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Enterprise Administration

Overview

The Enterprise Administration Module (EAM) enables you 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.

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

- **Gateway Version Control** - Upgrades modules on each controller and agent Gateway to ensure each installation is on the same version.
- **Project Synchronization** - In cases where the same project is used on multiple Gateways, projects can automatically be pushed to select agents. This simplifies how updates are pushed out and eliminates the need to update each project individually.
- **Monitor Agent Health** - The controller Gateway monitors Agent health and will trigger alarms when an issue arises. 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.

On this page

...

- [Overview](#)
- [Agents and Controllers](#)
- [Task Management](#)
 - [On-Demand or Scheduled](#)
- [Disaster Recovery and Prevention](#)



Introduction to Enterprise Administration Module

[Watch the Video](#)

Agents and Controllers

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

- **Controller** - Manages or controls other connected Gateways. 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** - Gateway that performs all assigned tasks and reports to the Controller. Multiple Agents can report to one 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 shows a web-based interface for managing Agent Events. It features a table with columns for Active Time, Display Path, Current State, and Priority. Below the table, there are tabs for 'Details' and 'Notes', and a 'Config Properties' section with a scrollable list of key-value pairs. At the bottom, there are 'Acknowledge' and 'Shelve' buttons, along with search and refresh icons.

<input type="checkbox"/>	Active Time	Display Path	Current State	Priority
<input checked="" type="checkbox"/>	6/29/16 3:55 PM	Site A/cpu [ERROR]	Cleared, Unackno...	High
<input type="checkbox"/>	6/29/16 3:55 PM	Site A/cpu [ERROR]	Cleared, Unackno...	High
<input type="checkbox"/>	6/29/16 3:55 PM	Site A/cpu [WARNING]	Cleared, Unackno...	Low
<input type="checkbox"/>		Site A/cpu [WARNING]	Cleared, Unackno...	Low

Config Properties

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

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.

[In This Section ...](#)

Creating a Controller

To set up the EAM, you must first designate one machine as the controller. Keep track of the IP address of this machine because you must enter this IP 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.

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 two 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.

On this page

...

- To set up the EAM, you must first designate one machine as the controller. Keep track of the IP address of this machine because you must enter this IP address on each agent during agent installation.
- [Set Up a Controller](#)
- [Remove a Controller](#)

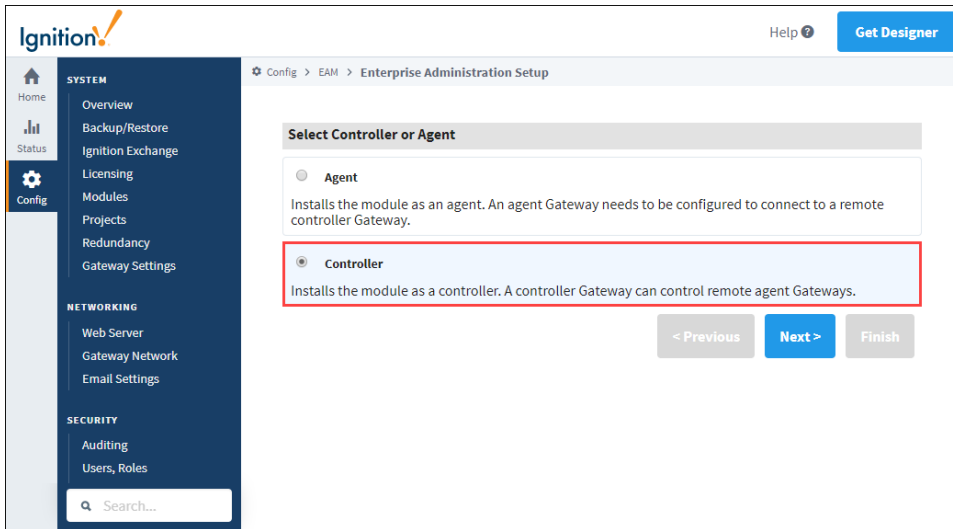


Creating a Controller

[Watch the Video](#)

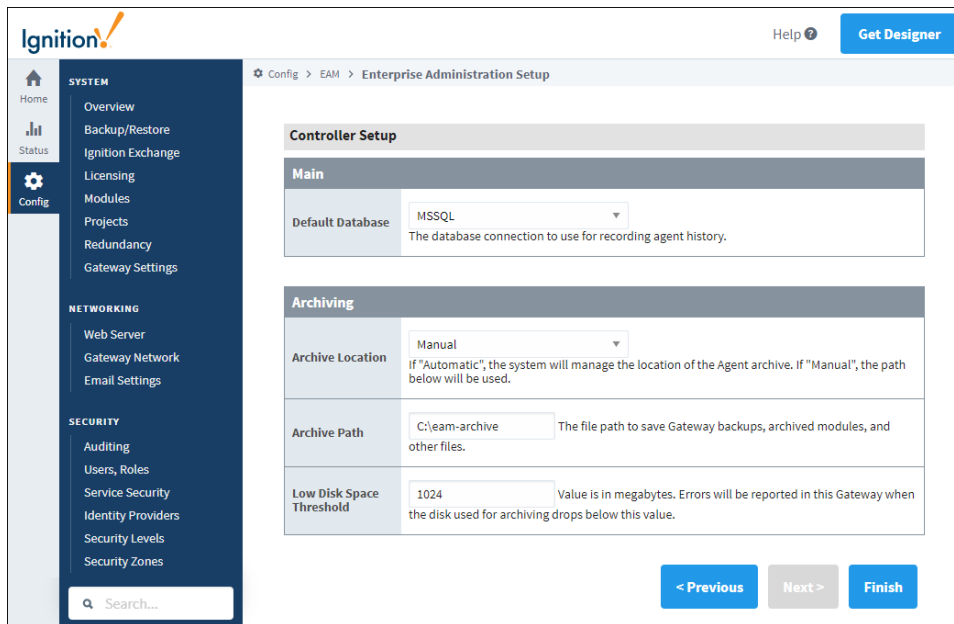
Set Up a Controller

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 setup the controller.

- a. **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.
- b. **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 **E:\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.

