup process.



4. There are several different task scheduling options available. For this collect backup example, choose to **Execute Immediately**, and click **Next**. If you need more information on other scheduling options, refer to [Task Scheduling](#).

Task Scheduling

Task Name: Collect Backup

- ☒ Execute Immediately
- ☐ Execute On Demand
- ☐ Execute Once, Scheduled

3/11/20  8 : 53 AM ▼

- ☐ Execute Once, Delayed

SECONDS ▼

- ☐ Execute On Schedule

Common Settings

Once Per Hour (0 * * * *) ▼

Minutes

0  :00 (0) ▼

Hours

*  Every hour (*) ▼

Days

*  Every Day (*) ▼

Months

*  Every Month (*) ▼

Weekdays

*  Every Day (*) ▼

Expression Descriptor:

Every hour (0 * * * *)

< Previous

Next >

Finish

5. Select the Agent you want to perform the Collect Backup on, and click **Next**.

Config > EAM > Agent Tasks

Agent Selection

☐ Default Group

No Gateway Agents found in group

☒ Test 2 Agent Group

< Previous Next > Finish

6. Follow the step that corresponds with the version of Ignition you are running:

- **Ignition 8.1.18 and prior:** The EAM Task wizard will prompt you to do a Force Backup even if nothing changed since the last backup. This step is optional, but it is useful when your backups are performed on a regular schedule. To be safe, check the Force Backup box, and click Next.

Settings

Force Backup	☒ The controller will not take a scheduled backup if the agent's internal database has not changed since the last backup was taken. Set to true to override this behavior.
--------------	--

< Previous Next > Finish

- **Ignition 8.1.19 to 8.1.24:** Skip to step 7.
- **Ignition 8.1.25+:** The EAM Task wizard will prompt you to set up a maximum number of concurrent backups. There is no limit by default, though setting a higher value may help if there is a large number of agents, or if network bandwidth is limited. Set the number of **Max Concurrent Backups** you want, and click **Next**.

Settings

Max Concurrent Backups	0 Set to a value greater than 0 to limit the number of backups that will be concurrently requested while the task runs. Useful when the backup task is configured with a large number of agents, and the gateway network connection bandwidth is limited.
------------------------	---

< Previous Next > Finish

7. Review the **Collect Backup Task Summary** information, and press **Finish**.

⚙️ Config > EAM > Agent Tasks

Task Summary				
Task Name	Task Type	Schedule	Target Groups/Agents	Max Concurrent Backups
Collect Backup	Collect Backup	Execute Immediately	Test 2 Agent Group	0

< Previous

Next >

Finish

Once the Collect Backup task is complete, a success message will be displayed. You can even check the Task History which will provide a list of all previously executed tasks. Your new Gateway backup will be stored wherever your Controller settings are pointing to when the Controller was initially created.

To check, go to the **Controller**, and navigate to **Config > Enterprise Administration > Controller Settings**. You can have your Archive Path set to Automatic or Manual. If you have it set to Automatic, you can find your backups inside the directory for Ignition, otherwise, it will be the folder location that is specified in the Controller Settings. To learn more about controller settings, refer to [Creating a Controller](#).

⚙️ Config > EAM > Controller Settings

Controller Settings

→ Uninstall Controller

Main

Default Database

MySQL

The database connection to use for recording agent history.

Archiving

Archive Location

Manual

If "Automatic", the system will manage the location of the Agent archive. If "Manual", the path below will be used.

Archive Path

C:\eam-archive

The file path to save Gateway backups, archived modules, and other files.

Low Disk Space Threshold

1024

Value is in megabytes. Errors will be reported in this Gateway when the disk used for archiving drops below this value.

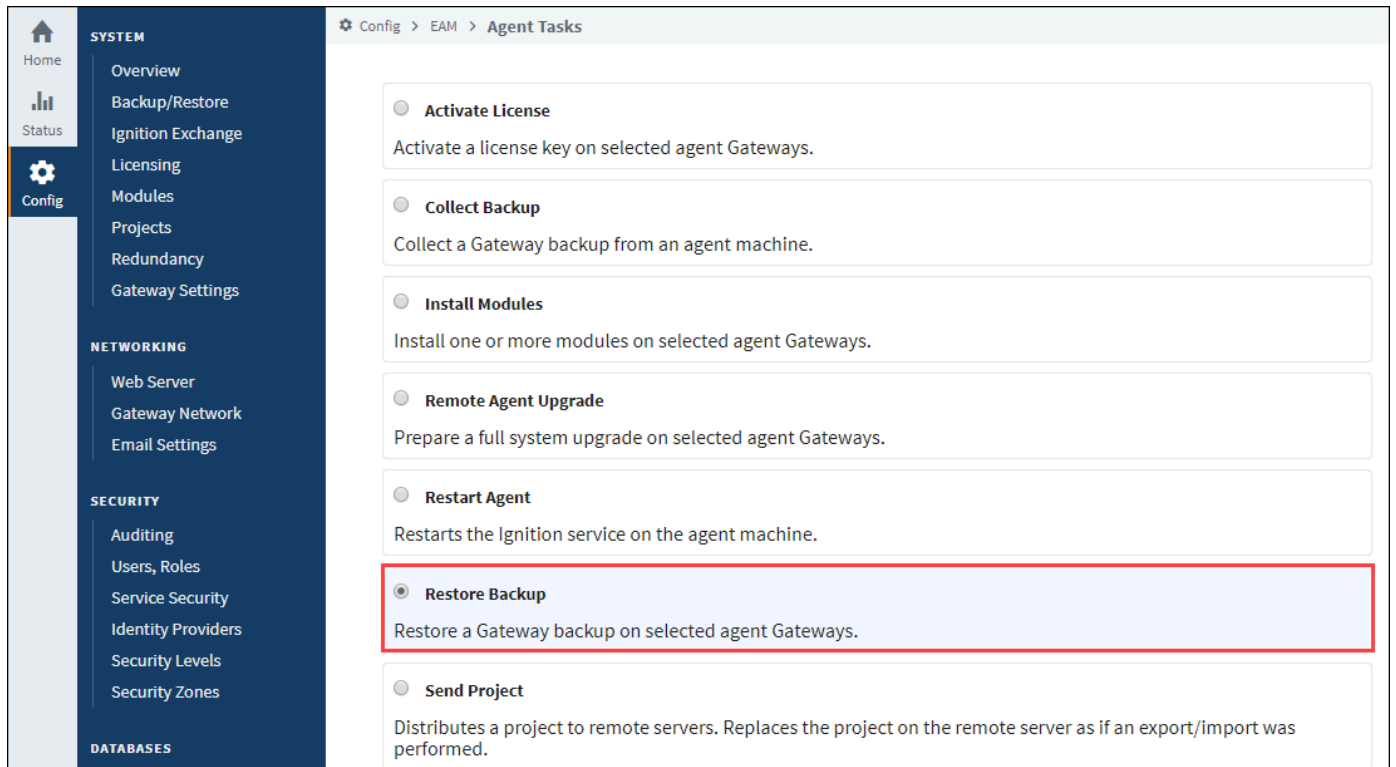
Restore Backup

Now, let's restore a Gateway backup on the selected Agent.

AGENT NAME AND RESTORING

When restoring from a backup using this task, the newly restored agent will retain its previous name.

1. On the **Controller**, navigate to **Config > Enterprise Administration > Agent Tasks**.
2. Click on the **Create new Gateway Task** link.
3. Select the **Restore Backup**, and press **Next**.



4. Schedule the **Restore Backup** task from any of the listed scheduling options. This example uses **Execute Immediately**, and press **Next**.
5. Select the **Agent**, and press **Next**.
6. If your Archive Path was set to Manual when you created your Controller, you will have to select the **Choose File** button, and navigate to the folder on your computer to locate the Gateway Backup file. If you are unsure about your Archive Path, refer to your [Controller Settings](#).

Settings	
Gateway Backup Path	The selected Gateway backup (.gwbk) will be distributed to the selected agents. Each agent will then restart. Choose a file on your local system, or select one from the Controller Gateway's archive. ☒ Select a local backup Choose File No file chosen ☐ Select a backup from the Controller archive
Restore Disabled	☐ If checked, all projects, database connections, OPC connections, etc will be disabled upon restart of each agent.

< Previous Next > Finish

NOTE**New in 8.1.39**

You can also restore a Gateway Backup from the Controller's archive by pressing the **Select a backup from the Controller archive**, and selecting the .gwbk file you want to restore.

Settings	
Gateway Backup Path	The selected Gateway backup (.gwbk) will be distributed to the selected agents. Each agent will then restart. Choose a file on your local system, or select one from the Controller Gateway's archive. ☐ Select a local backup Choose File No file chosen ☒ Select a backup from the Controller archive Gateway Backend_backup-20240312_140601.gwb
Restore Disabled	☐ If checked, all projects, database connections, OPC connections, etc will be disabled upon restart of each agent.

< Previous Next > Finish

7. Once you choose the file, click **Open**. Click **Next** on the Restore Backup task.

Settings	
Gateway Backup Path	The selected Gateway backup (.gwbk) will be distributed to the selected agents. Each agent will then restart. Choose a file on your local system, or select one from the Controller Gateway's archive. ☒ Select a local backup Choose File Windows10_(Dev Version)_Gateway Frontend__20240312-1343.gwbk ☐ Select a backup from the Controller archive ▼
Restore Disabled	☐ If checked, all projects, database connections, OPC connections, etc will be disabled upon restart of each agent.

< Previous

Next >

Finish

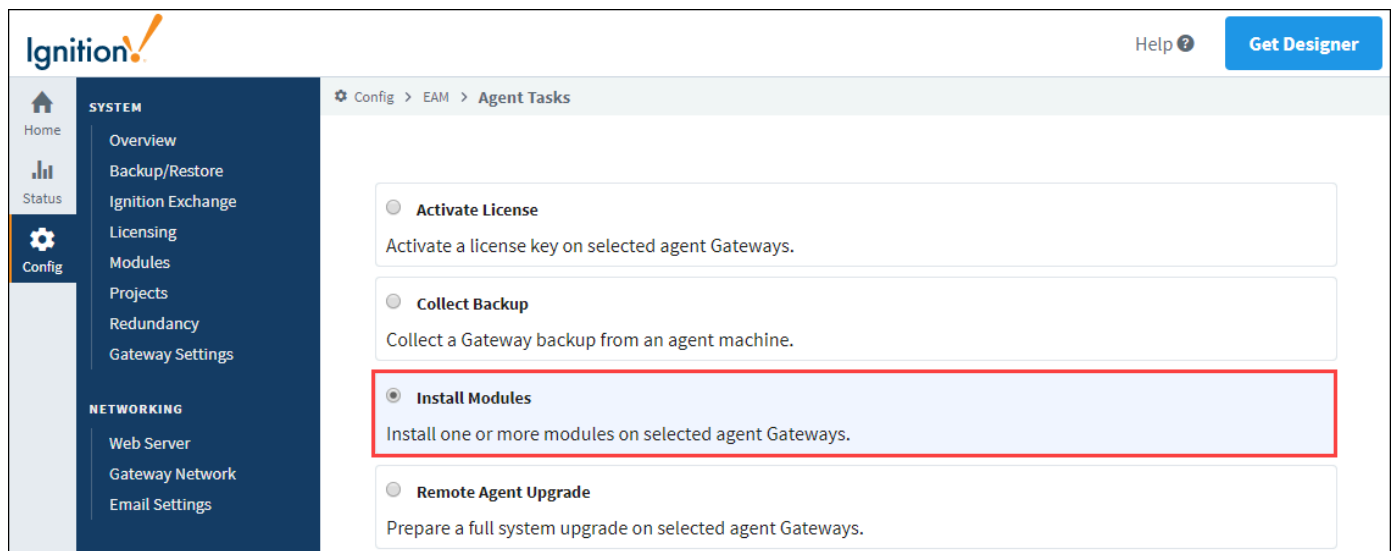
- Review the **Restore Backup Task Summary**, and press **Finish**. Once the Restore Backup task completes, you will receive a successful message from the Gateway Task.
- Now go to your **Agent**, and click **Home**. It takes a few moments to bring up the Gateway. You will see a progress bar while the Gateway is starting up. Once it's complete, you will see all your projects uploaded and ready to go.

Install Modules

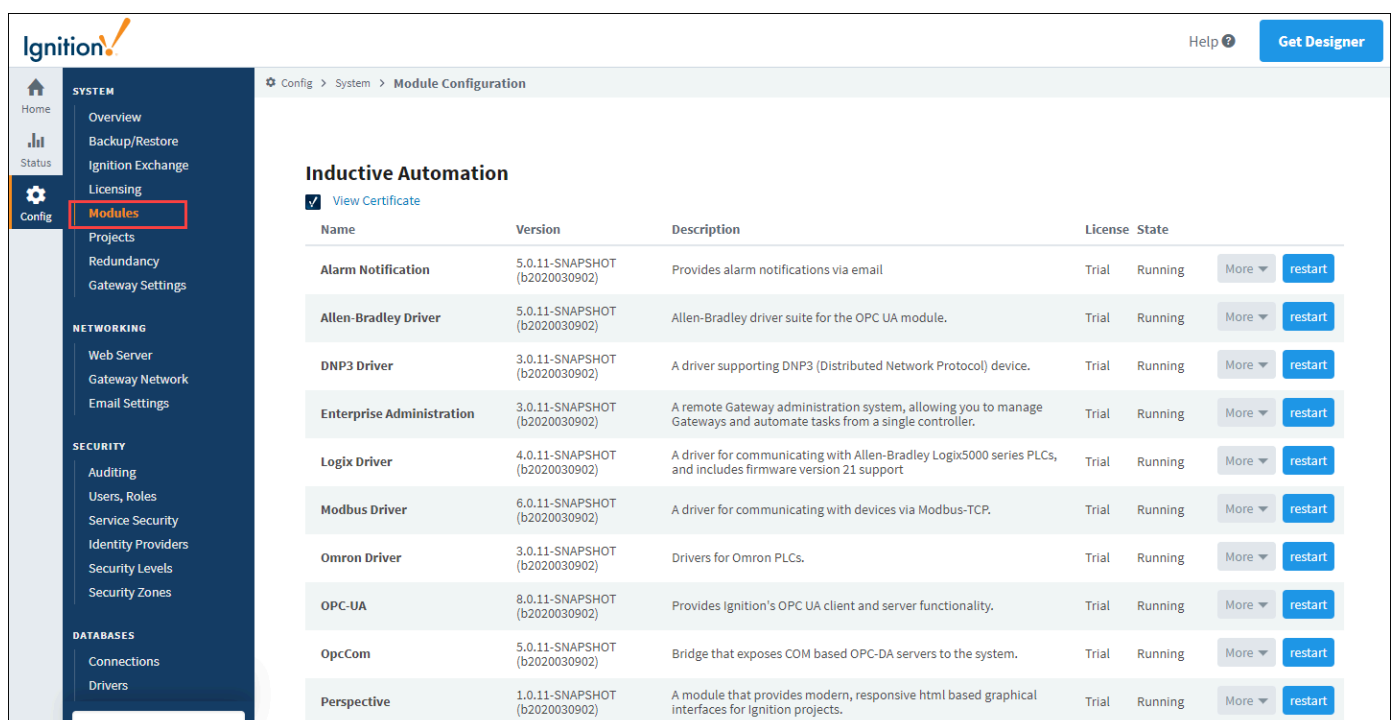
This task allows you to install one or more modules on an Agent. You may pass in the modules to install while creating the task, or choose from the archived modules. Modules are archived in the Collect Backup task.

As an example, suppose you accidentally uninstalled the Alarm Notification and OPC UA Modules from your Agent. Let's go ahead and reinstall them using the Install Modules task.

- Go to the **Controller**, and navigate to **Config > Enterprise Administration > Agent Tasks**. Click the **Create new Gateway Task** link.
- Select **Install Modules**, and click **Next**.



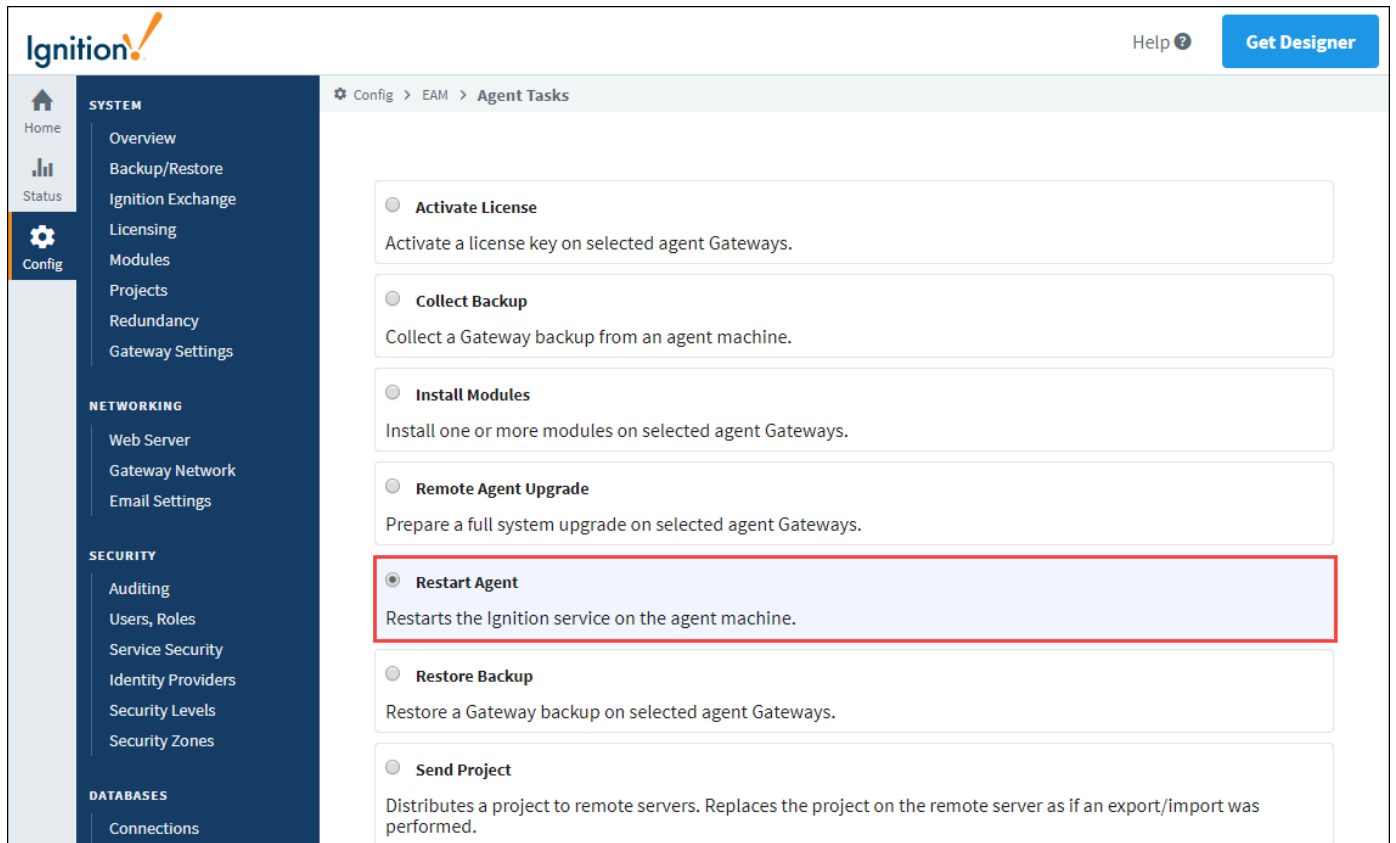
3. Schedule the **Install Modules** task from any of the listed scheduling options. This example uses **Execute Immediately**, and press **Next**.
4. Select the **Agent**, and press **Next**.
5. From the list of **Archived Modules**, click the **Add** buttons for Alarm Notification and the OPC UA modules. You will notice, that once you select a module, it shows up in the **Selected Modules** box at the bottom of the screen. You can choose as many modules as you need, and when you're finished, press **Next**.
6. Review the **Install Modules Task Summary**, and press **Finish**. Once the Install Module task completes, you will get a successful message from the Gateway Task.
7. Go back to your **Agent**, and navigate to **Status > Modules** to verify that both the Alarm Notification and OPC UA modules were installed and are running successfully.



Restart Agent

On the Controller, let's create another Gateway Task to restart the agent. This task will stop the Ignition service on the Agent and start it back up again.

1. Go to the Controller, and navigate to **Config > Enterprise Administration > Agent Tasks**.
2. Click on the **Create new Gateway Task** link.
3. Select the Restart Agent, and click **Next**.



4. Schedule the Restart Agent task to **Execute Immediately**, and click **Next**.
5. Select the Agent, and click **Next**.
6. Review the **Restart Agent Task Summary**, and click **Finish**. Once the Restart Agent task completes, you will receive a successful message from the Gateway Task.
7. Go to your **Agent** and refresh your page. You will see a progress bar while the Gateway is starting up. This will take a few moments, and once this task completes, your Agent will be up and running.

Agent Task - Licensing



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Agent Task - Licensing

[Watch the video](#)

Three of the many tasks that the Enterprise Administration Module (EAM) allows you to perform are License Activations, License Updates, and License Unactivations. This section demonstrates how to activate, update, and unactivate a license from the Controller.

NOTE

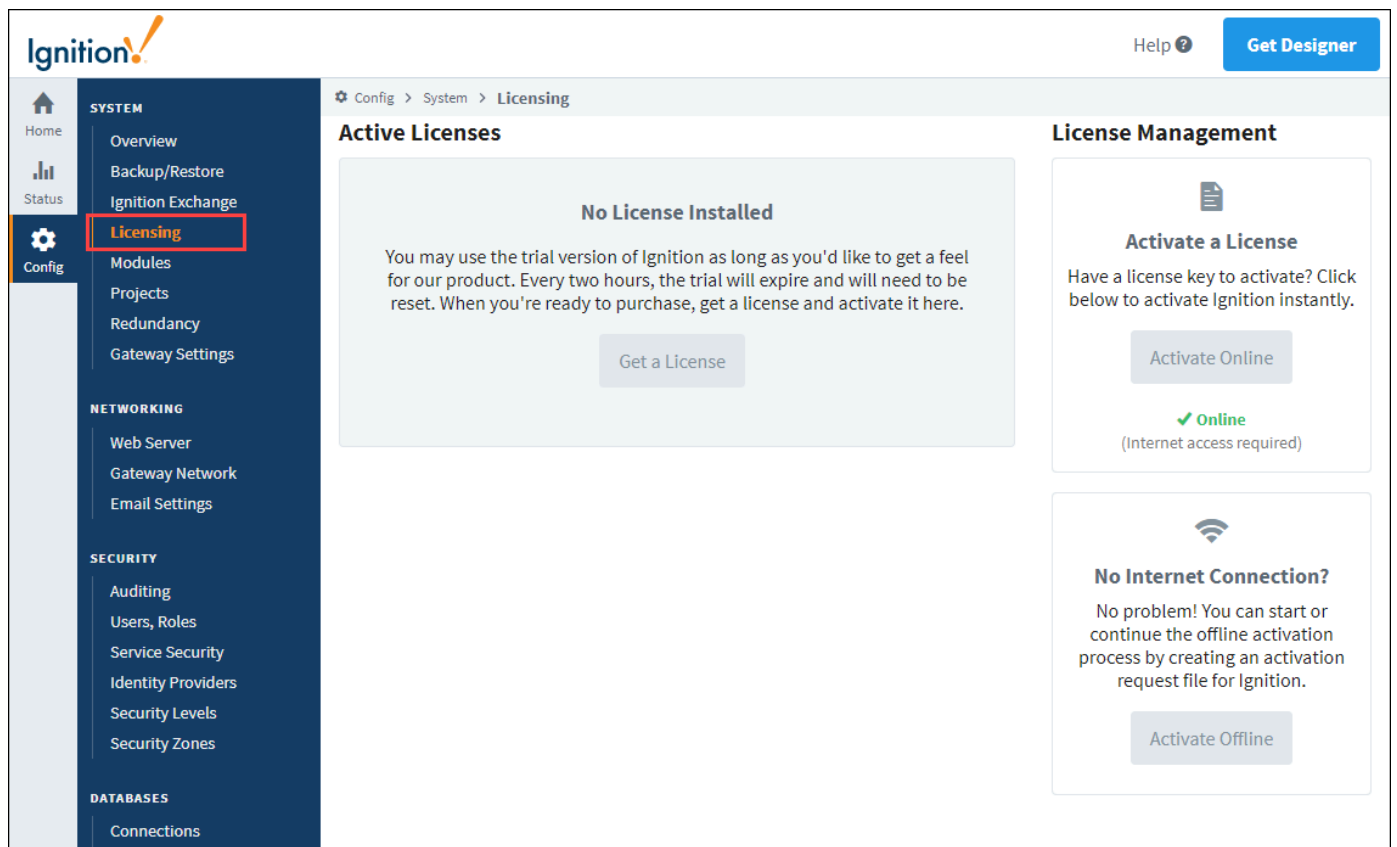
You will not be able to use the EAM Licensing tasks for [eight-digit leased license keys](#).

Before Activating a License

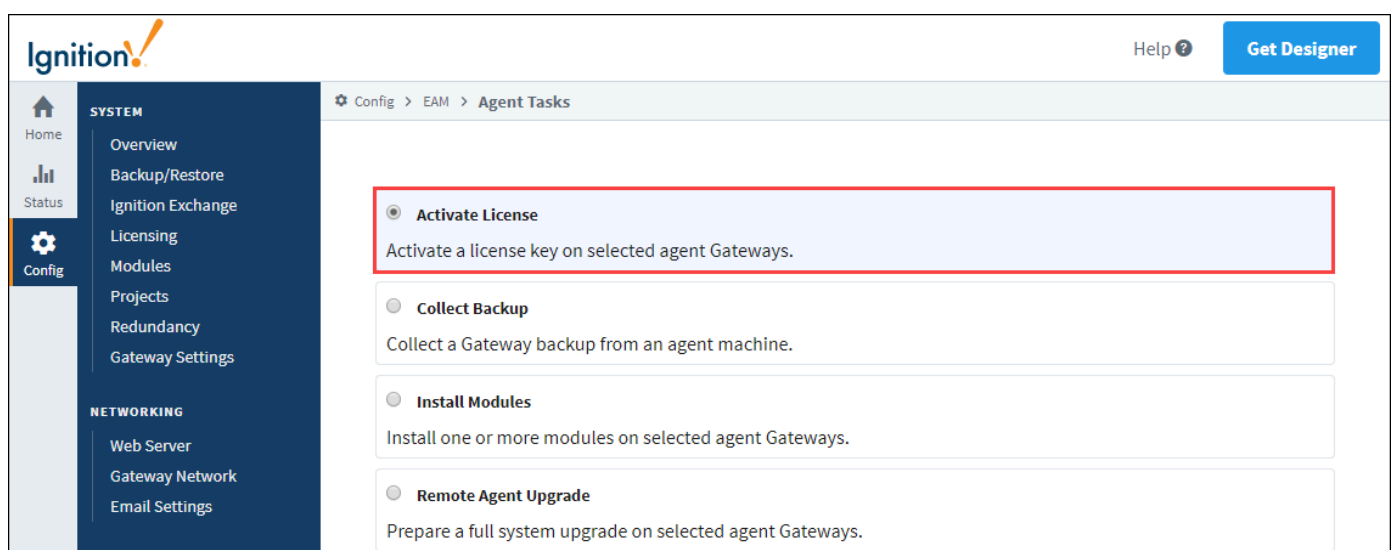
- This section assumes you already have your **Controller** and **Agent** created.
- Make sure you know your License Key serial number.
- Refer to **Agent Tasks** for some more useful tips with this section. For clarity, each Gateway Webpage is identified with either a Controller or Agent label in the header (top left) so it's clear which machine you are working on.

Activate License

1. On your **Agent**, go to the Gateway webpage and select **Configure > Licensing**. You can see that no license is currently installed.



2. Activating a license on an Agent must be done from the Controller. On your **Controller**, go to the Gateway webpage and select **Config > Enterprise Administration > Agent Tasks**.
3. Click **Create new Gateway Task**.
4. Activating a License key is one of several tasks you can perform under **Gateway Tasks**. Click **Activate License**, and press **Next**. The EAM wizard will walk you through each step of the license activation process.



5. The Activate License task has several **scheduling options**. For this example, select **Execute Immediately** and click **Next**.

6. Select the **Agent** you want to activate the license on and click **Next**. In this example, Agent133 was selected.

Activate License

Agent Selection

☐ Default Group

☒ Agent133

☐ Ignition-ubuntu

☐ Remote

No Gateway Agents found in group

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Next >

Finish

7. Enter your license key. You can enter it one of two ways: type it in the **License Key** field if you know it, or click **Auto Assign the License**, and the license key will auto populate. Click **Next**.

Activate License

License Selection

Agent133

License Key AAA-AAA

[→ Auto Assign Licenses](#)

< Previous

Next >

Finish

8. The Activate License page will refresh so you can validate your licensing information. Press **Finish**. The screen will refresh to the Gateway Tasks window. A message will be displayed stating that the license was activated successfully.

License AAA-AAA successfully re-activated

Active Licenses

— AAA-AAA

License Management

Activate Additional License

9. Now, go to the **Agent** to validate that the Agent license was activated. You may see an Access Denied message. This is because the page was automatically updated. Click on the **Return to**

home page link to refresh the Ignition Home page on your Agent.

NOTE

If you are running Ignition in Trial Mode on your Agent, there is a chance that the trial timer expired, and the license activation will fail. If this happens, reset the trial timer and resume the activation for the Agent. You can check the status of the installed modules by going to **Config > Modules**. Modules you are licensed for will not expire, only the modules that are being used in Trial Mode.

10. Click on **Config > Licensing** and verify your License Key on the Agent. This page shows all the modules on your license as well as the versions they are licensed for.
11. It's a good idea to check to see if all your modules are activated. You can check the status of your modules by going to the Gateway webpage and selecting either **Config > Modules**, or **Status > Modules**. If any modules are still in trial mode, that means your license key didn't include those modules, or there is a newer version than your license allows.

Systems
Modules

Licensing Configuration

Running Modules
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Licensed Modules
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License Details

License Key	AAA-AAA
Version	7
developer	true
edition	standard

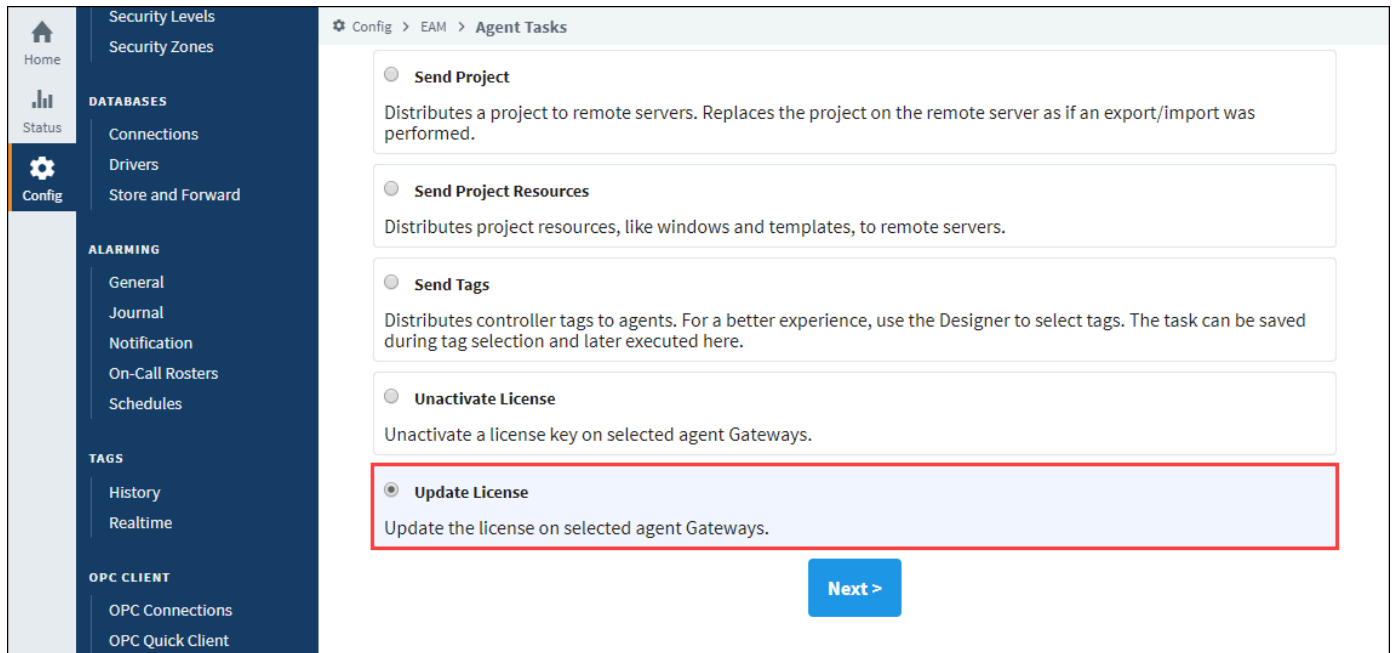
Inductive Automation, LLC

Name	Version	License	Status
Alarm Notification	4.9.0 (b2016101208)	Activated 🔍	✓ RUNNING
Allen-Bradley Driver	4.9.0 (b2016101215)	Activated 🔍	✓ RUNNING
DNP3 Driver	2.9.0 (b2016101215)	Activated 🔍	✓ RUNNING
Enterprise Administration	2.9.0 (b2016101215)	Activated 🔍	✓ RUNNING
Logix Driver	3.9.0 (b2016101215)	Activated 🔍	✓ RUNNING
OPC-UA	4.9.0 (b2016101215)	Activated 🔍	✓ RUNNING
Omron Driver	2.9.0 (b2016101215)	Activated 🔍	✓ RUNNING
OpcCom	4.9.0 (b2016101215)	Activated 🔍	✓ RUNNING
Reporting	4.9.0 (b2016101208)	Activated 🔍	✓ RUNNING
SFC	3.9.0 (b2016101215)	Activated 🔍	✓ RUNNING
SMS Notification	4.9.0 (b2016101208)	Trial	✓ RUNNING
SQL Bridge	8.9.0 (b2016101208)	Trial	✓ RUNNING

Update a License

In the event you need to reload or update a license on your Agent, go to the **Controller**

1. Navigate to **Config > Enterprise Administration > Agent Tasks**.
2. Click the **Create new Gateway Task** link.
3. Select **Update License** and click **Next**. The EAM Wizard will guide you through the license update steps.



Unactivate a License

If you need to unactivate a license, go to the Controller's Gateway Webpage.

1. Navigate to **Config > Enterprise Administration > Agent Tasks**.
2. Click **Create new Gateway Task**.
3. Select **Unactivate License** and click **Next**. The EAM Wizard will guide you through the unactivate license steps.

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OPC CLIENT

OPC Connections

OPC Quick Client

Config > EAM > Agent Tasks

☐ Send Project

Distributes a project to remote servers. Replaces the project on the remote server as if an export/import was performed.

☐ Send Project Resources

Distributes project resources, like windows and templates, to remote servers.

☐ Send Tags

Distributes controller tags to agents. For a better experience, use the Designer to select tags. The task can be saved during tag selection and later executed here.

☒ Unactivate License

Unactivate a license key on selected agent Gateways.

☐ Update License

Update the license on selected agent Gateways.

Next >

Agent Task - Scheduling



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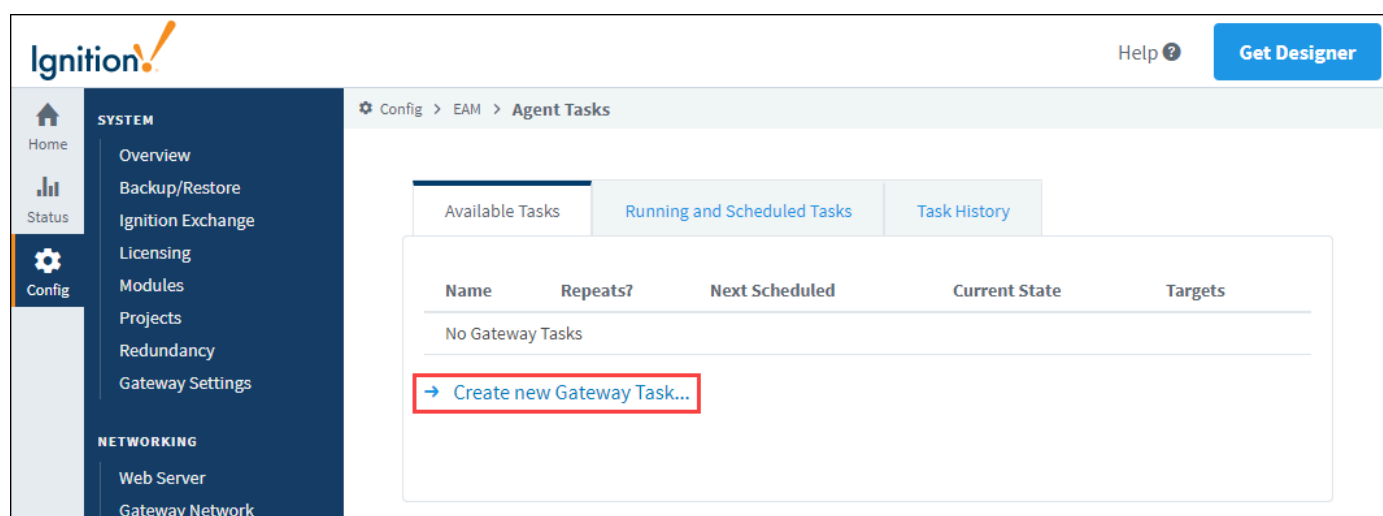
Agent Task Scheduling

[Watch the video](#)

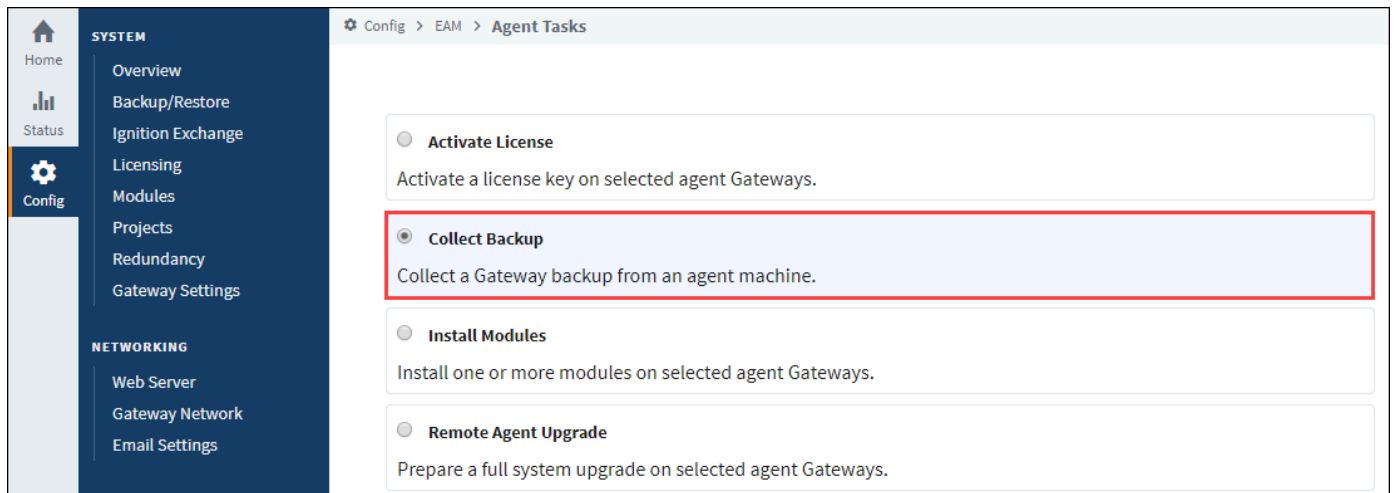
Agent Gateway Tasks

Agent Gateway tasks are enormously useful for applying an action to many agent Gateways at once. To create a new task, or to view running tasks, navigate to **Config > Enterprise Administration > Agent Tasks**. The Gateway Tasks page will display scheduled tasks, currently executing tasks, unscheduled tasks that can be run on demand, and task history.