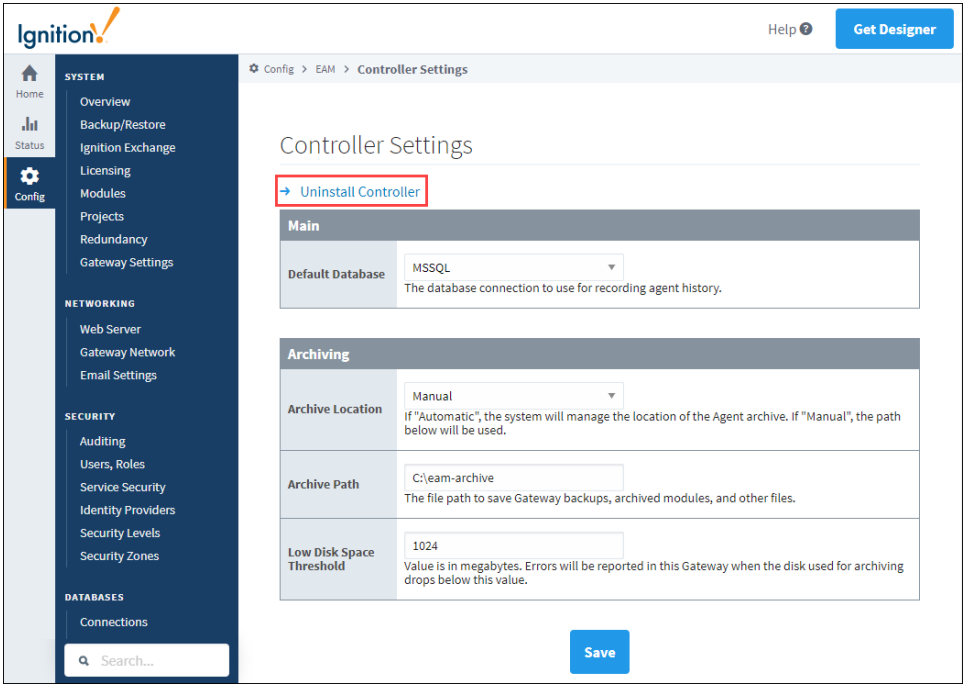


4. After you have determined your settings, click the **Finish** button to save the controller settings and exit the wizard. This machine is now ready to accept agents.
5. Once you set up your Controller, the **Setup** option disappears in the menu and is replaced with a list of Enterprise Administration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

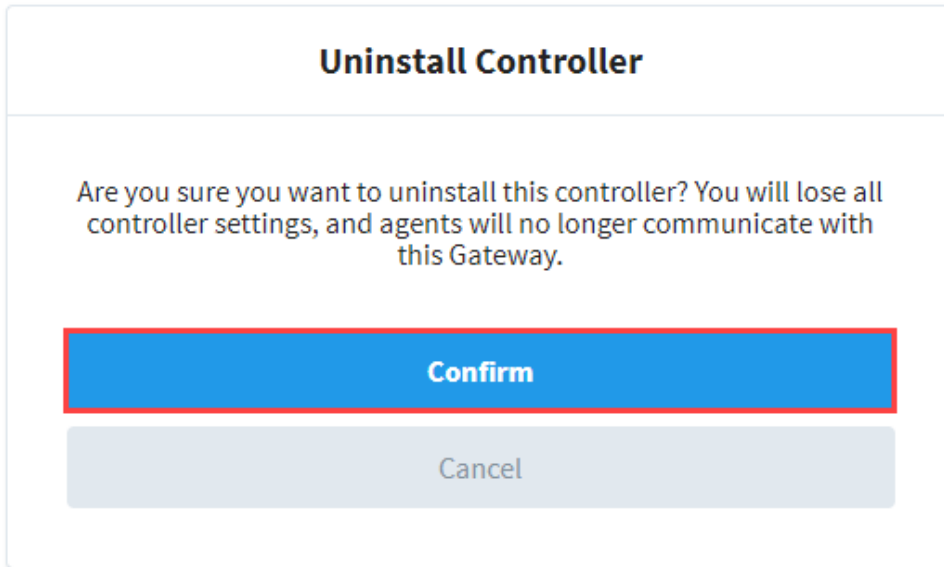


Remove a Controller

- 1. 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.



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



Related Topics ...

- [Adding an Agent](#)
- [Event Threshold Settings](#)

Adding an Agent

Agent Setup

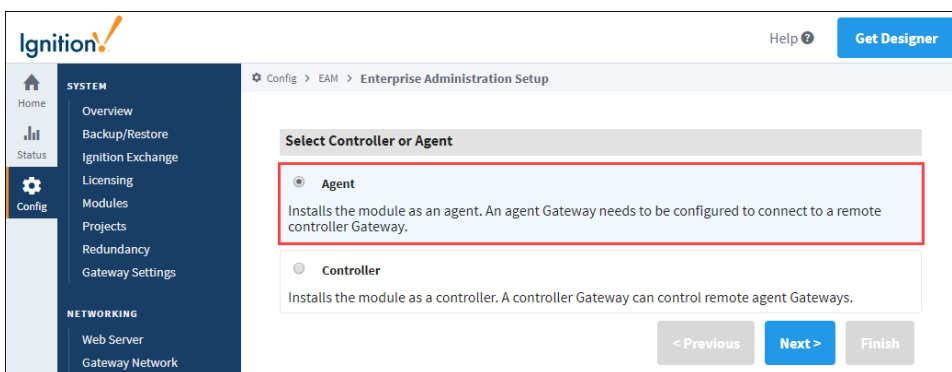
To communicate with the controller, agents send data across a Gateway Network connection. If your Gateway Network setup requires that connections be manually approved in advance on the controller Gateway, you will need to [set up the Gateway Network connection](#) before starting the EAM Setup Wizard.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

On this page

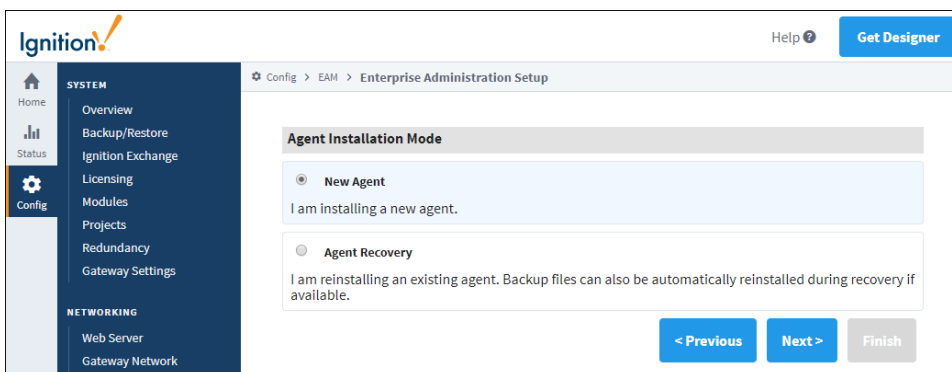
...

- Agent Setup
- Agent Post Setup
- Agent Approval
- Delete an Agent
- Modifying Agent Settings

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



2. Select New Agent or Agent Recovery.
 - a. Select **New Agent** if you are setting up a machine that is unknown to the controller.
 - b. 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.



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 following feature is new in Ignition version **8.0.7**
[Click here](#) to check out the other new features

Agent Settings

💡 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.

Agent Settings

Controller	<div style="border: 1px solid #ccc; padding: 2px; margin-bottom: 5px;">Controller ▾</div> <p style="font-size: 0.8em; margin: 0;">The Gateway Network server running the EAM controller</p>
System Name	<div style="border: 1px solid #ccc; padding: 2px; margin-bottom: 5px;">Ignition-TR-89MC8R2-W5</div> <p style="font-size: 0.8em; margin: 0;">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.</p>

< Previous
Next >
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.

⚙️ Config > EAM > Enterprise Administration Setup

Agent Post Setup Items

✔️ Setup is complete. This agent is now connected to the controller.

Checking agent status on controller.... **done**

- 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.

⚠️ **Setup 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.