1. To create a new task, click **Create new Gateway Task**. The EAM wizard will guide you through each step of a Gateway task.



2. Select the type of task you wish to execute. After you selected a type of task, click the **Next** button.



3. Set the task name to a descriptive name of your choice. The following scheduling options are available:

- **Execute Immediately:** The task will begin execution as soon as you complete the wizard.
- **Execute On Demand:** The task will not be scheduled, but is available for immediate execution at any time after you complete the wizard.
- **Execute Once, Scheduled:** The task will run once at the date and time that you specify.
- **Execute Once, Delayed:** The task will run once after the specified number of seconds, minutes, hours, or days.
- **Execute On Schedule:** This type of schedule uses UNIX cron type scheduling, where a pattern of 5 numbers determines the recurring schedule. For example, “30 3 * * *” means run a task every day at exactly 3:30 AM. Use the dropdowns next to the pattern textboxes to build out the pattern for the schedule.

After you determined your task schedule, click **Next**.

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Config > EAM > Agent Tasks

Task Scheduling

Task Name: Collect Backup

Execute Immediately

Execute On Demand

Execute Once, Scheduled

3/12/20 8 : 53 AM

Execute Once, Delayed

SECONDS

Execute On Schedule

Common Settings Custom

Minutes 0 :00 (0)

Hours 2 2 a.m. (2)

Days * Every Day (*)

Months * Every Month (*)

Weekdays * Every Day (*)

Expression Descriptor: At 2:00 am (0 2 * * *)

< Previous

Next >

Finish

- Select the agent groups or individual agents that will be included when the task executes. You can select agents that are not currently connected, but you cannot select pending agents. Depending on the type of task, you may need to complete another page to add some information required for that task. If not, you can click the **Finish** button to schedule the task.

Collect Backup

Agent Selection

☐ Default Group

- ☐ Agent133
- ☒ Agent99
- ☐ Ignition-ubuntu

☐ Remote

No Gateway Agents found in group

[< Previous](#)[**Next >**](#)[Finish](#)

Gateway Task Results

Gateway task execution is reported in the `agent_events` table in the controller's configured database. The individual result of the task execution for each agent is report as a separate entry. For example, the following query will return the results of all task executions:

```
select * from agent_events where event_category = 'task' order by event_time desc;
```

A task that completed normally for an agent will contain the text `NORMAL` in the `event_level` field. If an error occurred for an agent, the `event_level` field is set to `ERROR`, and the error message is recorded in the `message` field.

Running a Task Outside its Schedule

You can run any task outside the task's normal schedule by clicking the **More** button and **run now** link on the right side of the task. Keep in mind:

- Tasks that have been scheduled to run immediately are already running, and the **run now** link will not be visible.
- A task that has been scheduled to execute only once at a scheduled time or after a delay will be rescheduled to run immediately. The task will not run again after it has been rescheduled.
- A scheduled task will continue to run at its normally scheduled time, even if you run the task now.

Pausing and Canceling Tasks

Pause and Resume

After most tasks are created, they are put onto the task schedule. The exception to this is on demand tasks, which are not put on the schedule until you click the **run now** link. After a task has been added to the schedule, you can pause and resume the task. The state of the task (scheduled, running, waiting) and the scheduling configuration affect how the task is paused and resumed.

Task Configuration	Pause Action	Resume Action
Task is currently running or waiting	System will attempt to cancel outstanding calls to remote servers.	System will run the task again against any servers that were outstanding when the task was paused.
Task is scheduled once at a specific date and time	The task will be temporarily taken off the schedule.	If the specified time has not yet arrived, the task will be put back onto the schedule at the original time. If the specified time has already passed, the task will execute immediately upon resume.
Task is scheduled once after a specified delay	The task will be temporarily taken off the schedule.	The task will be put back onto the schedule at the original calculated time. For example, if the delay is set to 2 hours, and the task is paused for 1 hour, the task will fire in 1 hour after resume. If the delay period has already passed, it will fire immediately after resume.
Task is on a recurring schedule	All future iterations of the task will be temporarily taken off the schedule.	The task will not fire if task iterations have been missed when the task was paused. The task will return to firing on its normal schedule.

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Config > EAM > Agent Tasks

Available Tasks

Running and Scheduled Tasks

Task History

Name	Type	State	Repeats?	Runtime	Progress	Message
Send Project	Send Project	Scheduled	false	10/24/23, 3:00 PM	0.0%	cancel pause

Cancel

Scheduled one-shot tasks can be cancelled at any time before the task starts. Scheduled one-shot tasks include tasks that are scheduled to fire once after a delay or fire at a specific time. Running tasks can also be cancelled, but there are no guarantees about how much of the task is processed at the time of cancel. Keep in mind that cancelling a task will cause also delete the task at the same time, and it cannot be retrieved after cancel.

Agent Task - Send Project



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Agent Task - Send Project

[Watch the video](#)

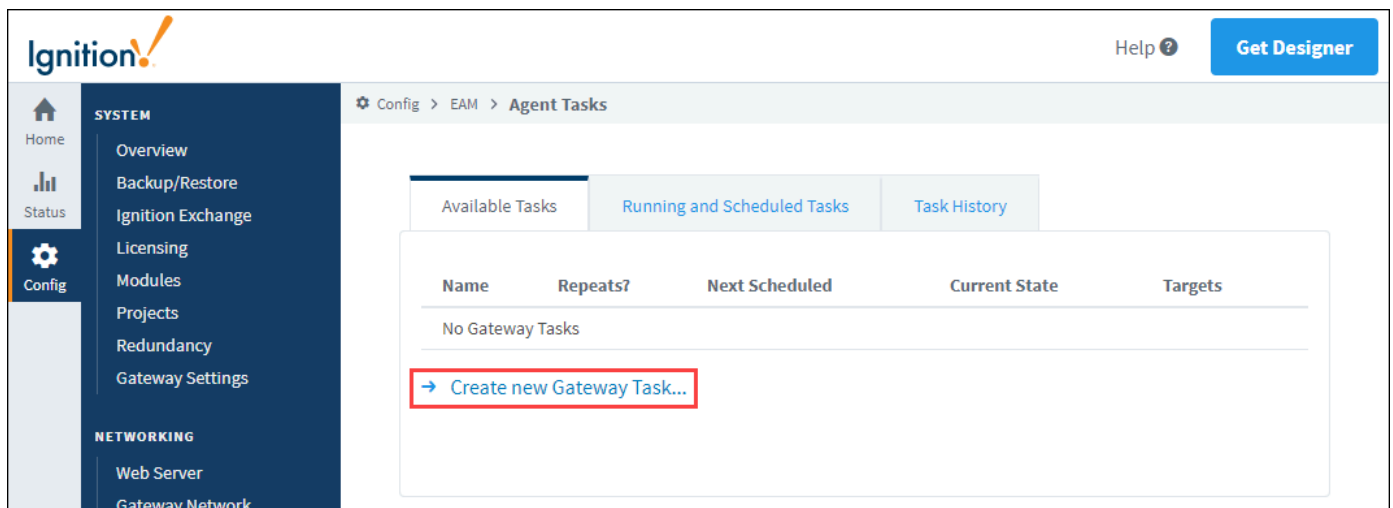
Agent Tasks have the ability to send projects and project resources from a Controller to an Agent. It is also possible to send project resources from Agent to Agent if needed.

New in 8.1.5 As of release 8.1.5, you can send projects and project resources across major Ignition platform versions, for example a Controller on 7.9 can send a project to an Agent on 8.1.

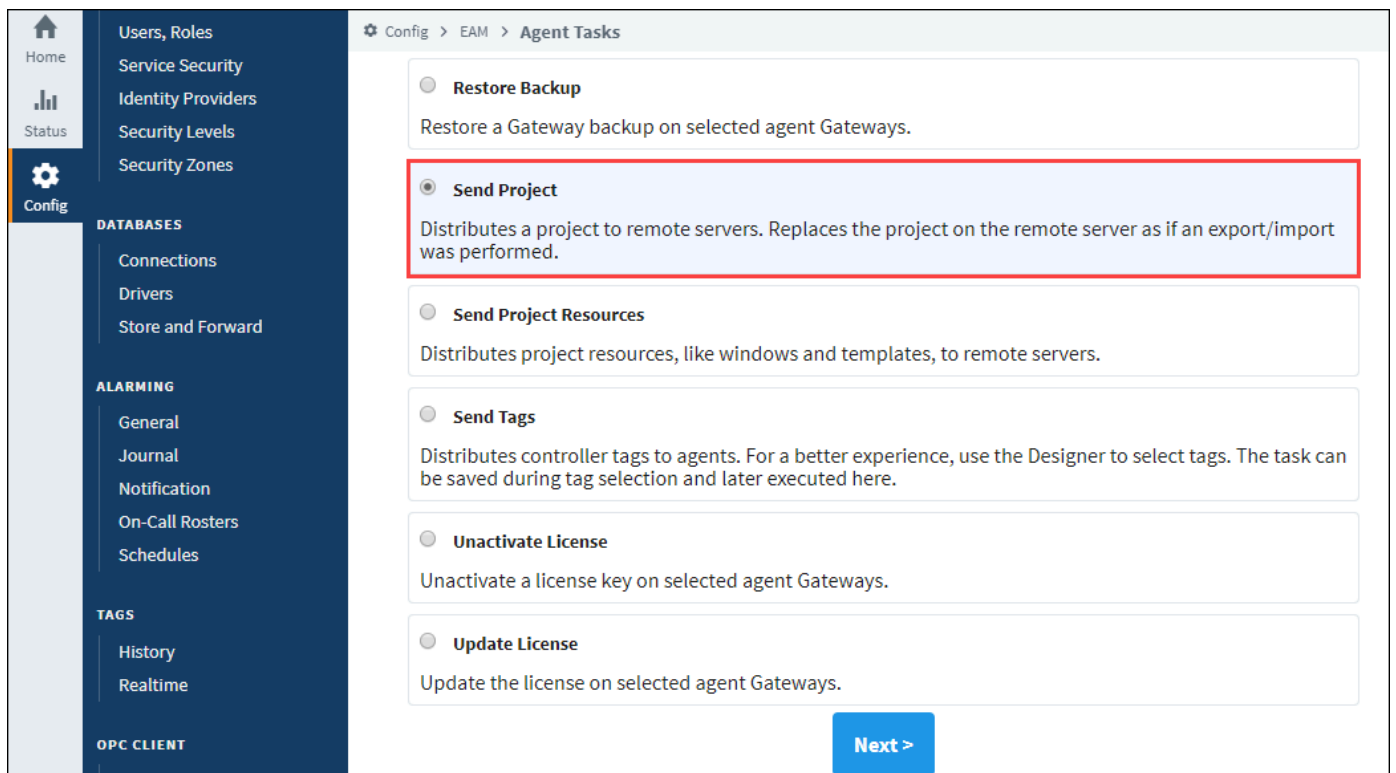
Send Project Task

On the **Controller**, under the **Config** section of the Gateway webpage, go to **Enterprise Administration > Agent Tasks**. Here you can create a Gateway Task to send a project from the Controller to an Agent.

1. Click the '**Create new Gateway Task**' link. The EAM wizard will guide you through each step of the Send Project task.



2. Not only will the Send Project send a project from the Controller to the Agent, but if the project already exists on the Agent, it will replace it. Scroll down the list of Gateway Tasks, and select **Send Project**. Click **Next**.



3. Just like with any Gateway Task, the Send Project task needs to be scheduled. There are several scheduling options available, but for this example, schedule the task to **Execute Immediately** and click **Next**.

4. Select the **Agent** where you want to send your project and click **Next**.

5. The EAM wizard knows your controller and agent configuration. It's going to prompt you to choose the machine where your project is located. In this example, the project that you want to send is located on the Controller or Gateway Source so select **Local System** and click **Next**.

[Help ?](#)
[Get Designer](#)

[Config](#) > [EAM](#) > **Agent Tasks**

Source Gateway

Choosing the 'Local system' option below will cause projects and resources to be sent directly from this machine. If an agent is chosen, the system will first retrieve projects and resources from that agent before being sent to target agents.

☒ Local system

Default Group
 No running agents found

[< Previous](#)
[Next >](#)
[Finish](#)

6. The EAM wizard will display all your projects from your local system. Select the project you want to send to your Agent, and press **Next** (If you select your Agent on the previous screen, the EAM wizard will display all your projects running on your Agent that were sent over previously from the Controller).

[Help ?](#)
[Get Designer](#)

[Config](#) > [EAM](#) > **Agent Tasks**

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Select Project

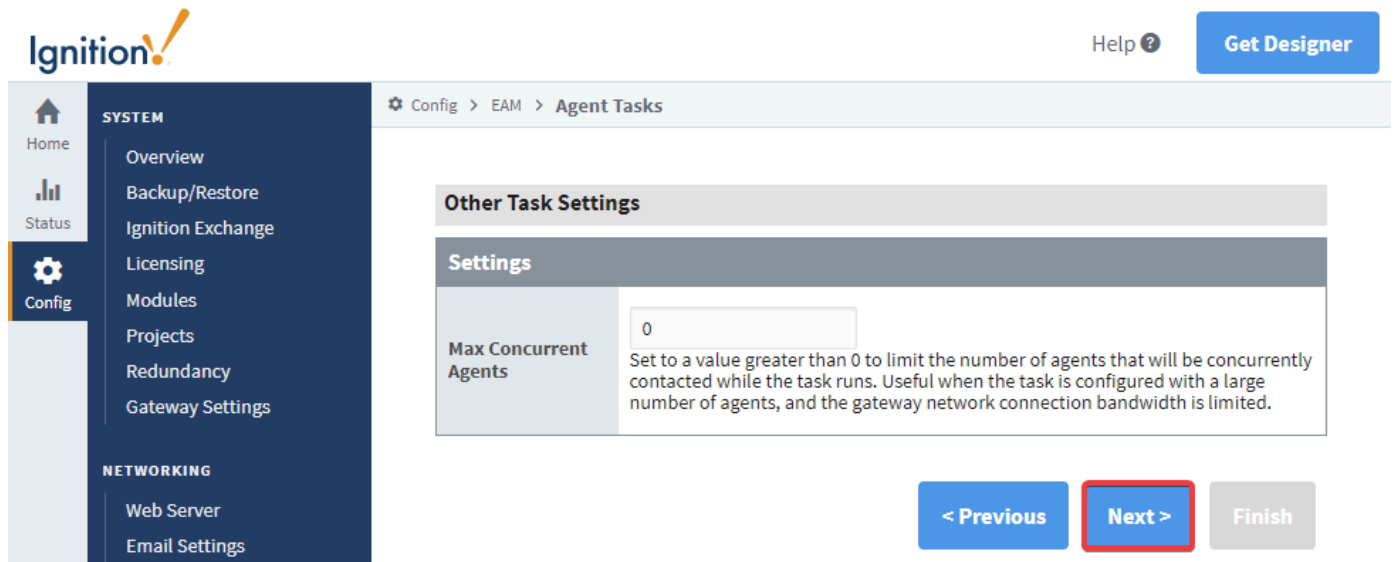
☐ samplequickstart
☒ **Project_West_1**
☐ test
☐ global

! INFO

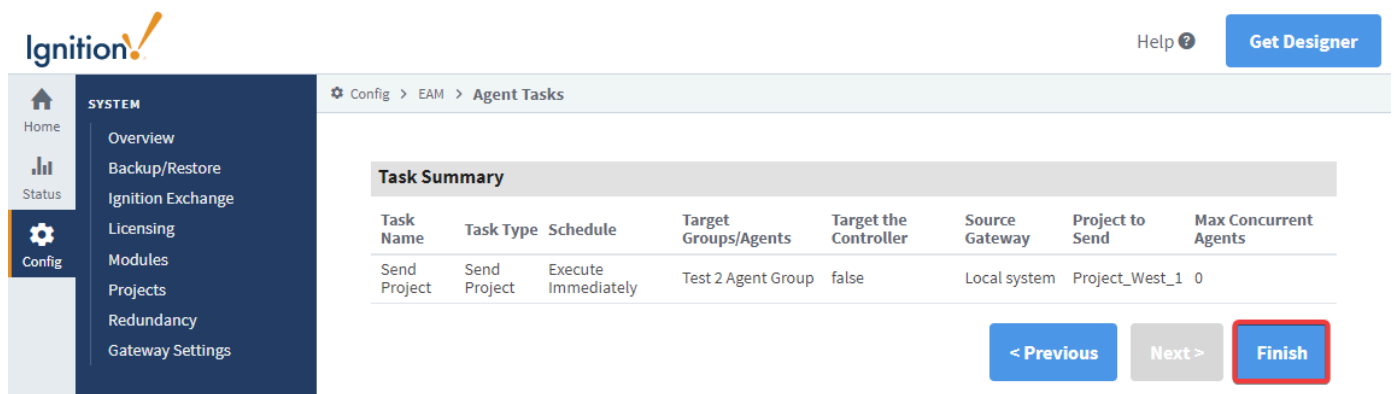
The following step is applicable only if you are running Ignition 8.1.28 or later. If you are running Ignition 8.1.27 or earlier, skip to step 8.