- 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**.

Config > EAM > Agent Settings

Agent Settings

[→ Uninstall Agent](#)

Main

Gateway Network Server	<input type="text" value="Controller"/> The name of the Gateway Network server that holds a connection to the controller Gateway.
Send Stats Interval	<input type="text" value="5"/> The interval in seconds that the agent will send its statistics to the controller Gateway.

[Save](#)

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

Related Topics ...

- [Agent Recovery](#)
- [License Management](#)
- [Agent Task - Scheduling](#)

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.

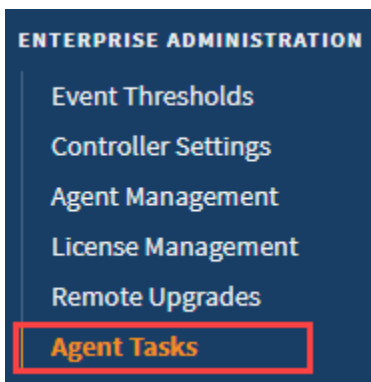
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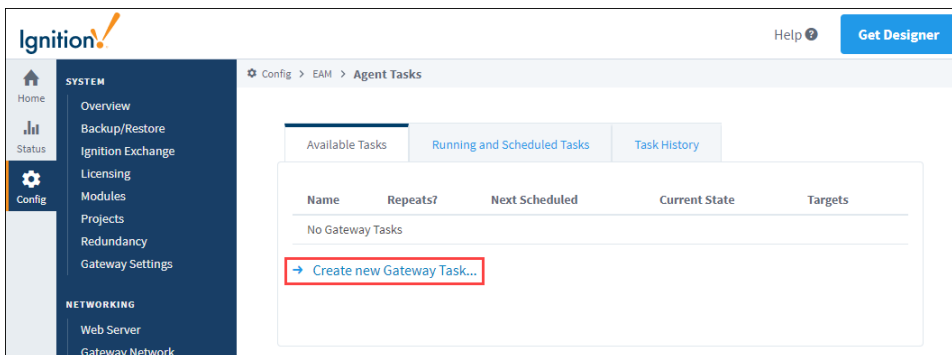
- [Using the Gateway Network](#)
- [Create an Agent Task](#)
- [Agent Task Status](#)

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.



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.
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.

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.

The screenshot shows the 'Task Scheduling' configuration interface. At the top, the breadcrumb is 'Config > EAM > Agent Tasks'. The main heading is 'Task Scheduling'. The 'Task Name' is 'Collect Backup'. There are four radio button options for execution: 'Execute Immediately', 'Execute On Demand', 'Execute Once, Scheduled', and 'Execute Once, Delayed'. The 'Execute Once, Scheduled' option is selected, with a date of '3/10/20', a time of '1 : 45 PM'. Below this, there is an option for 'Execute On Schedule', which is also selected and highlighted with a red box. Under 'Execute On Schedule', the 'Common Settings' dropdown is set to 'Twice Per Day (0,12 * * *)' and is also highlighted with a red box. The 'Minutes' field is '0', 'Hours' is '0,12', 'Days' is '*', 'Months' is '*', and 'Weekdays' is '*'. The 'Expression Descriptor' is 'At 12:00 am and 12:00 pm (0,12 * * *)'. At the bottom, there are three buttons: '< Previous' (disabled), 'Next >' (active), and 'Finish' (disabled).

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 [Configuration](#)

EAM Tasks

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

In This Section ...

Agent Task - Backup and Restore

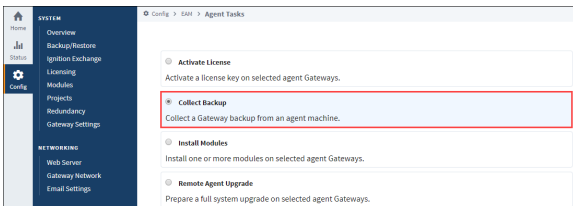
The Backup and Restore tasks are an extremely important part of the Enterprise Administration Module. Performing a Collect Backup is required if you want to do an Agent recovery.

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

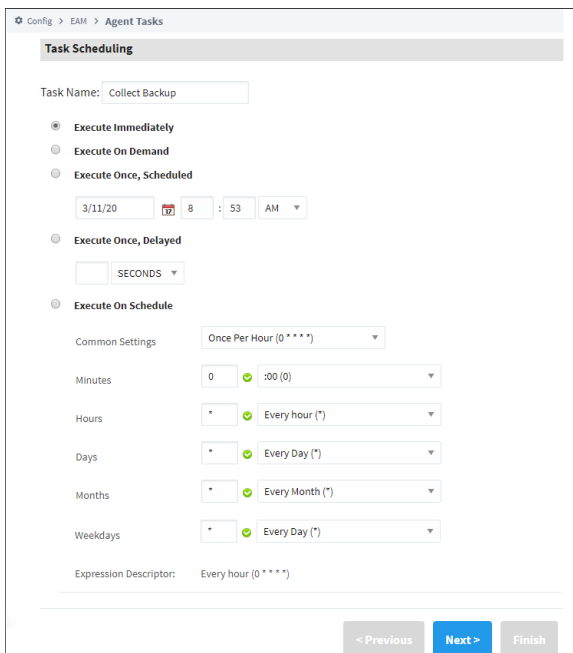
Collect Backup

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.

1. On the **Controller**, navigate to **Config > Enterprise Administration > Agent Tasks**.
2. Click on **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](#).



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

On this page

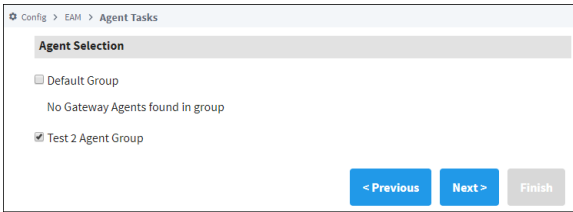
...

- [Collect Backup](#)
- [Restore Backup](#)
- [Install Modules](#)
- [Restart Agent](#)

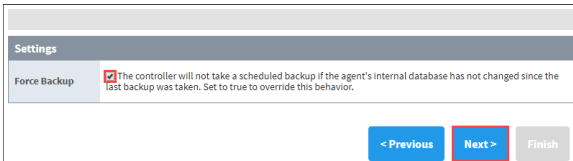


Agent Task - Backup and Restore

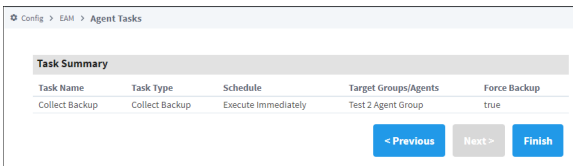
[Watch the Video](#)



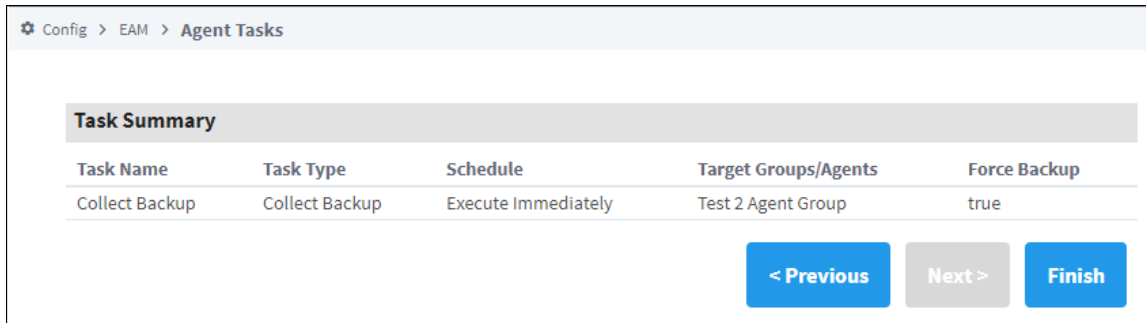
6. The EAM Task wizard will prompt you if you want to do a Force Backup even if nothing changed since the last backup. This step is optional, but it is useful when your backups are performed on a regular schedule. To be safe, check the **Force Backup** box, and click **Next**.



7. Review the **Collect Backup Task Summary** information, and press **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	<input type="text" value="MySQL"/> <p>The database connection to use for recording agent history.</p>
Archiving	
Archive Location	<input type="text" value="Manual"/> <p>If "Automatic", the system will manage the location of the Agent archive. If "Manual", the path below will be used.</p>
Archive Path	<input type="text" value="C:\eam-archive"/> <p>The file path to save Gateway backups, archived modules, and other files.</p>
Low Disk Space Threshold	<input type="text" value="1024"/> <p>Value is in megabytes. Errors will be reported in this Gateway when the disk used for archiving drops below this value.</p>

Restore Backup

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

i Agent Name and Restoring

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

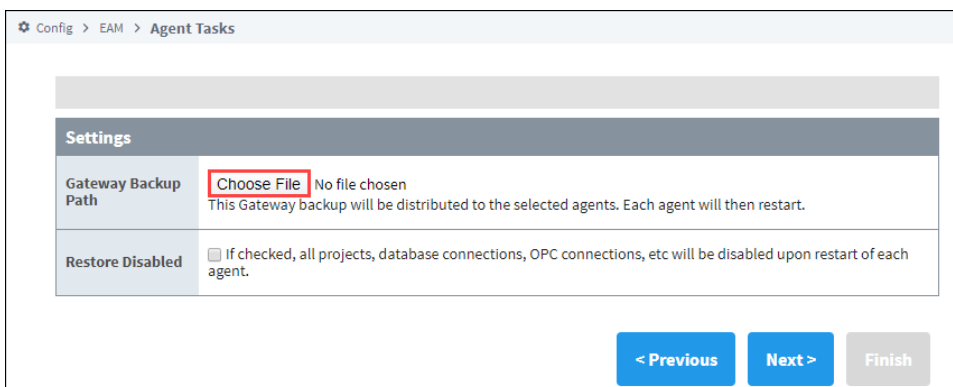
1. On the **Controller**, navigate to **Config > Enterprise Administration > Agent Tasks**
2. Click on the **Create new Gateway Task** link.
3. Select the **Restore Backup**, and press **Next**.

Config > EAM > Agent Tasks

<input type="radio"/>	Activate License Activate a license key on selected agent Gateways.
<input type="radio"/>	Collect Backup Collect a Gateway backup from an agent machine.
<input type="radio"/>	Install Modules Install one or more modules on selected agent Gateways.
<input type="radio"/>	Remote Agent Upgrade Prepare a full system upgrade on selected agent Gateways.
<input type="radio"/>	Restart Agent Restarts the Ignition service on the agent machine.
<input checked="" type="radio"/>	Restore Backup Restore a Gateway backup on selected agent Gateways.
<input type="radio"/>	Send Project Distributes a project to remote servers. Replaces the project on the remote server as if an export/import was performed.

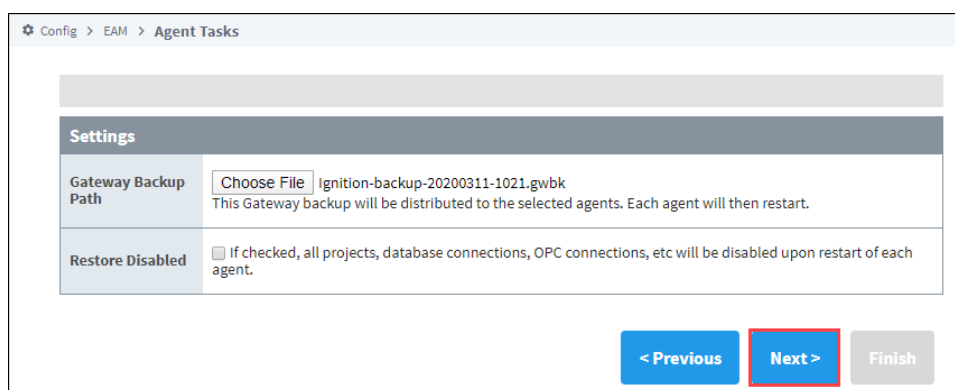
4. Schedule the **Restore Backup** task from any of the listed scheduling options. This example uses **Execute Immediately**, and press **Next**.
5. Select the **Agent**, and press **Next**.

- 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](#).



The screenshot shows the 'Agent Tasks' configuration page. The breadcrumb navigation is 'Config > EAM > Agent Tasks'. The 'Settings' section contains two rows: 'Gateway Backup Path' and 'Restore Disabled'. The 'Gateway Backup Path' row has a 'Choose File' button highlighted with a red box, followed by the text 'No file chosen' and a description: 'This Gateway backup will be distributed to the selected agents. Each agent will then restart.' The 'Restore Disabled' row has a checkbox and the text: 'If checked, all projects, database connections, OPC connections, etc will be disabled upon restart of each agent.' At the bottom right, there are three buttons: '< Previous' (blue), 'Next >' (blue), and 'Finish' (grey).

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



The screenshot shows the 'Agent Tasks' configuration page after a file has been selected. The breadcrumb navigation is 'Config > EAM > Agent Tasks'. The 'Settings' section contains two rows: 'Gateway Backup Path' and 'Restore Disabled'. The 'Gateway Backup Path' row has a 'Choose File' button, followed by the file name 'ignition-backup-20200311-1021.gwbk' and the text 'No file chosen' (which is now replaced by the file name). Below the file name is the description: 'This Gateway backup will be distributed to the selected agents. Each agent will then restart.' The 'Restore Disabled' row has a checkbox and the text: 'If checked, all projects, database connections, OPC connections, etc will be disabled upon restart of each agent.' At the bottom right, there are three buttons: '< Previous' (blue), 'Next >' (blue, highlighted with a red box), and 'Finish' (grey).