7. **New in 8.1.28** The EAM wizard will ask if you want to limit the number of agents that will be concurrently contacted as the task executes, which helps in situations where network

connections are weak or bandwidth is limited. For this example, we will leave the value at the default of 0, which disables the setting.



8. The EAM wizard summarizes all the information for you to review. Click **Finish**, and your project will be sent from the **Controller** to the **Agent**.



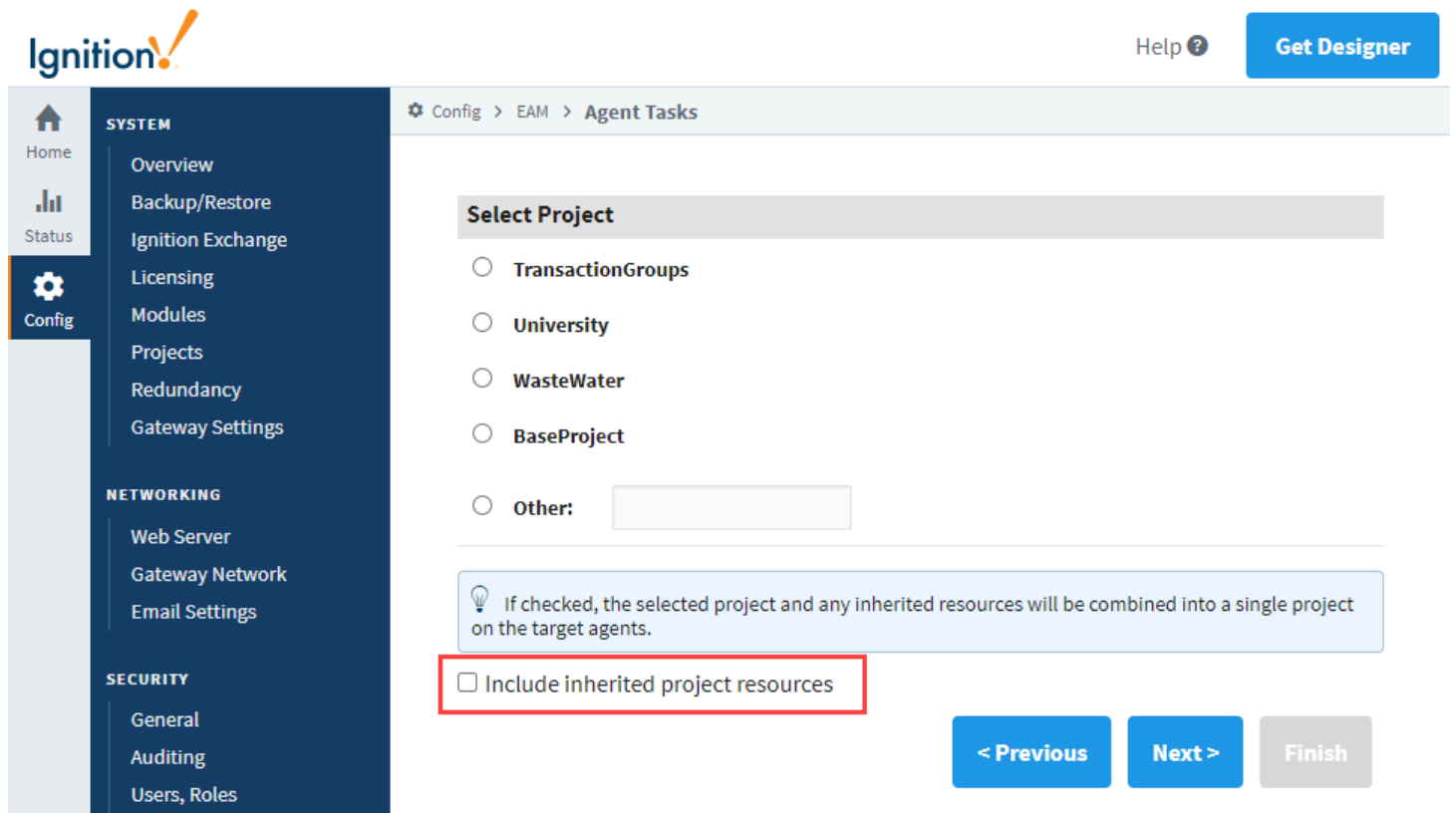
9. The EAM wizard will execute the task, the screen will refresh, and a message will pop up stating that your Send Project task was successful.

10. To verify that your project was sent, go to your **Agent**, click on the **Config** tab on the Gateway Webpage, and select **Projects**.

Inherited Resources

New in 8.1.4 An option was added to send-project task to "include inherited resources" when sending a project from the Controller to an Agent. If checked, the selected project and any inherited resources will be combined into a single project on the target agents.

A checkbox was added to the Agent Tasks, as shown in the image below, to include inherited project resources. The default is false.



Send Project Resources Task

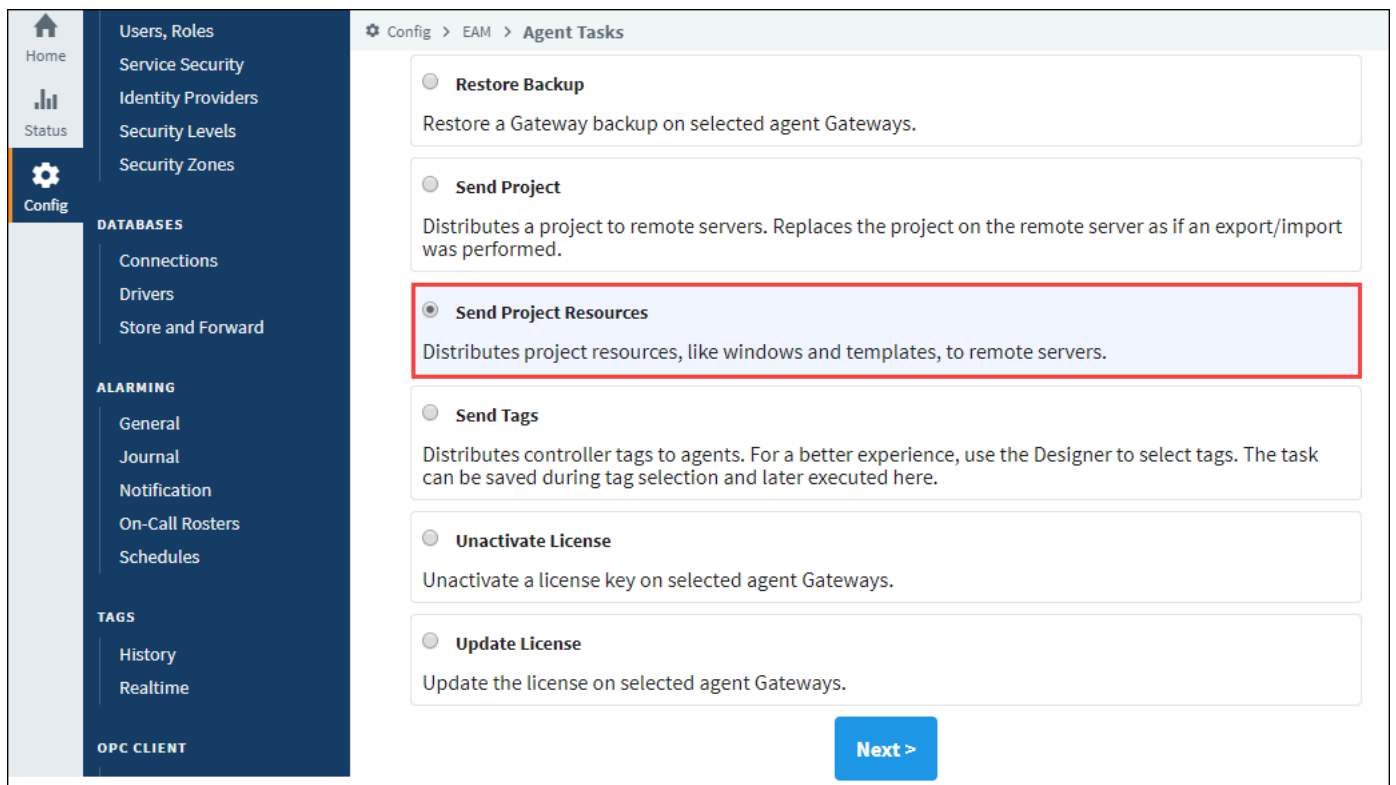
You can also send project resources, such as project templates, windows, transaction groups, pipelines and even script modules from the Controller to an Agent.

Sending Global Resources

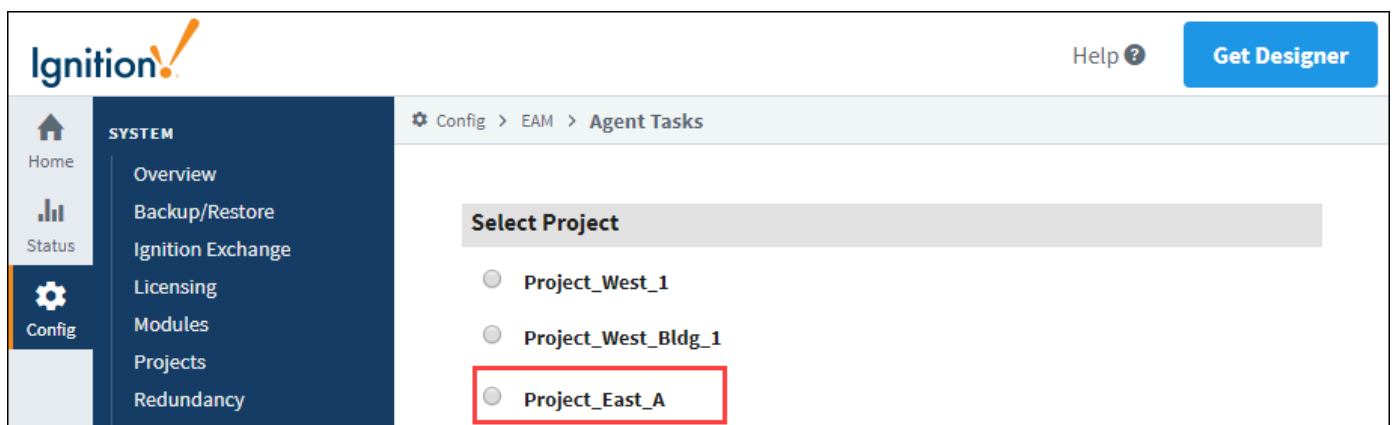
Global Resources may now be sent with the Send Project Resources Task. Resources such as Shared Scripts and Alarm Pipelines may be sent to any Agent. When selecting a destination project, Global resources may only be sent to the "Global project" on the Agent.

Sending Project Resources Example

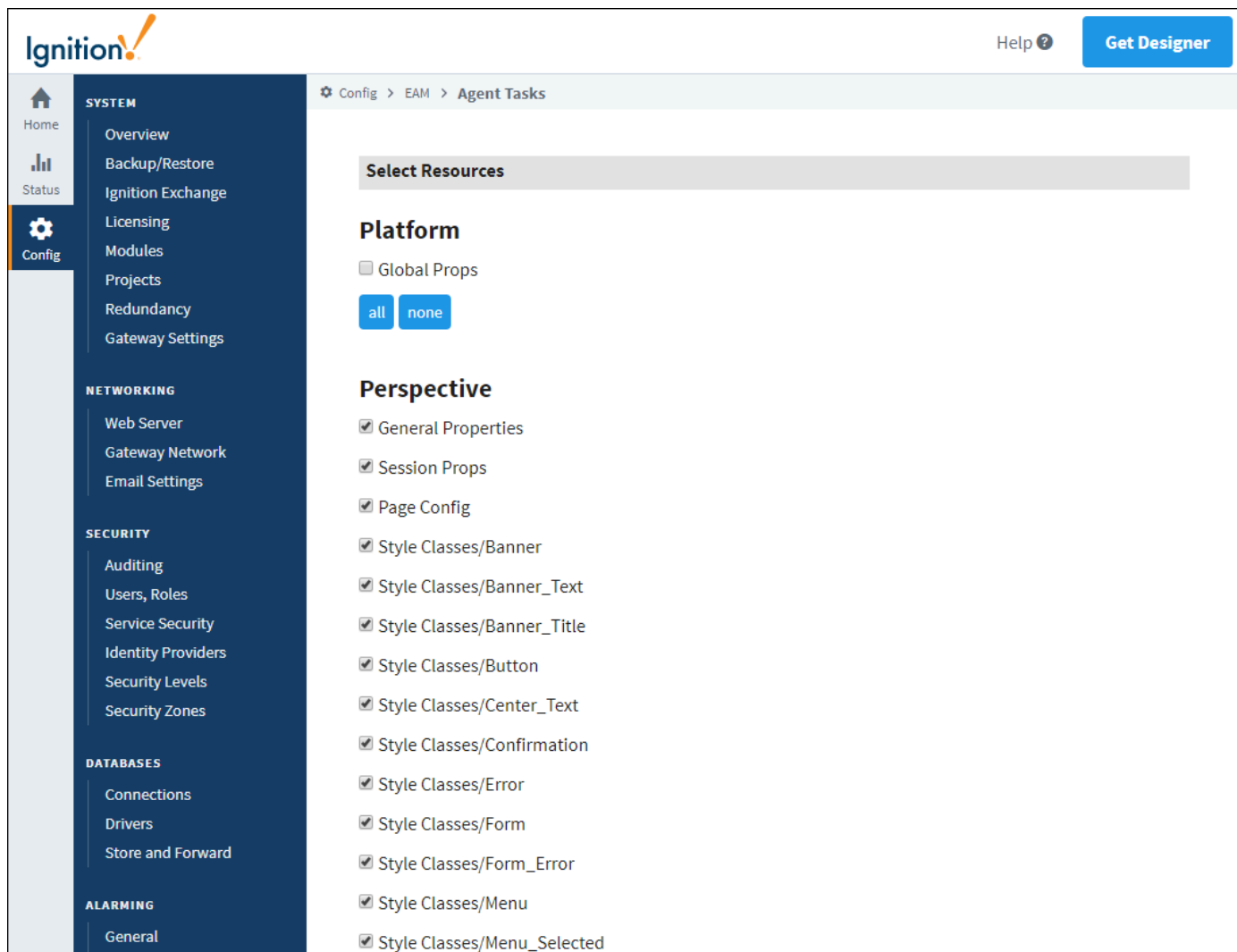
1. On the **Controller**, under the **Config** section of the Gateway Webpage, go to **Enterprise Administration > Agent Tasks**. Let's create another Gateway Task to send project resources from the Controller to the Agent.
2. Click **Create new Gateway Task**. The EAM wizard will guide you through each step of the Send Project Resources task.
3. Click on the **Send Project Resources** radio button, and click Next.



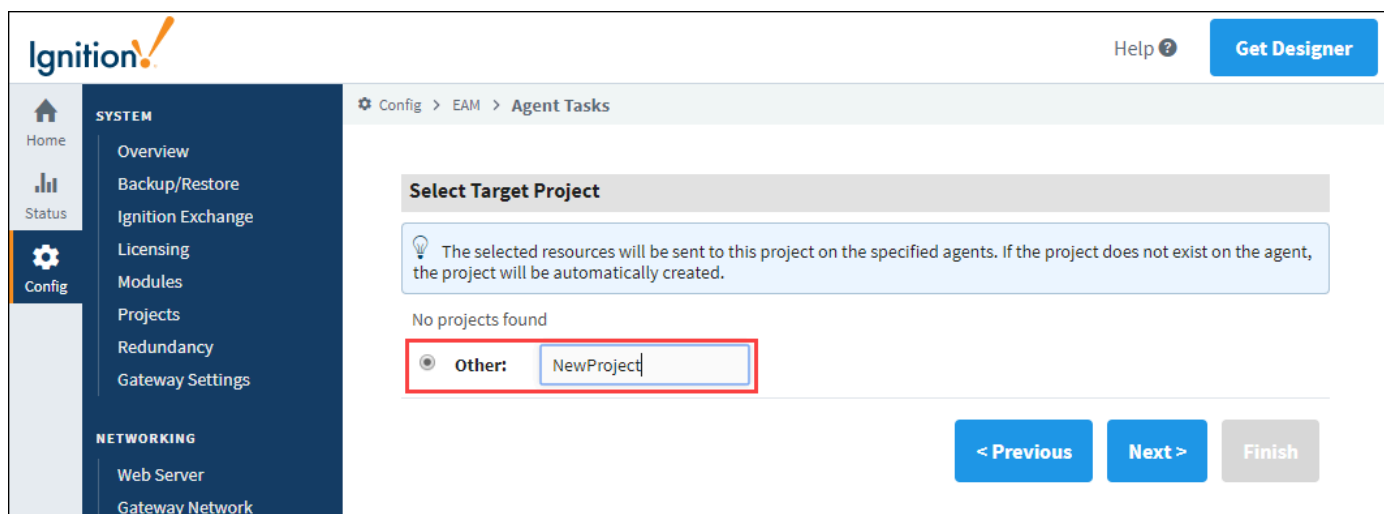
4. Schedule the Send Project Resources task to **Execute Immediately** and click **Next**.
5. Select the **Agent** on the Agent Selection window and click **Next**.
6. Select the Source Gateway/**Local System** where your project resources reside and click **Next**.
7. This example sends selected resources from the Training project on the Controller to the Agent. We selected **Project East**. Click **Next**.



8. You can see all the resources inside of the Training Project. It can include templates, windows, transaction groups, pipelines and script modules. Choose whatever resources you want to send to the agent and click **Next**.



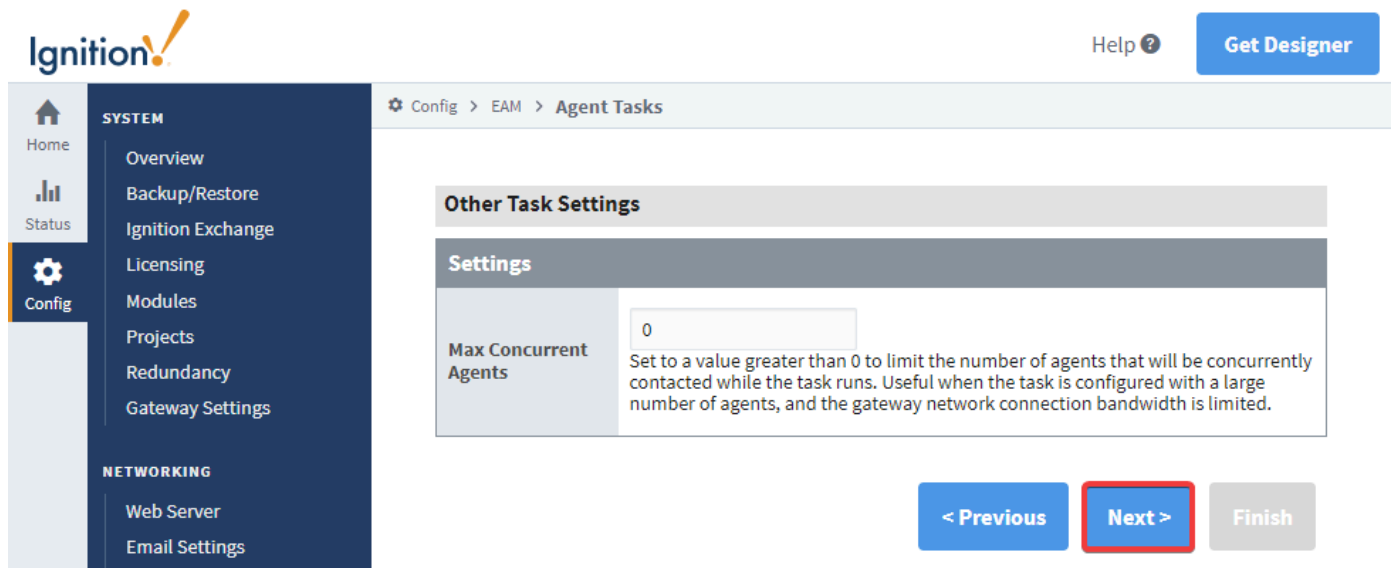
9. You have the option of either merging the project resources into an existing project or creating a new project on the Agent. In this example, let's create a new project. Select **Other** and enter a new project name. Click **Next**.



i NOTE

The following step is applicable only if you are running Ignition 8.1.28 or later. If you are running Ignition 8.1.27 or earlier, skip to step 11.