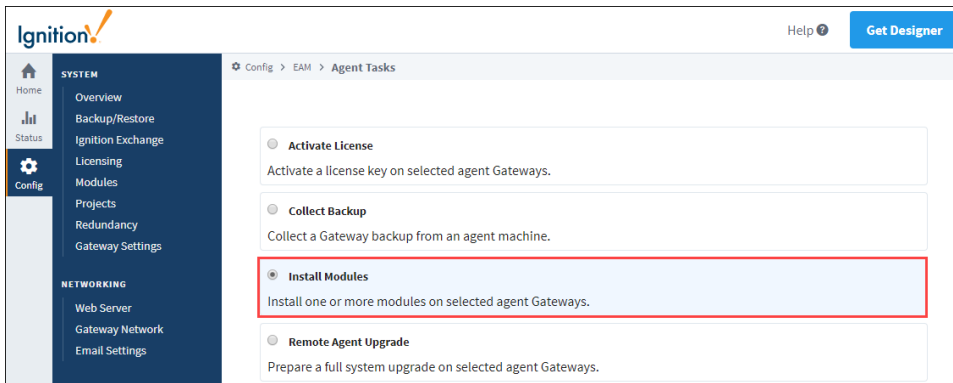
- Review the Restore Backup Task Summary, and click **Finish**. Once the Restore Backup task completes, you will receive a successful message from the Gateway task.
- Now go to your Agent, and click **Home**. It takes a few moments to bring up the Gateway. You will see a progress bar while the Gateway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

Install Modules

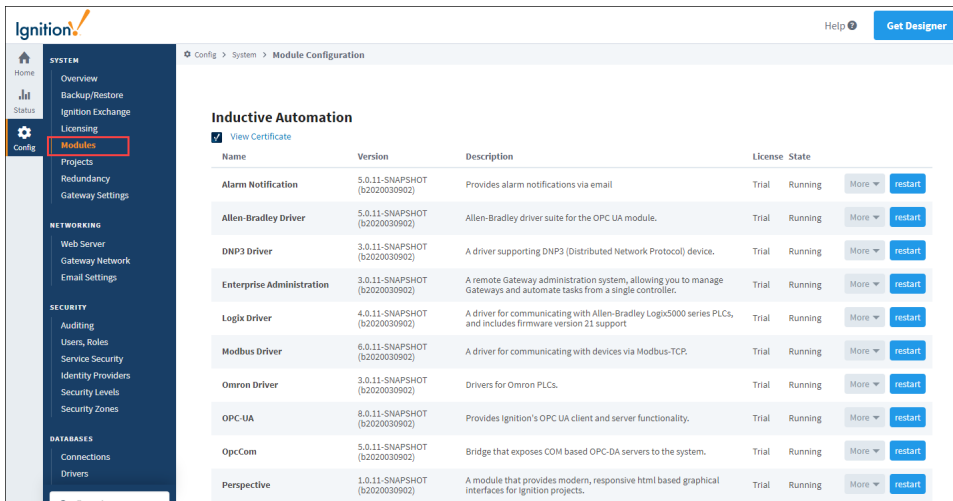
This task allows you to install one or more modules on an Agent. You may pass in the modules to install while creating the task, or choose from the archived modules. Modules are archived in the [Collect Backup](#) task.

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**.



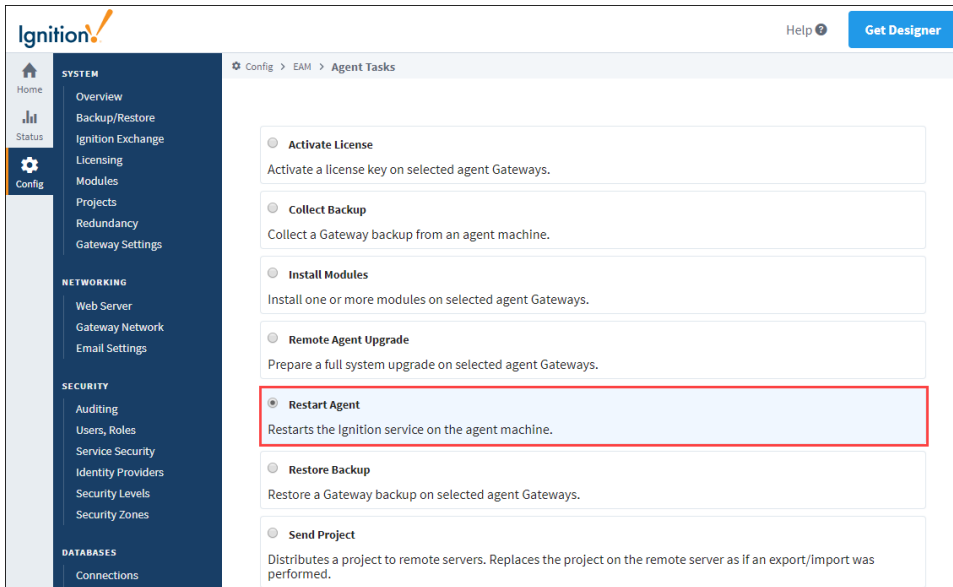
- Schedule the **Install Modules** task from any of the listed scheduling options. This example uses **Execute Immediately**, and press **N ext**.
- Select the **Agent**, and press **Next**.
- From the list of **Archived Modules**, click the **Add** buttons for Alarm Notification and the OPC UA modules. 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**.
- 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.
- 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.

- Go to the Controller, and navigate to **Config > Enterprise Administration > Agent Tasks**.
- Click on the **Create new Gateway Task** link.
- 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.

Related Topics ...

- [Agent Task - Send Project](#)

Agent Task - Licensing

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.

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.

On this page

...

- [Activate License](#)
- [Update a License](#)
- [Unactivate a License](#)

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.

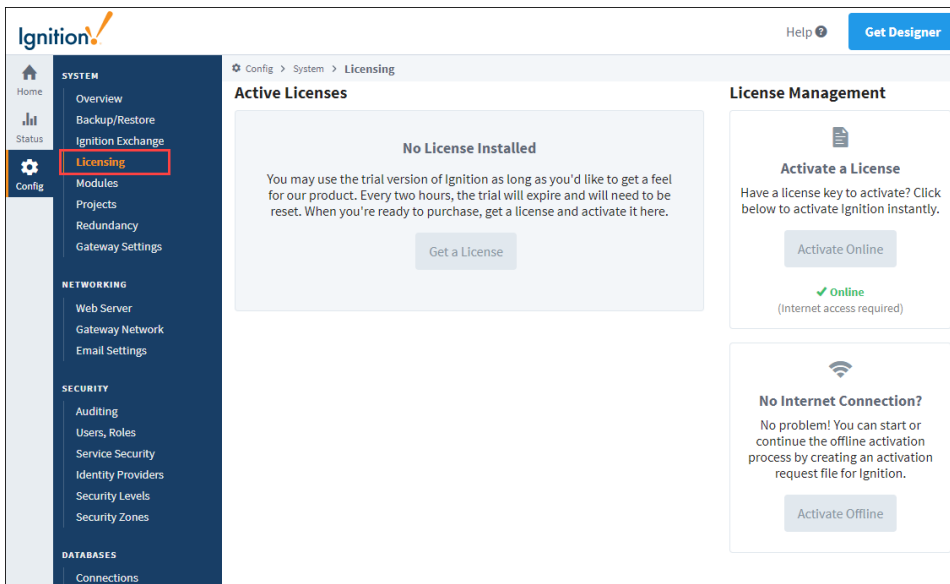


Agent Task - Licensing

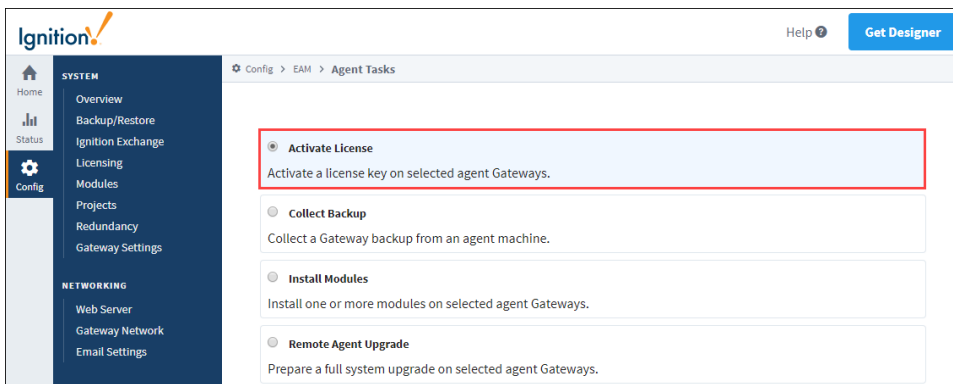
[Watch the Video](#)

Activate License

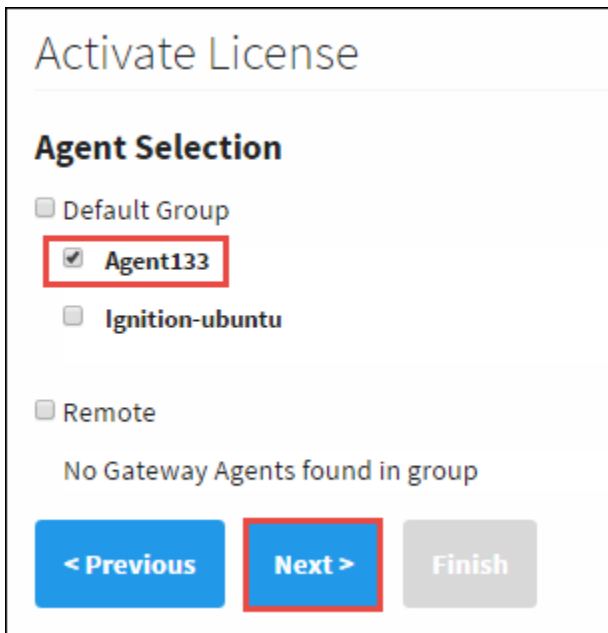
1. On your **Agent**, go to the Gateway webpage and select **Config > Licensing**. You can see that no license is currently installed.



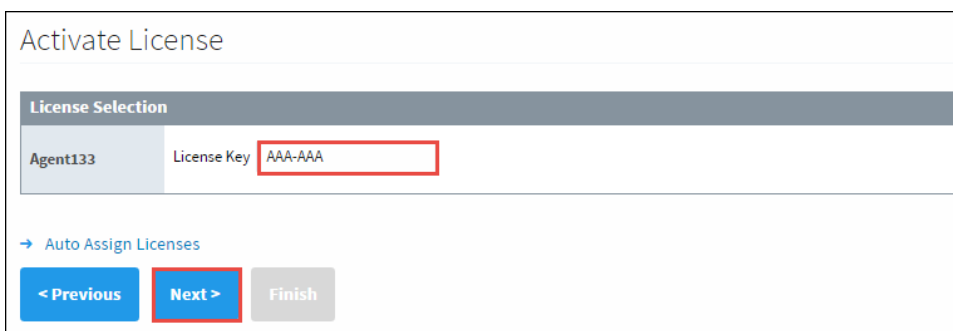
2. Activating a license on an Agent must be done from the Controller. On your **Controller**, go to the Gateway webpage and select **Config > Enterprise Administration > Agent Tasks**.
3. Click **Create new Gateway Task**.
4. Activating a License key is one of several tasks you can perform under **Gateway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



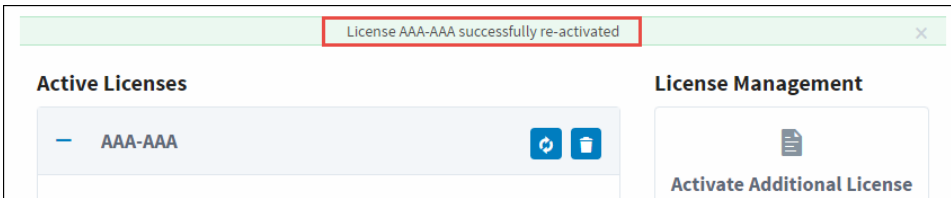
5. The Activate License task has several [scheduling options](#). For this example, select **Execute Immediately**, and press **Next**.
6. Select the **Agent** you want to activate the license on, and press **Next**. In this example, Agent133 was selected.



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 press **Auto Assign the License** and the license key will auto populate. Click **Next**.



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



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

i A Note About Trial Mode

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.

- 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.

The screenshot displays the "Modules" page with a "Licensing Configuration" button. It shows "Running Modules" as 21/21 and "Licensed Modules" as 19/21. A "License Details" panel shows: License Key: AAA-AAA, Version: 7, developer: true, edition: standard. Below is a table for "Inductive Automation, LLC":

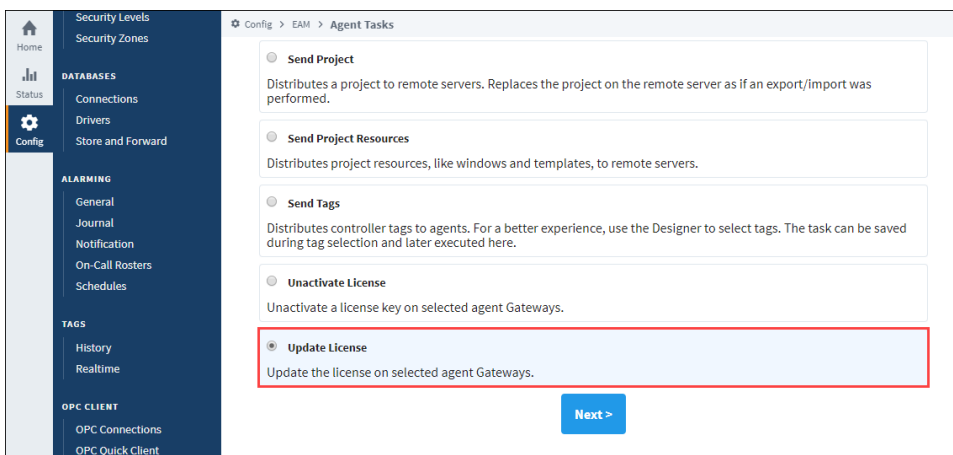
Name	Version	License	Status
Alarm Notification	4.9.0 (b2016101208)	Activated	✓ RUNNING
Allen-Bradley Driver	4.9.0 (b2016101215)	Activated	✓ RUNNING
DNP3 Driver	2.9.0 (b2016101215)	Activated	✓ RUNNING
Enterprise Administration	2.9.0 (b2016101215)	Activated	✓ RUNNING
Logix Driver	3.9.0 (b2016101215)	Activated	✓ 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**.