10. **New in 8.1.28** The EAM Wizard will ask if you want to limit the number of agents that will be concurrently contacted as the task executes, which helps in situations where network connections are weak or bandwidth is limited. For this example, we will leave the value at the default of 0, which disables the setting, then click **Next**.



11. The EAM wizard summarizes all the information for you to review. Click **Finish**.
12. The Gateway Task for Send Project Resources will execute, the screen will refresh, and a message will appear stating that the task was successful.
13. To verify that the Training project resources were sent, go to your **Agent**, click on the **Config** tab on the Gateway webpage, and **select Projects**. You can see in this example that **NewProject** was created by the EAM controller. If you don't see your new project, refresh the screen by clicking **Projects**.

Once your project and project resources are sent to the Agent, you need to complete the installation of your project. You need to set up your authentication profile, database, and Tag providers. Once this is completed, you are ready to use the project and project resources on your Agent.

Agent Task - Send Tags

The Controller can send tags from one or more Tag Providers on the Controller to Agents. It is also possible to configure remote Tag Providers on the Controller to connect to a source Agent. This setup allows indirectly sending tags from Agent to Agent as the source Agent tags can now be sent from the remote Tag Provider on the Controller to other specified Agents.

Configuring the Task from the Gateway

This task allows you to send one or more tags within a provider on the controller, to one or more agents.

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Target Tag Provider

Tags will be sent to this tag provider on remote gateways.

Tag Paths

A comma-separated list. Tags in this list (and their children) will be sent to remote gateways. For agent gateways on versions prior to 8.1.39, collision policy will be ignored and any existing tags will be overwritten.

Tag Collision Policy

Overwrite

The collision policy to use when importing these tags on the agent side.

< Previous

Next >

Finish

New in 8.1.8

As of 8.1.8, the Controller can be targeted by the Send Tags task, allowing the controller to create copies of tags in a separate Tag Provider. This is facilitated by selecting the "Include the controller as a target" option on the Agent Selection screen.

New in 8.1.31

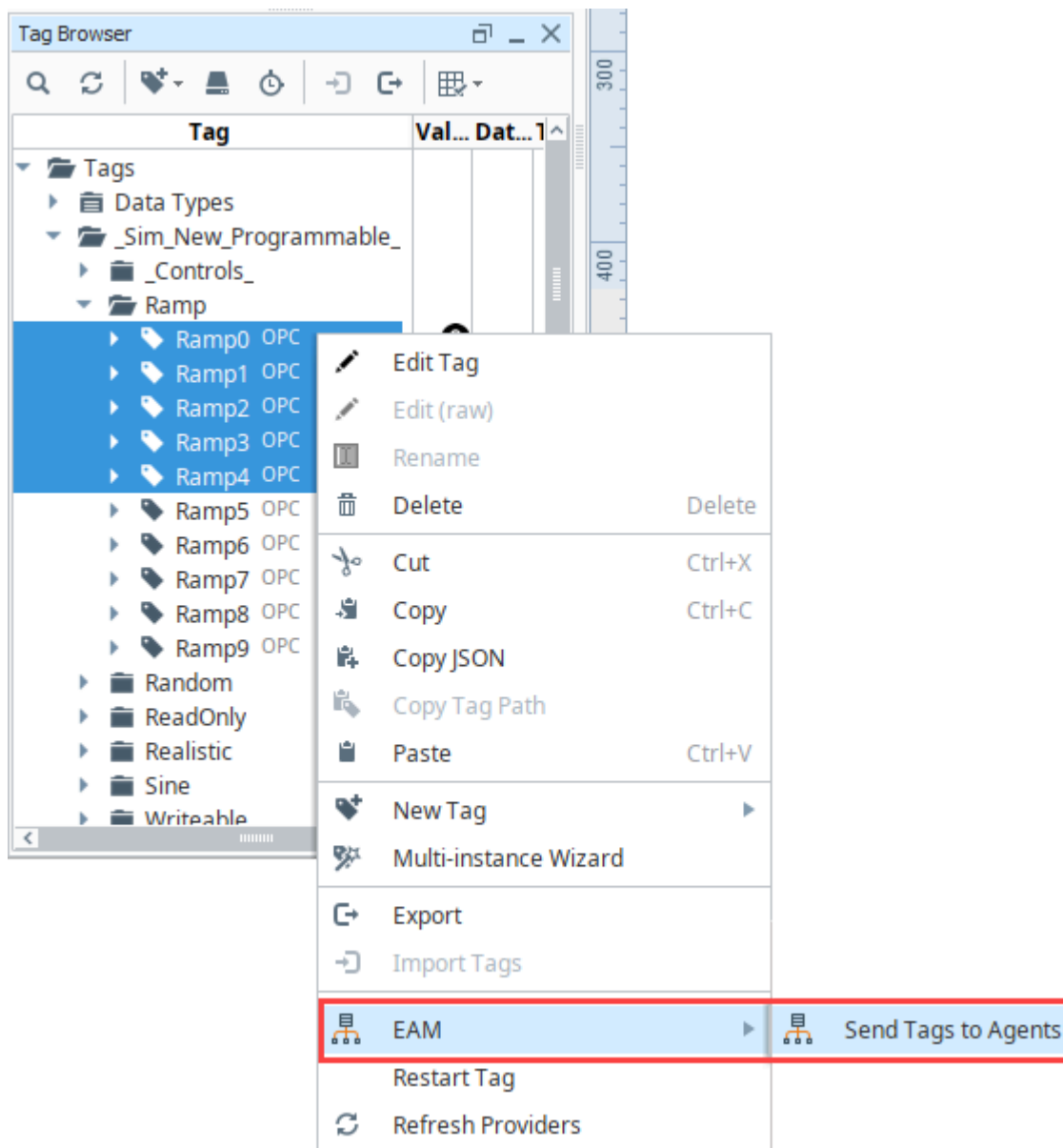
The Send Tags task will check the [Service Security](#) tag editing permissions instead of the local Tag Provider's permissions when executing the task.

New in 8.1.39

A new setting has been added to the Gateway Send Tags Task to specify a Tag Collision Policy when importing tags on the agent side. The default policy value is Overwrite, which overwrites any tags that have the same name as tags being imported. For full collision policy descriptions, see the [Collision Policy Options Table](#).

Running the Task in the Designer

Sending tags from a Controller Gateway to an Agent Gateway works a little differently than the other Agent Tasks, since the Send Tags Task can be executed from the Designer. Within the Controller's Designer, you can select any number of tags from the Tag Browser that you want to send to any number of Agents. Right-clicking on the tags brings up the context menu, which has an **EAM > Send Tags to Agents** option.



Selecting the **Send Tags to Agents** option brings up a new window, allowing you to remove any accidentally selected tags, as well as select which Agents will be receiving the tags and the Tag Provider to insert them into.

New in 8.1.39
 You can now specify a **Tag Collision Policy** using the added dropdown in the **Send Tags to Servers** window.

NOTE

If the Tag Collision Policy is set to MergeOverwrite, any tags under an existing UDT instance on a targeted agent will not have their values overwritten.

Clicking the **OK** button will begin the process of sending the tags to the Agents. Once the tags have all been sent, you see a successful confirmation popup.

While you can't initiate this task from the Gateway Webpage, you will be able to see it as a running task, as well as find it listed in your task history after running.

Send Tags to Servers

Selected tags on the local machine will be replicated to servers on the same paths as shown below. You can also drag tags directly into this window from the Tag Browser. For agent gateways on versions prior to 8.1.39, collision policy will be ignored and any existing tags on the selected gateways will be overwritten. If you have selected a tag folder, **all** tags under the folder may be overwritten if the tags already exist.

Selected Tags

_Sim_New_Programmable_/Ramp/Ramp0

_Sim_New_Programmable_/Ramp/Ramp1

_Sim_New_Programmable_/Ramp/Ramp2

_Sim_New_Programmable_/Ramp/Ramp3

remove tags

Save Task on Controller

Target the Controller

OK

Cancel

Target Tag Provider

default

Tag Collision Policy

Overwrite

Remote Agents

Default Group

Ignition-TR-0690157-SB

<

>

all

none

You may notice that if your one-shot Send Tags task fails, it will still appear on your Gateway under the **Available** tab of your Agent Tasks page, even if the **Save Task on Controller** checkbox in the Designer is disabled. This is intentional, and allows you to attempt to rerun the Send Tags task before it disappears from the list. Enabling **Save Task on Controller** will save the Send Tags task permanently.

In this case, a one-shot task refers to an agent task that is either run immediately, scheduled to run once later, or scheduled to run once after a delay.

Agent Management

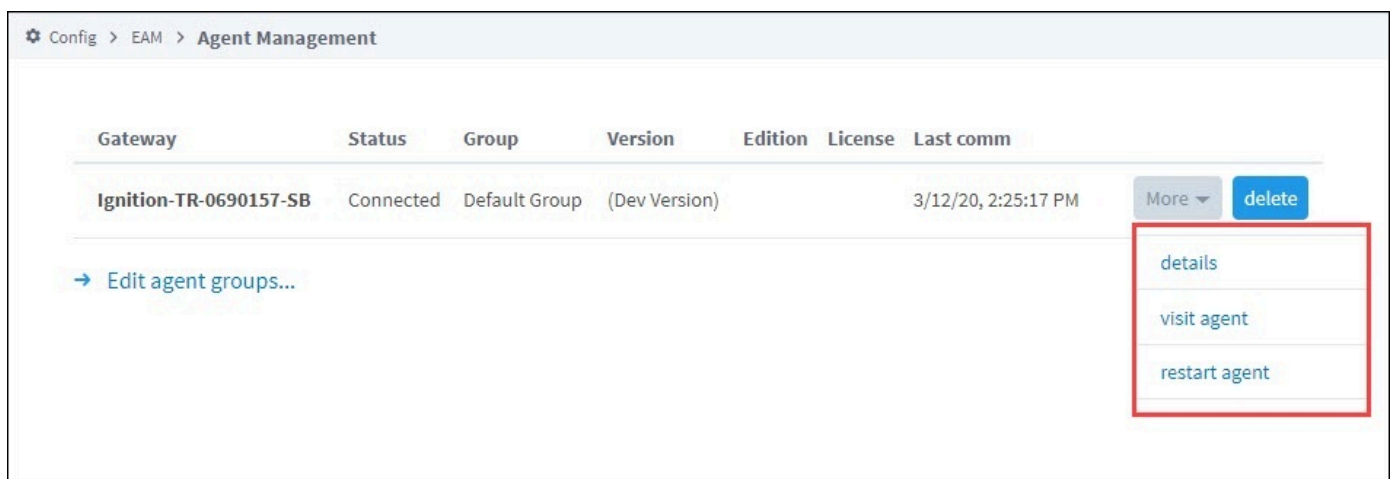
Maintaining Your Agents

There are a variety of tools available that allow you to manage certain parts of your agent Gateways that are not scheduled tasks. If your agent goes down, agent recovery makes it easy to get your agent back up and running again as quickly as possible, from backups that were taken from the Controller Gateway. In addition, you can create configuration files that can automatically set up an agent when starting the Gateway instead of having to go through the agent configuration wizard. This makes it easy to set up multiple agents.

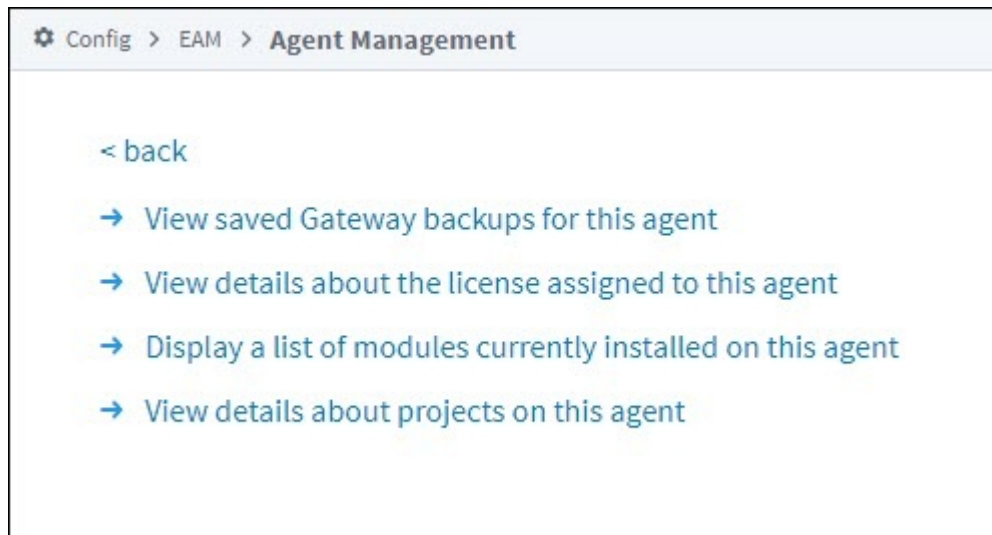
Agent Management

Once the agent is set up and connected, the **Setup** option disappears on the controller, and is replaced with a list of Enterprise Administration menu options.

1. On the controller, go to the **Config** section of the Gateway Webpage.
2. Scroll down to **Enterprise Administration > Agent Management**. You'll notice that each agent row is expandable with a **More** button on the right side which displays tasks you can perform: **Details**, **Visit Agent**, and **Restart Agent**.
 - **Details**: Takes you to an agent details screen.
 - **Visit Agent**: This is a link that takes you to the Gateway Webpage of that agent.
 - **Restart**: Creates a Gateway task that immediately restarts the agent Gateway. After clicking the link, you will be asked to confirm that you really want to restart the agent.



If you select the **details** option, you can view agent details on your Gateway backups, license, installed modules, and projects.



The following are the options in the Agent Details.

Option	Description
View Saved Gateway Backups	Opens a page that allows you to view all Gateway backups and modules that have been archived for this agent. You can schedule a Gateway task to restore a specified Gateway backup from this page by using the Restore Backup link.
View Details about the License	Opens a page which compares the agent’s current license to the license key on file at Inductive Automation. This page is handy when you have purchased new software for a license, and you need to verify that your agent’s license key is up to date. You can update the license for this agent by clicking the “Update Agent License” link at the bottom of the screen. This will schedule a Gateway task to immediately update the license on the agent.
Display a List of Installed Modules	Opens a page that displays all modules that are currently installed in the agent Gateway. The module version and the current state of each module is also displayed
View Details about Projects	Opens a page that displays all projects that currently exist on the agent. The Project Source field is populated by the controller name if the project was deployed to the agent by the controller via a Gateway task.

Agent Groups

Agents can be grouped into groups that you create. This allows you to organize agent lists by location or agent function. Agent groups can also be selected in Gateway tasks. For example, you can create an agent group for a location that collects backups every night at 3AM. Any new agent that is added to the group will automatically be included when the Gateway tasks executes.

1. To edit and create agent groups, go to the **Config** section on the Gateway Webpage.
2. Scroll down to **Enterprise Administration > Agent Management**, and click **Edit agent groups** at the bottom of the page.
3. To assign an agent to a group, check the checkbox on the left side next to the agent name. Then locate the agent groups dropdown on the right side next to the **Move selected Agents to** link. Select the new group from the dropdown.
4. Then click the **Move selected Agents to** link to move the agents, and click **Save**.

Config > EAM > Agent Management

< back

Default Group ☐ check/uncheck all

☒ Ignition-ubuntu

☐ Agent133

Move selected agents to Choose One

Remote ☐ check/uncheck all

No agents in group...

→ Edit group names

Save

5. From the Edit Agent Groups page, click on **Edit group names** to create new groups, edit a group name, and delete a group. If you delete a group that contains agents, the agent will be automatically reassigned to the default group.

Group Name

Test 2 Agent Group

delete

edit

Test Agent Group

delete

edit

→ Create new Group...

< Back

Agent Recovery



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Agent Recovery

[Watch the video](#)

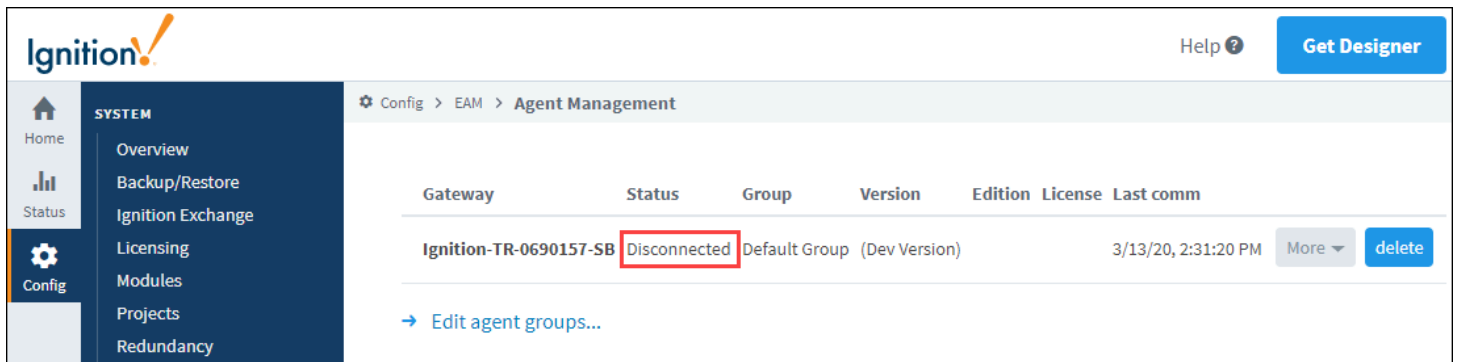
Once the Controller is up and running, you can use it to perform recoveries on Agents. For example, if one of your computers crashed that is running Ignition, you can do a fresh install from a previous backup collection that was performed on your Agent. When the recovery is complete, the Agent will immediately pick up where it left off like nothing ever happened.

BACKUP REQUIRED TO PERFORM AGENT RECOVERY

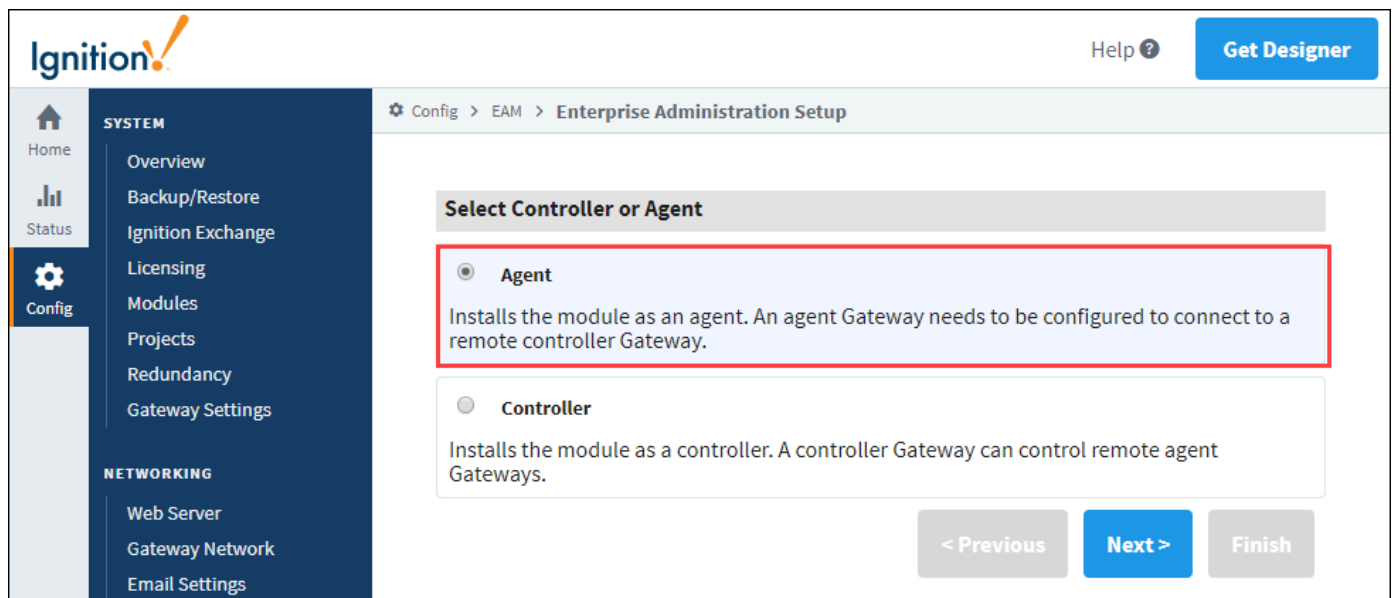
Agent recovery requires that a [backup collection](#) on the Agent was performed, otherwise, you will not be able to use this procedure to recover your Agent's instance of Ignition.

Perform an Agent Recovery

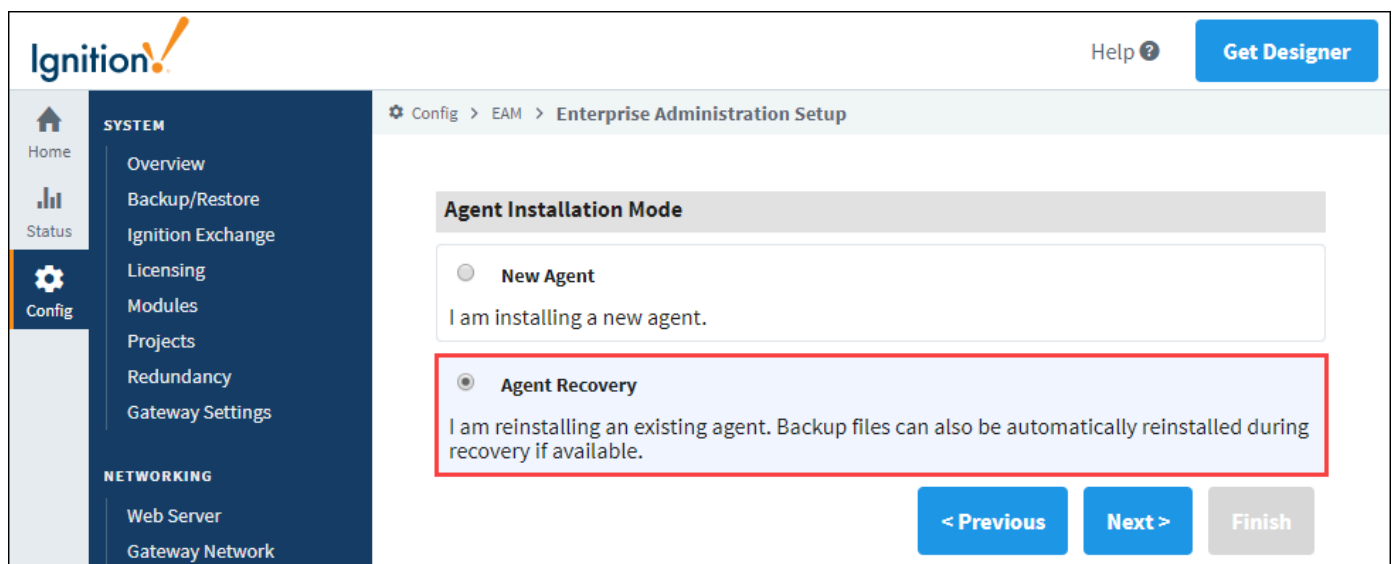
Let's assume that the Agent computer crashed. To check the status, go to your **Controller**, navigate to **Enterprise Administration > Agent Management** and check the status of the Gateway Agent. In this example, you can see that Ignition-TR-0690157-SB is disconnected.

The screenshot shows the Ignition software interface. On the left is a dark blue sidebar with the Ignition logo at the top and a menu with options: Home, Status, Config, and SYSTEM. The SYSTEM menu is expanded, showing sub-options: Overview, Backup/Restore, Ignition Exchange, Licensing, Modules, Projects, and Redundancy. The main content area has a breadcrumb trail: Config > EAM > Agent Management. Below this is a table with columns: Gateway, Status, Group, Version, Edition, License, and Last comm. The table contains one row for 'Ignition-TR-0690157-SB' with a status of 'Disconnected' (highlighted with a red box), 'Default Group', '(Dev Version)', and a timestamp '3/13/20, 2:31:20 PM'. There are 'More' and 'delete' buttons for this entry. Below the table is a link: '→ Edit agent groups...'. In the top right corner of the interface, there is a 'Help' icon and a 'Get Designer' button.

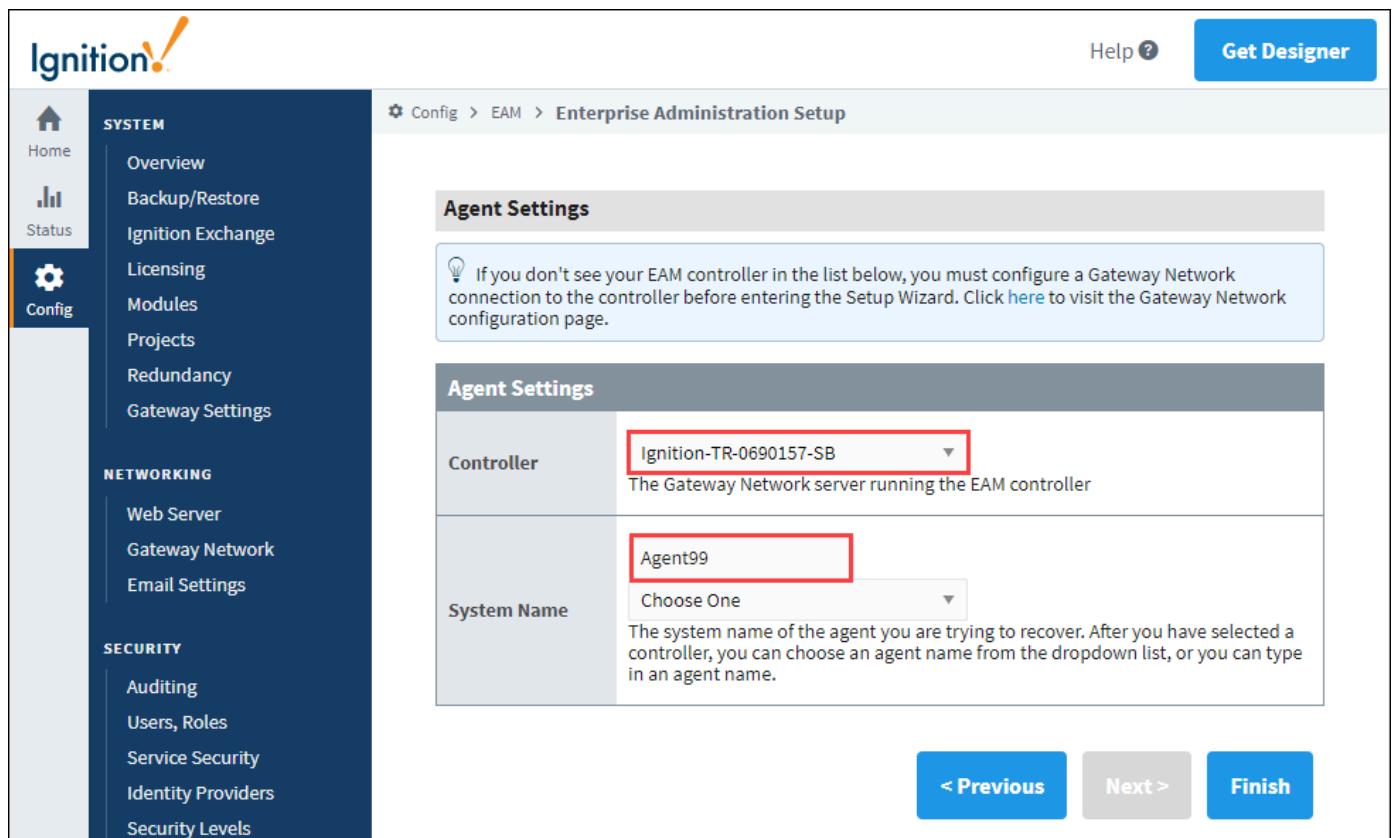
1. On the **Agent** computer, install Ignition and make sure the EAM Module is also installed (**it is added by default** if you use the 'Typical' selection during installation).
2. On your **Agent**, go to the **Configure** tab and select the **Enterprise Administration Setup**. The EAM wizard will walk you through each step of the Agent recovery process. Select **Agent** to configure and click **Next**.



3. In order to continue with the Agent Recovery procedure, you must have a backup collection of the Agent. When you initially set up your Agent on the Controller, you created an **Archive Path** where the backup files are stored. EAM will automatically know where to retrieve the backup files. Click on **Agent Recovery** and click **Next**.



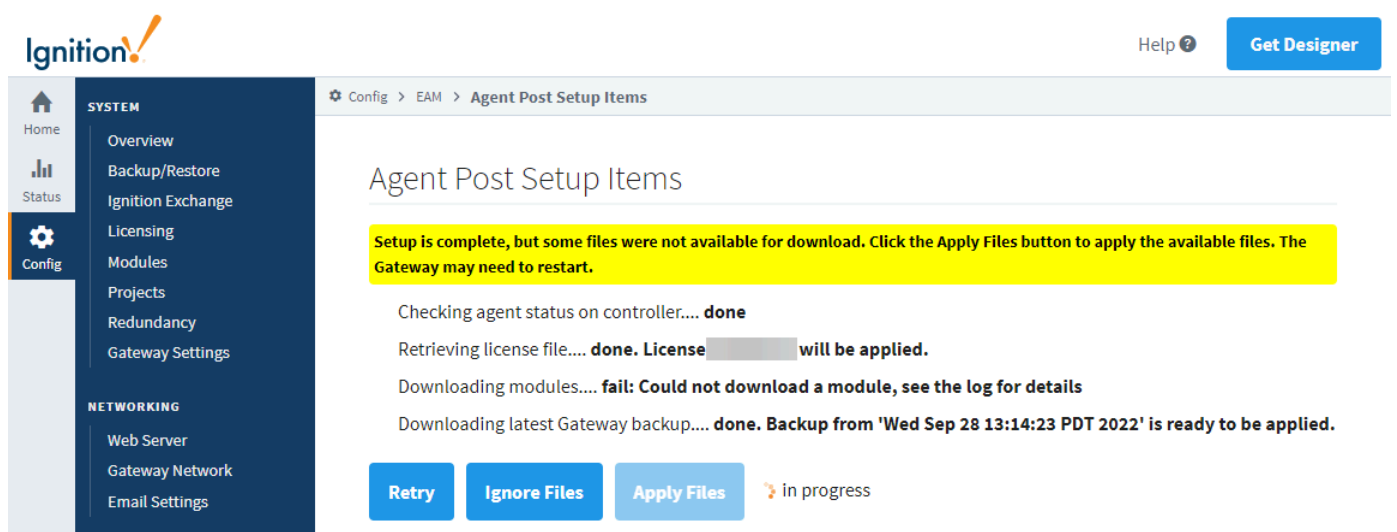
4. Since Agent99 existed previously, the EAM remembered the Agent's prior settings. Select from the list of names in the dropdown lists for the Controller and Agent (or you can type it in). Click **Finish**.



5. The Agent will go through a series of steps:

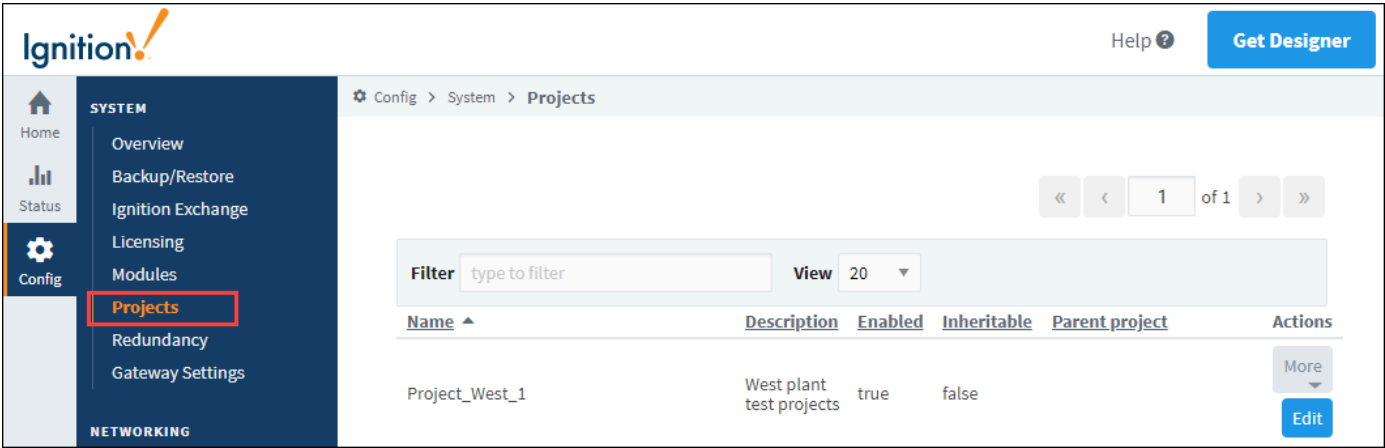
- i. Check the Agent status on the Controller.
- ii. Retrieve the Ignition license file.
- iii. Download Ignition modules
- iv. Copy the latest Gateway backup to the Agent.

When you get a message that the setup is complete, press **Apply Files**. Once you press the Apply Files button, you will see a message stating the Gateway is starting. It will take about a minute to bring the Gateway up.

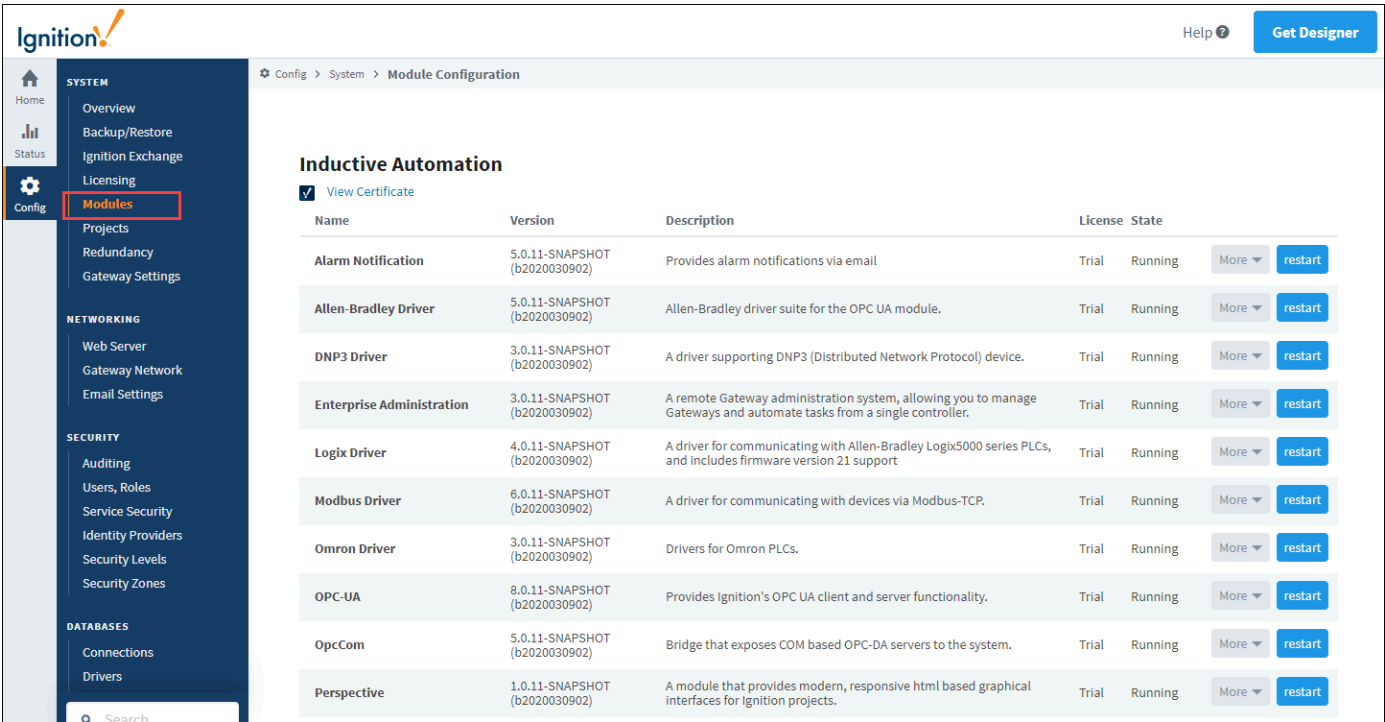


Once the files have been applied, you will see a message stating the Gateway is starting. It will take about a minute to bring the Gateway up.

6. The screen will refresh once the Gateway is up and running. Go to the **Config** tab of the the Gateway webpage, and click on **Projects**. You will notice that all your projects were recovered.



7. It's also a good idea to verify that all your modules are installed and running by going to the **Config** tab, and selecting **Modules**.



Automated Agent Installation

The EAM allows an agent Gateway to be automatically configured from text files when the Gateway is started. This capability is enormously useful when installing multiple agent Gateways in your network, as it saves time from manually making this configurations. To automatically configure an agent or controller, you must add two files to the Ignition /data folder before startup: `init.properties` and `eam-install.properties`. Example contents are below. After the files have been read, they are renamed to `.init.properties.bak` and `.eam-install.properties.bak`. A typical application for this capability would be a script that creates the init files and adds them to an ignition.zip that is distributed to many systems.