- Navigate to **Config > Enterprise Administration > Agent Tasks**.
- Click **Create new Gateway Task**.

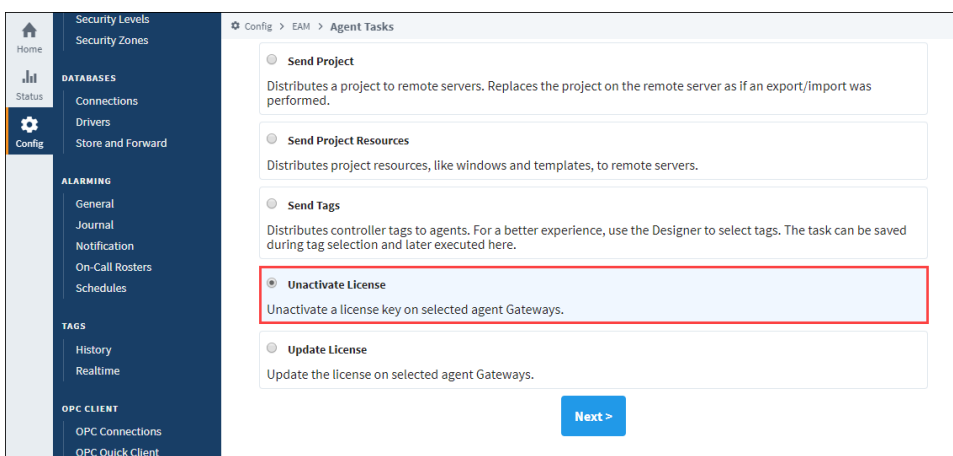
3. Select **Update License**, and press **Next**. The EAM wizard will guide you through the license update steps.



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.



Related Topics ...

[Agent Task - Scheduling](#)

[Agent Task - Backup and Restore](#)

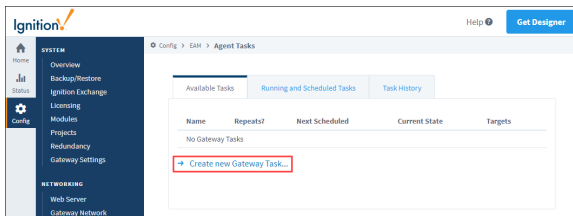
Agent Task - Send Project

Agent Tasks have the ability to send projects and project resources from a Controller to an Agent.

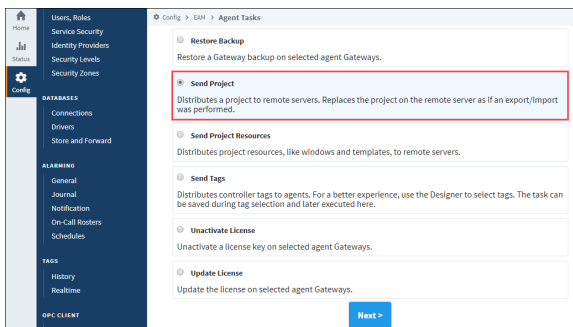
Send Project Task

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**. Press **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 press **Next**.
4. Select the **Agent** where you want to send your project, and press **Next**.

On this page

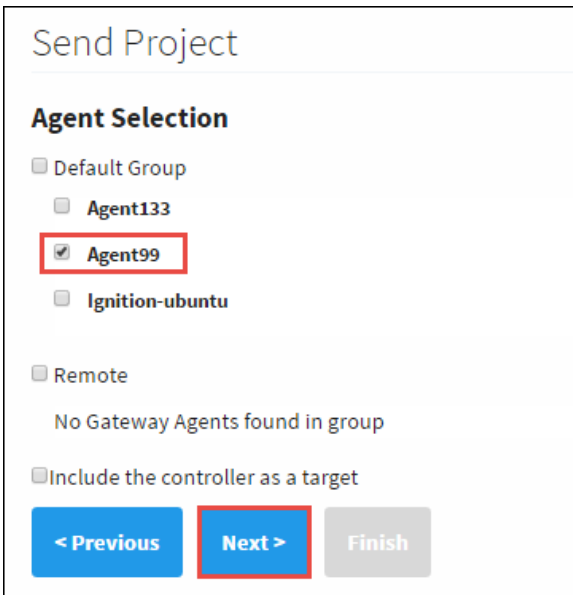
...

- Send Project Task
- Send Project Resources Task
 - Sending Global Resources
 - Sending Project Resources Example
- Send Tags Task
 - Configuring the Task from the Gateway
 - Running the Task in the Designer

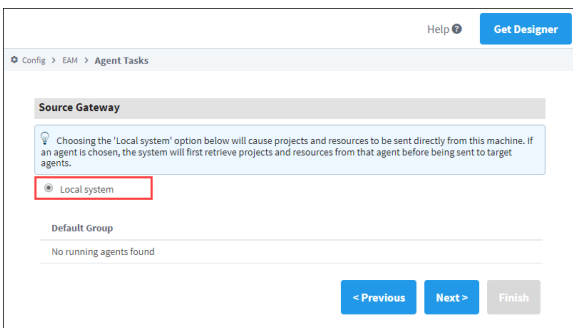


Agent Task - Send Project

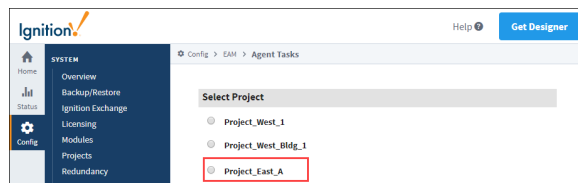
[Watch the Video](#)



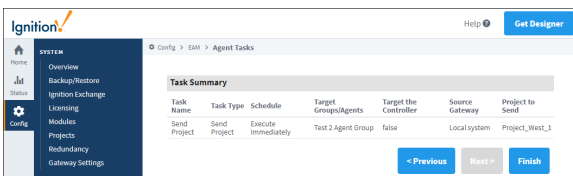
- The EAM wizard knows your controller and agent configuration. It's going to prompt you to choose the machine where your project is located. In this example, the project that you want to send is located on the Controller or Gateway Source so select **Local System**, and press **Next**.