For both types of files, settings omitted from the file will use their default values.

NOTE

When using our [Docker image](#), variables defined in docker environment variables will take precedent over the settings listed on this page.

init.properties

Multiple outgoing Gateway Network connection settings are managed by numbering each setting. The first set of connection settings must contain “0” in the setting name after “gateway.network.” For example, you can create two outgoing connections with different IP addresses like so:

Gateway Network Addresses

```
gateway.network.0.Host=10.20.11.18
gateway.network.1.Host=10.20.15.23
```

Property Name	Description
<code>SystemName</code>	Sets the Gateway name in Gateway Settings.
<code>AutoDetectLocal</code>	Set to true to check the first found network interface to determine local IP address. Set to false to manually set the IP address of the Gateway. Expects <code>true</code> or <code>false</code> .
<code>LocalInterface</code>	Manually sets the IP address of the Gateway. If set, the <code>AutoDetectLocal</code> setting must be set to false.
<code>UseSSL</code>	Set to true to force all connecting web browsers to connect to the Gateway over SSL. Expects <code>true</code> or <code>false</code> .
<code>gateway.network.#.PingRate</code>	How often in milliseconds to ping the remote machine.
<code>gateway.network.#.Enabled</code>	Set to false to disable the gateway connection after it is created. Expects <code>true</code> or <code>false</code> .
<code>gateway.network.#.Host</code>	The address of the remote machine.
<code>gateway.network.#.Port</code>	The port of the remote machine.
<code>gateway.network.#.EnableSSL</code>	Set to true to use SSL to connect to the remote machine. You must change the Port setting to use the Gateway Network SSL port (which defaults to port 8060). Expects <code>true</code> or <code>false</code> .
<code>gateway.network.#.PingTimeout</code>	How long in milliseconds to wait for a ping request to be processed by the remote machine.
<code>gateway.network.#.PingMaxMissed</code>	The number of failed pings allowed before the connection state is set to Faulted.
<code>gateway.network.#.EnableWebSockets</code>	Set to true to allow faster asynchronous communications with the remote machine. Expects <code>true</code> or <code>false</code> .

Property Name	Description
<code>gateway.network.#.WebsocketTimeout</code>	How long to wait in milliseconds for a message to be processed over the web socket.
<code>gateway.network.#.HttpConnectTimeout</code>	How long to wait in milliseconds to initially connect the http data channel.
<code>gateway.network.#.HttpReadTimeout</code>	How long to wait in milliseconds to read data from the http data channel.

New in 8.1.32 Configurable Gateway Network general configuration settings are listed below with their default values.

Property Name	Description
<code>gateway.network.enabled=true</code>	Set to false to disable using the Gateway Network.
<code>gateway.network.requiresssl=true</code>	Determines if only connections using SSL to encrypt traffic are allowed. This setting applies to incoming connections.
<code>gateway.network.requireTwoWayAuth=false</code>	Enforces two-way SSL authentication. If true, you will need to install the remote machine's certificate on this machine, in addition to manual approval of this machine's certificate on the remote machine.
<code>gateway.network.sendThreads=5</code>	The maximum number of threads that will be used to upload messages. Applies to outgoing connections.
<code>gateway.network.receiveThreads=5</code>	The maximum number of threads that will be used to download messages. Applies to outgoing connections.
<code>gateway.network.receiveMax=100</code>	Number of received messages that can be held until they are processed by the local system. When this capacity is exceeded, new messages are rejected and errors are reported to the remote gateway. Applies to incoming connections.
<code>gateway.network.allowIncoming=true</code>	If false, only outward connections defined on this Gateway will be allowed.

Property Name	Description
<code>gateway.network.securitypolicy=ApprovedOnly</code>	Dictates what connections are allowed. By default, incoming connections must be approved from the Incoming Connections page.
<code>gateway.network.whitelist=</code>	If connection policy is set to Specified List, this is the comma-separated list of Gateway names which will be allowed to connect.
<code>gateway.network.allowedproxyhops=0</code>	The maximum number of proxy hops which could be used to reach the destination Gateway. Any number less than or equal to zero is equivalent to no proxy hops allowed.
<code>gateway.network.websocketSessionIdleTimeout=30000</code>	The maximum number of milliseconds that a websocket is allowed to remain idle before it is closed. This value should always be set higher than outgoing connection ping rates to avoid premature connection termination.
<code>gateway.network.incomingPingRate=5000</code>	How often, in milliseconds, to send a ping to a remote machine. This will allow an incoming connection's health to be monitored. Set to 0 to disable pings sent from an incoming connection.
<code>gateway.network.incomingPingTimeout=300</code>	The maximum time, in milliseconds, allowed for a ping response. Pings that time out are counted as missed pings.

Property Name	Description
<code>gateway.network.incomingPingMaxMissed=12</code>	The amount of missed pings that will force an incoming connection to be considered faulted.

Example init.properties

init.properties

```
SystemName=Agent1
AutoDetectLocal=false
LocalInterface=10.20.11.17
UseSSL=false
gateway.network.0.PingRate=1000
gateway.network.0.Enabled=true
gateway.network.0.Host=10.20.11.18
gateway.network.0.Port=8088
gateway.network.0.EnableSSL=false
gateway.network.0.PingTimeout=300
gateway.network.0.PingMaxMissed=30
gateway.network.0.EnableWebSockets=true
gateway.network.0.WebsocketTimeout=10000
gateway.network.0.HttpConnectTimeout=10000
gateway.network.0.HttpReadTimeout=60000
```

eam-install.properties

Before creating an eam-install.properties file, it's important to understand that each property is prepended by a key that determines the category for the property. The three categories are listed below.

- `agent.`: Indicates the property pertains to an agent.
- `controller.`: Indicates the property pertains to a controller.
- `setup.`: Generic key used for settings that don't uniquely apply to either agents or controller.

Property Name	Description
<code>setup.installSelection</code>	Determines what the gateway will be configured as. Expects either <code>Agent</code> or <code>Controller</code> .
<code>agent.controllerServerName</code>	Sets the name of the gateway in the Gateway Network that will be the controller for this gateway.
<code>agent.sendStatsInterval</code>	The amount in seconds that the agent will wait before sending new metrics and configuration data to the controller. If there are currently no interesting metrics or updated config data to send, the agent will not send any data.
<code>controller.archivePath</code>	When <code>controller.archivePath</code> is set to <code>Manual</code> , this property defines the path to use.
<code>controller.archiveLocation</code>	Determines if the archive location should be set manually, or if the system should automatically pick a location. Expects a value of either <code>Manual</code> or <code>Automatic</code> .
<code>controller.lowDiskThresholdMB</code>	Sets the low disk space threshold property. Expects an integer value.
<code>controller.dataSource</code>	Specifies which database connection the controller should use to record agent history. Note: The database specified by this property must first exist on the gateway for this property to do anything. If the specified database does not exist, then the setting will default to "none".

Example Agent Configuration

```
eam-install.properties
```

```
setup.installSelection=Agent
agent.controllerServerName=Ubuntu-Controller
agent.sendStatsInterval=5
```

Example Controller Configuration

eam-install.properties

```
setup.installSelection=Controller  
controller.archivePath=path/to my backups  
controller.archiveLocation=Manual  
controller.lowDiskThresholdMB=1234  
controller.dataSource=MyDB
```

License Management



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License Management

[Watch the video](#)

License Management

The License Management page acts as a central repository for managing Ignition licenses. You can preload a list of licenses, view details of a license as it appears on file at Inductive Automation, assign licenses to individual agents, and bulk assign free licenses in the Activate License Gateway task. To visit the License Management page, navigate to **Config** section of the Gateway webpage, and go to **Enterprise Administration > License Management**.

Agent License Reporting

Whenever an approved agent contacts the controller, it sends its license information. The License Management page is automatically updated whenever new or updated license information is received from an agent. This means that even if you install a license directly in an agent Gateway, the license installation will still be known to the controller.

Ignition! Help ? Get Designer

Config > EAM > Managed License Keys

License Key	Assigned Agent		
BM7-TP5	Unassigned	More ▾	delete
TRA-IN8	Ignition-TR-0690157-SB	More ▾	delete

→ Add Licenses

License Details

You can click on **More** (on the right side of each license) and select **details** to view modules and versions currently assigned to the license. Note that the information displayed on the License Detail page reflects the license as it appears on file at Inductive Automation. This functionality allows you to confirm exactly which modules and versions are currently assigned to a license.

Activate and Unactivate a License

The controller acts as a license proxy on behalf of agents. This means that only the controller requires Internet access to the Inductive Automation licensing servers. Whenever you use the License Management page or a Gateway task to assign, update or unactivate a license, the controller will request system information from the agent and forward the information to the licensing servers. If performing an activation, the activation data is sent back to the agent after the data is received from the licensing servers.

Preloading Licenses

You can preload a list of license keys in the controller. After the license list is loaded, you can individually assign licenses to agents, or assign all free licenses to agents in one step via the Activate License task.

1. To preload a license list, navigate to the **Enterprise Administration > License Management** page on the Gateway Webpage.
2. Click the **Add Licenses** link.
3. Enter the license keys. Use commas to separate the licenses. The formatting is shown below.

The screenshot shows a web interface for managing license keys. At the top, there is a breadcrumb navigation: 'Config > EAM > Managed License Keys'. Below this, a text instruction reads: 'Use commas to separate licenses. Letters do not need to be capitalized.' Underneath the instruction is a large text input field with a red border. Inside the field, the text 'AAA-AAA, TRN-Rmm, ABC-123' is entered. Below the input field is a blue button with the word 'Add' in white text.

4. Click the **Add** button to save preloaded licenses.

Deleting Licenses

You can remove unused licenses from the License Management page, but only if the license is not currently assigned to any agent. If you want to delete an assigned license, click the **unactivate** link on the right side of the license. After the Assigned Agent field changes to “Unassigned,” you can delete the license.

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Config > EAM > Managed License Keys

License Key	Assigned Agent	
BM7-TP5	Unassigned	More ▾ delete
TRA-IN8	Ignition-TR-0690157-SB	More ▾ delete

→ Add Licenses

details

unactivate

Remote Upgrade

Agents can be upgraded remotely from the Controller. This involves uploading the required binary files for the desired architecture as a task. Once the files have been saved, the remote upgrade procedure may be initiated. Both the Agent to be upgraded, as well as the Controller, must be on 7.9.2+ to execute a Remote Upgrade.

CAUTION

If attempting to update an Agent from Ignition 7.9 to Ignition 8, the Controller should itself be upgraded to Ignition 8 first.

Upgrading Redundant Agents

When upgrading a redundant pair of agents, it is recommended that the backup be upgraded before the master.

Remote Agent Upgrade Task

This task will upgrade the agent(s) upon execution.

This task takes zipped binary files for a version of Ignition, and saves them for upgrades later. Multiple files may be saved for different versions and architectures. Additional modules may be included, allowing for upgrades of **non-standard modules** to occur simultaneously.

NOTE

The zipped binary files differ from the installers. The binary files may be found on the Ignition downloads page, listed below the installers.

Ignition

Version Archive

Strategic Partner Modules

Ignition Version:

8.0.9

STABLE ▾

Ignition Version 8.0.9

STABLE

Released February 18, 2020
[System Requirements](#)
[Release Notes](#)

System Installers

(includes all modules)

Microsoft Windows

Version

Checksum

Ignition - Windows Installer 64-bit (858MB)

8.0.9.20200218-1154

[sha-256](#)

Ignition - Windows 64-bit zip (842MB)

8.0.9.20200218-1154

[sha-256](#)

Ignition Edge - Windows 64-bit zip (754MB)

8.0.9.20200218-1154

[sha-256](#)

Linux

Version

Checksum

Ignition - Linux Installer 64-bit (848MB)

8.0.9.20200218-1154

[sha-256](#)

Ignition - Linux 64-bit zip (839MB)

8.0.9.20200218-1154

[sha-256](#)

Ignition Edge - Linux 64-bit zip (753MB)

8.0.9.20200218-1154

[sha-256](#)

macOS

Version

Checksum

Ignition - macOS Installer (829MB)

8.0.9.20200218-1154

[sha-256](#)

Ignition - macOS zip (825MB)

8.0.9.20200218-1154

[sha-256](#)

Ignition Edge - OSX zip (753MB)

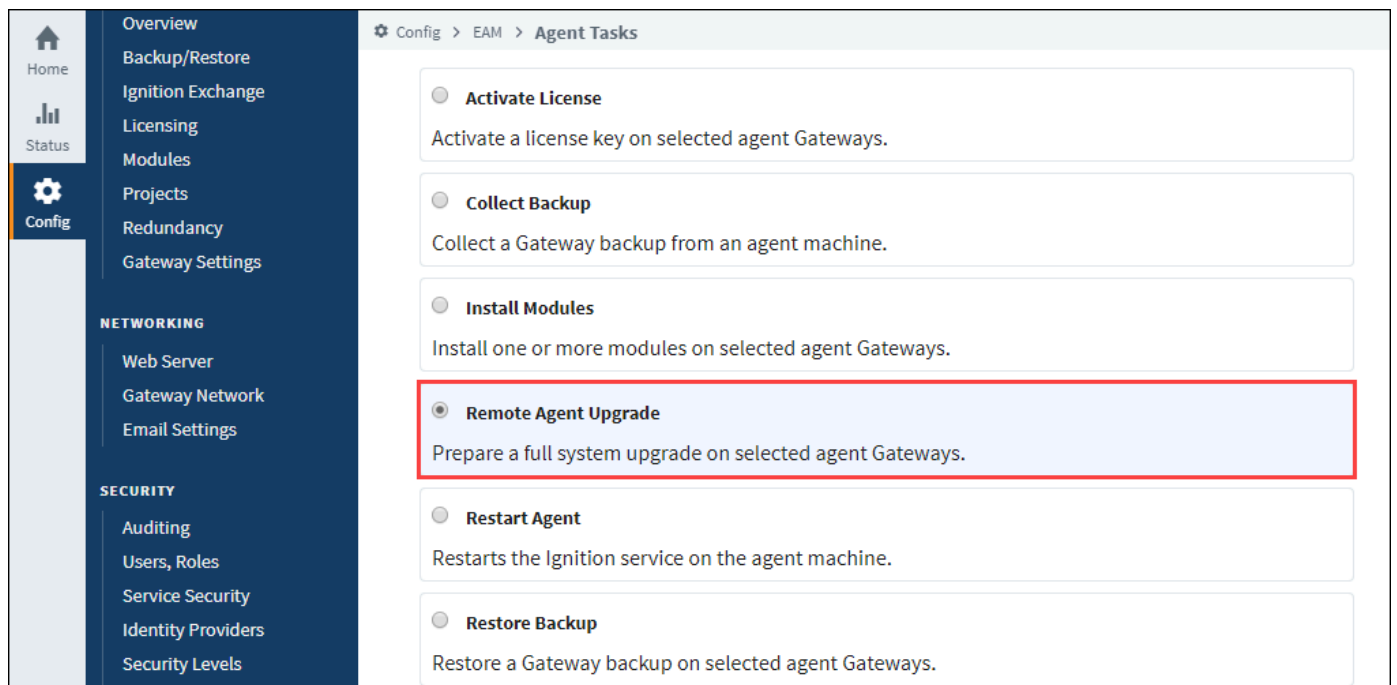
8.0.9.20200218-1154

[sha-256](#)

This task only needs to be executed once per version/architecture: multiple upgrades may be performed from the same files.

Creating the Remote Agent Upgrade Task

1. From the Controller, navigate to **Config > Enterprise Administration > Agent Tasks**.
2. Click **Create new Gateway Task**.
3. Select the **Remote Agent Upgrade** task from the list of tasks, and then click **Next**.



4. On the **Task Scheduling** page, give the task a name. Like all tasks, you will specify either a group, or several agents, so providing a useful name will make the task easier to identify later. As for the execution, select **Execute Immediately** to have the task run immediately.
5. Next, select the Agent you want to upgrade. Click **Next**.
6. Select how you want to upgrade your controller. You can either choose to upload the Ignition upgrade zip files to dispatch to connected agents, or specify an alternate URL that the agent will use to download the required upgrade zip files. In this example, we will choose **Upload to controller**. Once you have made your choice, click **Next**.

Upgrade Zip Source

☒ **Upload to controller**
Upload Ignition upgrade zip files to the controller. The upgrade zip files will be dispatched to agents over the gateway network.

☐ **Use alternate URLs**
Specify alternate URLs for Ignition upgrade zips. Each agent will download the required Ignition zip file directly from this address, instead of downloading the zip file over the gateway network.

[< Previous](#) [Next >](#) [Finish](#)

NOTE

The **Use alternate URLs** option is only available on Ignition version 8.1.33 or newer.

7. On the **Remote Agent Upgrade** page, click the **Choose File** button. Navigate to the file you wish to upload, and click **OK**. Note that this page will state the architecture of the Agents that were selected in the previous step. Once finished, click **Next**.

Config > EAM > Agent Tasks

All installation zips have been provided. Click Next to proceed.

Select upgrade zip files

Architecture: **Windows 64-bit**

The agents listed below require a Windows 64-bit Ignition installation .zip file. This file will be sent when this task begins at the scheduled time. The actual upgrade process will not start until you visit the EAM Remote Upgrade page and begin the upgrades.

Choose File No file chosen

Selected zip

Ignition-windows-64-8.0.9.zip [remove](#)

Agent	Status
Ignition-TR-0690157-SB	Ready for upgrade

< Previous

Next >

Finish

8. Next, select any additional modules that should be included with this Task. Modules that are not included in the typical installation, including third party modules, may be added. Click the **Choose File** button, navigate to the module, and click **OK**. This step is optional, so regardless of whether you add custom modules, click **Next** when you're ready to move on.
9. The **Task Summary** page will appear. Review the information, and click **Finish**. Because we selected **Execute Immediately** during the schedule portion, the new task will run and pass the files to the agent, and begin upgrading.

Upgrading the Agent

Once the files have been passed to the Agent, a remote upgrade may be initiated from the Controller's web interface.

As with all upgrades, it is highly recommended to take a backup of the Agent before starting the upgrade process. Information on taking a backup from an Agent can be found on the [Agent Task - Backup and Restore](#) page.

NOTE

You will not be able to use the EAM Remote Upgrade Task for agents in a Docker container. In lieu of the Remote Upgrade Task, upgrade the image the container is using.

Remotely Upgrading an Agent

1. To begin a remote system upgrade, on the Controller, navigate to the Gateway Webpage. Select **Config > Enterprise Administration > Remote Upgrades**.



2. Once the Remote Upgrades page appears, you may either click the **Upgrade** button next to the agent you wish to upgrade, or select multiple agents/groups and click the **Upgrade Selected** button.

A screenshot of the 'Remote Upgrades' page in the Gateway Webpage. The breadcrumb path is 'Config > EAM > Remote Upgrades'. A light blue informational box at the top states: 'Select one or more agents below to begin remote system upgrades. The selected agent Gateways will be shut down and restarted to perform the upgrades. For redundant agent pairs, the backup agent upgrade must be completed before the master agent can be selected.' Below this is a checkbox for 'Default Group'. A table lists agents with columns: Agent, Role, Upgrade Status, As Of, and Status Message. One agent is listed with status 'Ready to upgrade' and 'As Of' date '4/6/17 5:12 PM'. To the right of the table is a 'Remove' button. At the bottom of the page, there are two large blue buttons: 'Upgrade Selected' and 'Remove Selected'. The 'Upgrade' button next to the agent in the table is also highlighted with a red box.

3. A confirmation page will appear. Click the **Confirm** button when ready to proceed.

4. The Remote Upgrades page will appear again. This will report the status of the upgrade. Once complete, the Upgrade Status of the agent will show that the upgrade was successful.

Redundant EAM Configuration

Redundant Controller Setup

To set up redundancy on an EAM controller, you first follow the normal [setup process for a redundant Master and Backup](#). The main difference with EAM is that each agent requires separate Gateway Network connections to both the Master controller and the Backup controller. The agent will automatically route messages to the active controller. Some items to keep in mind:

- As with any redundant configuration, you cannot make any changes on the Backup controller. A notable exception to this design is that new Agents can be added without taking the Gateways out of redundancy.
- Agent metrics are only sent to the active controller. This means that EAM agent System Tags will not process data on a Backup controller until the Backup becomes active.
- Scheduled and running agent tasks on the Master controller will be automatically suspended if control is transferred to the Backup controller. The tasks will never run on the Backup controller. The tasks will resume on the Master controller after it resumes control.

Add an Agent to a Redundant EAM Controller

Adding Gateway Network connections from the Agent to the Master and Backup controllers initially results in both controller Gateways waiting for the connection to be approved. Approve the connection on the Master controller first. Then, since the Backup still doesn't automatically accept the connection, you can either force a Gateway sync to the Backup controller, which will auto-accept the Gateway Network connection, or you can log into the Backup Gateway and manually approve the Gateway Network connection.

Redundant Agent Setup

As with the redundant controller setup, you follow the same redundant Master and Backup setup process. Then run the Agent Setup wizard in the same way as you set up a standard agent. After the Agent Setup wizard completes, you must navigate to the controller Gateway and approve both the Master and Backup pending agents. Some items to keep in mind:

- Both the Master agent and the Backup agent will send agent metrics. The controller will create a Master folder and a Backup folder of System Tags, allowing you to create a project that monitors both sets of System Tags at the same time.

- Agent tasks list the Master agent and the Backup agent separately. Tasks that do not change any configuration on an agent can be run without errors on both the Master agent and the Backup agent (such as the Restart Gateway task and the license tasks). But tasks that do change configuration (such as the Send Project task) will fail on the Backup agent, due to the fact that Gateway configuration cannot be changed on a redundant Backup.

Event Threshold Settings



INDUCTIVE
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Agent Event Threshold Settings

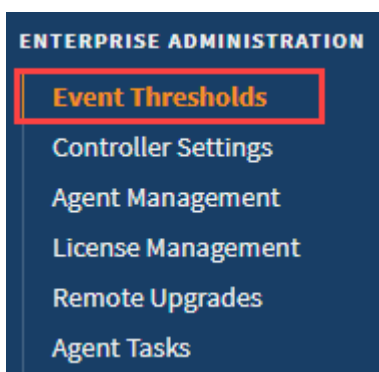
[Watch the video](#)

Overview

One of the main functions of the controller is to keep track of connected agents and report when an agent starts to experience performance problems, logs many errors in a short time, or unexpectedly goes offline. Agent events are held in the controller's configured database in the **agent_events** table. Within this table, you can find three types of event categories: **agent**, **metric**, and **task**. The agent event category is used for major connectivity events, such as loss of connectivity from an agent. The metric event category is used for events that report abnormal agent health statistics, such as abnormally high CPU usage. The task event category does not affect metrics, and is detailed in the Gateway Task Results section.

General Settings

To view the event thresholds, go to the Config page on the Gateway Webpage and select **Enterprise Administration > Event Thresholds**.



Alarm Evaluation

This section is for activity and metric events, you can configure alarms to trigger when an event is reported at the warning or error level. You can also set the alarm pipeline that will process the

generated alarms. These alarms are triggered by value changes, with the alarm being cleared as soon as it becomes active.

Setting	Description
Enable Activity Alarms	If true, alarms will be generated for agent activity events, such as when an agent stops responding.
Enable Metrics Alarms	If true, alarms will be generated for agent metric events.
Enable Task Alarms	If true, alarms will be generated when a scheduled task fails.
Warning Priority	The priority assigned to all of the warning thresholds. Options are: Diagnostic, Low, Medium, High, Critical.
Error Priority	The priority assigned to all of the error thresholds. Options are: Diagnostic, Low, Medium, High, Critical.
Active Pipeline	The Pipeline to use for active events. Note that this Pipeline must be created before the alarm event happens, and that the name is case-sensitive. The format should be: project:ProjectName:/pipeline:PipelinePath Where <code>ProjectName</code> is the name of the project the pipeline resides in, <code>PipelinePath</code> is the path to the pipeline in the project, including any folders. This syntax follows the same pattern as the Name column on the Gateway's Alarm Pipelines page.
Ack Pipeline	The Pipeline to use for acknowledgement events. Note that this Pipeline must be created before the alarm event happens, and that the name is case-sensitive. project:ProjectName:/pipeline:PipelinePath Where <code>ProjectName</code> is the name of the project the pipeline resides in, <code>PipelinePath</code> is the path to the pipeline in the project, including any folders. This syntax follows the same pattern as the Name column on the Gateway's Alarm Pipelines page.

Activity Monitor

The Activity Monitor configures how agent inactivity is reported. When contact is lost with an agent, an inactivity warning or error event is fired if the configured time in minutes has elapsed since last contact.

Setting	Description
Inactivity Warning (Minutes)	The number of minutes before a warning threshold alarm is activated. (Default is 5.)
Inactivity Error (Minutes)	The number of minutes before an error threshold alarm is activated. (Default is 15.)

Advanced Properties - System Metric Thresholds

In addition to inactivity alarms, alarms can be set on all agents when certain metrics like CPU usage, number of clients, error rates, and more are reached. Each one has both a **warning** and an **error** level.

Setting	Description
CPU Usage Warning (%)	The warning level of an Agent's CPU usage. (Default is 70.)
CPU Usage Error (%)	The error level of an Agent's CPU usage. (Default is 90.)
Memory Usage Warning (%)	The warning level of an Agent's memory (RAM) usage. (Default is 70.)
Memory Usage Error (%)	The error level of an Agent's memory (RAM) usage. (Default is 90.)
Errors Per Minute Warning	The warning level of an Agent's error rate (minute). The contents of the Agent's errors can be checked in the Agent's console. (Default is 2.)
Errors Per Minute Error	The error level of an Agent's error rate (minute). The contents of the Agent's errors can be checked in the Agent's console. (Default is 5.)
Errors Per Hour Warning	The warning level of an Agent's hourly error rate. The contents of the Agent's errors can be checked in the Agent's console. (Default is 20.)
Errors Per Hour Error	The error level of an Agent's hourly error rate. The contents of the Agent's errors can be checked in the Agent's console. (Default is 60.)
Connected Clients Warning	The number of clients connected to that Agent required to raise a warning alarm. (Default is 50.)
Connected Clients Error	The number of clients connected to that Agent required to raise an error alarm. (Default is 100.)
DB Utilization Warning (%)	Triggered when the utilization of the DB connection pool exceeds the specified percentage. (Default is 80.)
DB Utilization Error (%)	Triggered when the utilization of the DB connection pool exceeds the specified percentage. (Default is 100.)

EAM in the Designer



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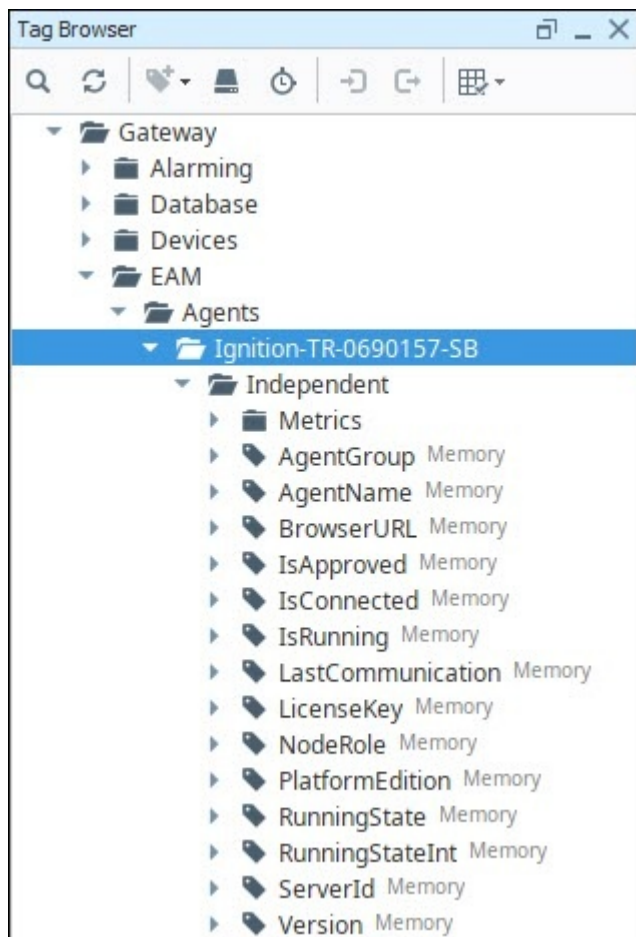
EAM in the Designer

[Watch the video](#)

The Enterprise Administration Module provides a lot of information about agents inside the Designer that allow you to search agent information to see the status of an agent and history of tasks using tags, binding functions, and scripting functions. Anything you want to know about an agent can be found using EAM in the Designer.

Agent System Tags

System Tags are created on the controller for each agent, allowing you to build EAM monitoring clients, set alarms on individual tags, and many other tag-related operations. To view EAM tags, launch a Designer on the controller Gateway. In the **Tag Browser**, navigate to **System > Gateway > EAM > Agents**. A tag folder is created for each agent. As with other system tag values, all EAM system tag values are read-only.

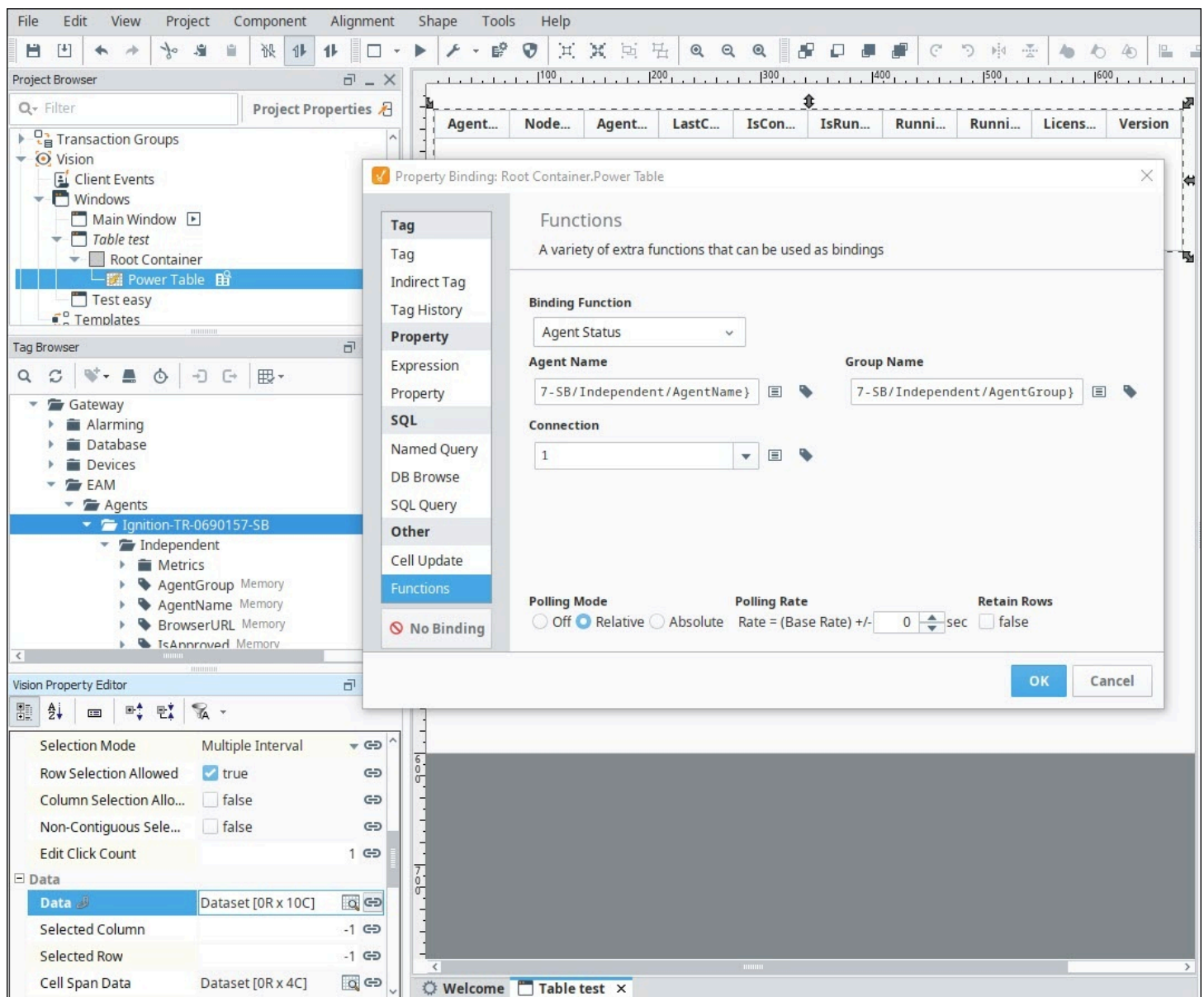


Property Binding Functions

The EAM adds its own binding functions to the standard property binding functions, allowing you to quickly add agent information to a component such as a table. The following binding functions are available:

- **Agent Status:** reports some basic information about each agent, such as platform version, connection status, and the last time a message was received from the agent.
- **Agent History:** reports agent events from the the **agent_events** table in the controller's configured database. Agent events include Gateway task results, abnormal health statistics, and agent communication status events.

Changed in 8.1.11 As of 8.1.11, EAM binding functions are only available in projects hosted on the Controller.

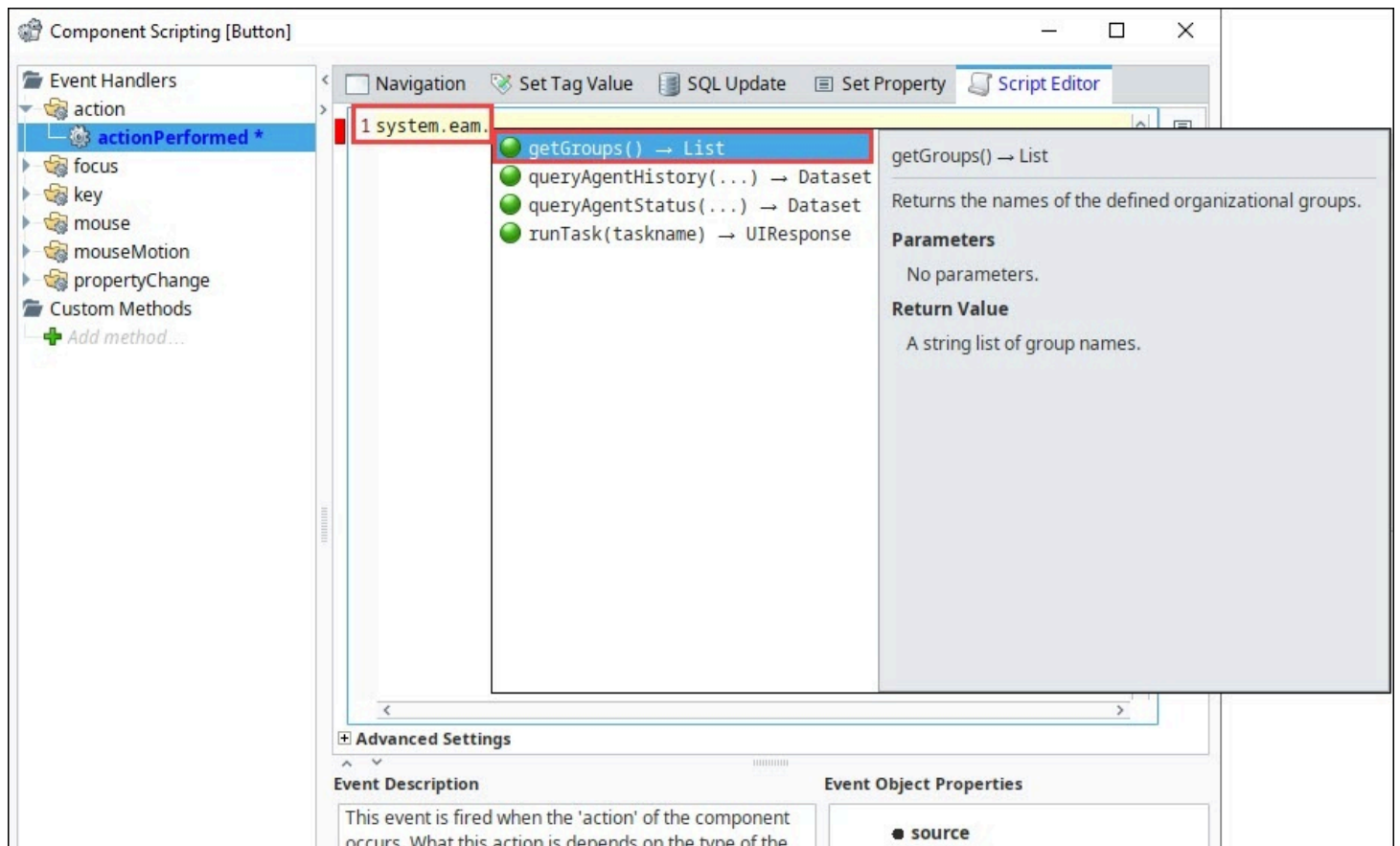


Scripting Functions

There are several scripting functions that are included in the `system.eam` package:

- **`system.eam.getGroups()`**: Returns a String list of all agent groups configured in the controller.
- **`system.eam.queryAgentHistory()`**: Returns a Dataset of agent events from the controller's configured database.
- **`system.eam.queryAgentStatus()`**: Returns a Dataset with some basic information about each agent, such as platform version, connection status, and the last time a message was received from the agent.
- **`system.eam.runTask()`**: Takes the name of a task as an argument as a string (must be configured on the Controller before hand), attempts to execute the task.

More details and examples can be found in the [system.eam](#) section of the Appendix.



Tag Distribution for Development Servers

With the EAM installed, you unlock more than just Agent tasks as a way to send data between gateways. When you are using a pair of servers for Development/Production, you can take advantage of the EAM to send tags between Gateways much like you can send projects by using an Agent Task.

From your Controller, you can right-click on any tag and send it to another Gateway in the Gateway Network. Since it is unlikely that you have identical PLC devices connected to multiple Ignition Gateways, this will only be useful for Development/Production server pairs or for Memory tags.