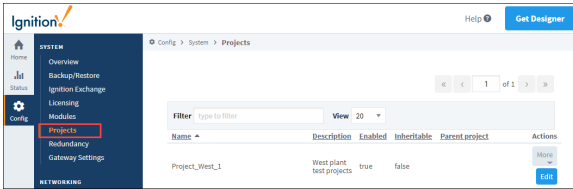
- The EAM wizard will display all your projects from your local system. Select the project you want to send to your Agent, and press **Next**. (If you select your Agent on the previous screen, the EAM wizard will display all your projects running on your Agent that were sent over previously from the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



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



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



Send Project Resources Task

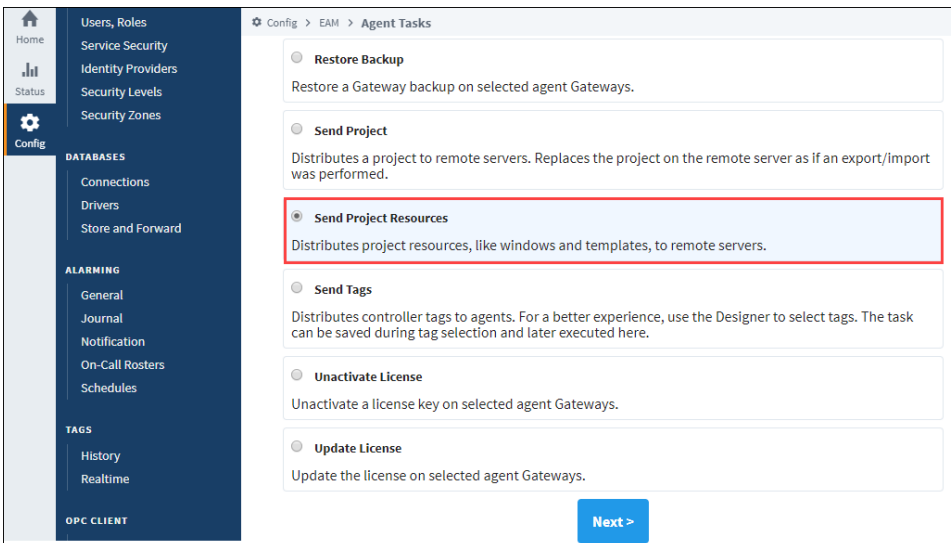
You can also send project resources, such as project templates, windows, transaction groups, pipelines and even script modules from the Controller to an Agent.

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.

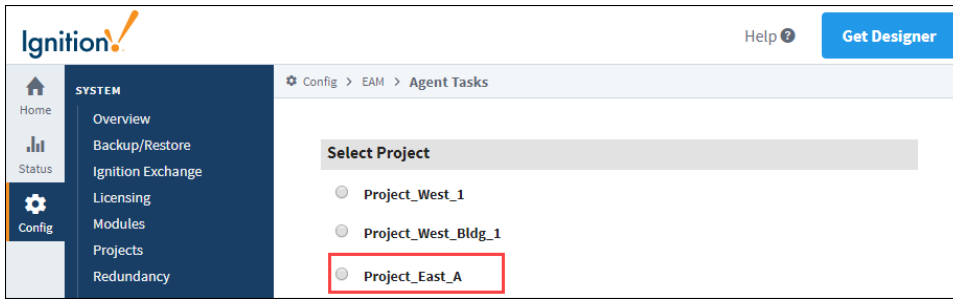
Sending Project Resources Example

1. On the **Controller**, under the **Configuration** 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 the **Create new Gateway Task** link. 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 press **Next**.

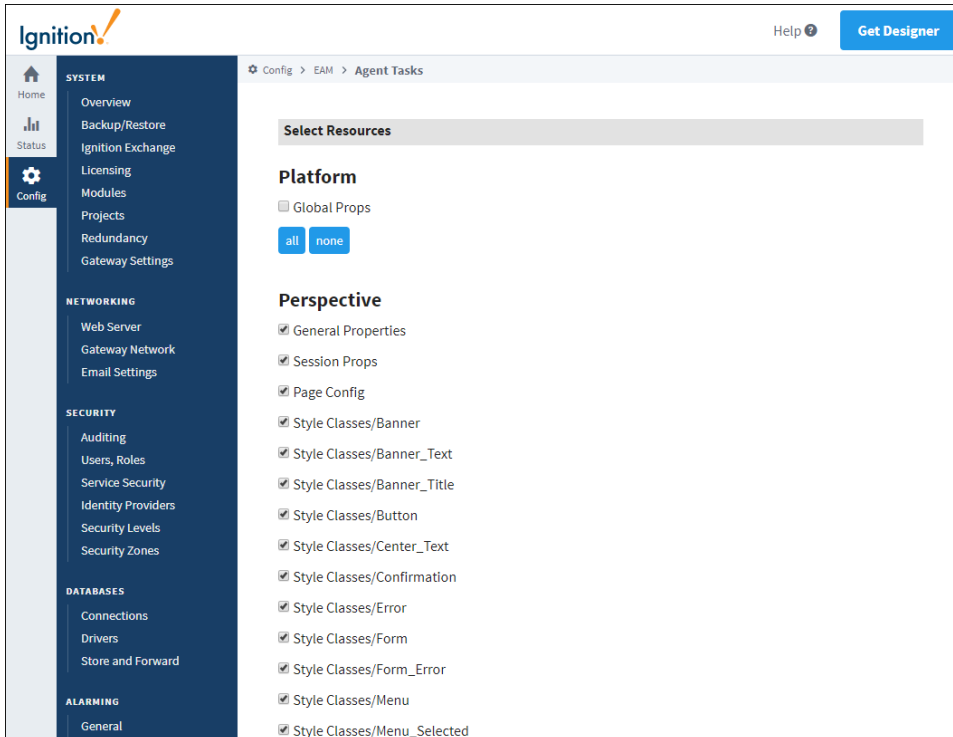


4. Schedule the Send Project Resources task to **Execute Immediately**, and press **Next**.
5. Select the **Agent** on the Agent Selection window, and press **Next**.
6. Select the Source Gateway / **Local System** where your project resources reside, and press **Next**.
7. This example sends selected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

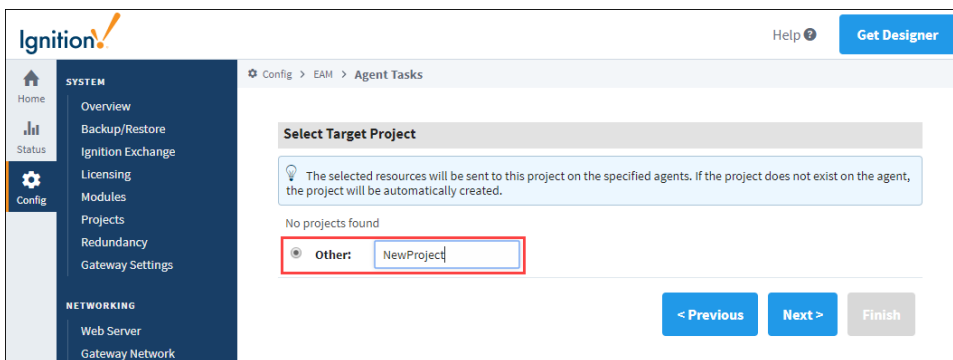
8.



9. You can see all the resources inside of the Training Project. Of course, real projects will have more useful project resources than are shown here. It can include templates, windows, transaction groups, pipelines and script modules. Choose whatever resources you want to send to the agent, and press **Next**.



10. 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. Press **Next**.



11. The EAM wizard summarizes all the information for you to review. Press **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 **Configure** 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 setup your authentication profile, database, and Tag providers. Once this is completed, you are ready to use the project and project resources on your Agent.

Send Tags Task

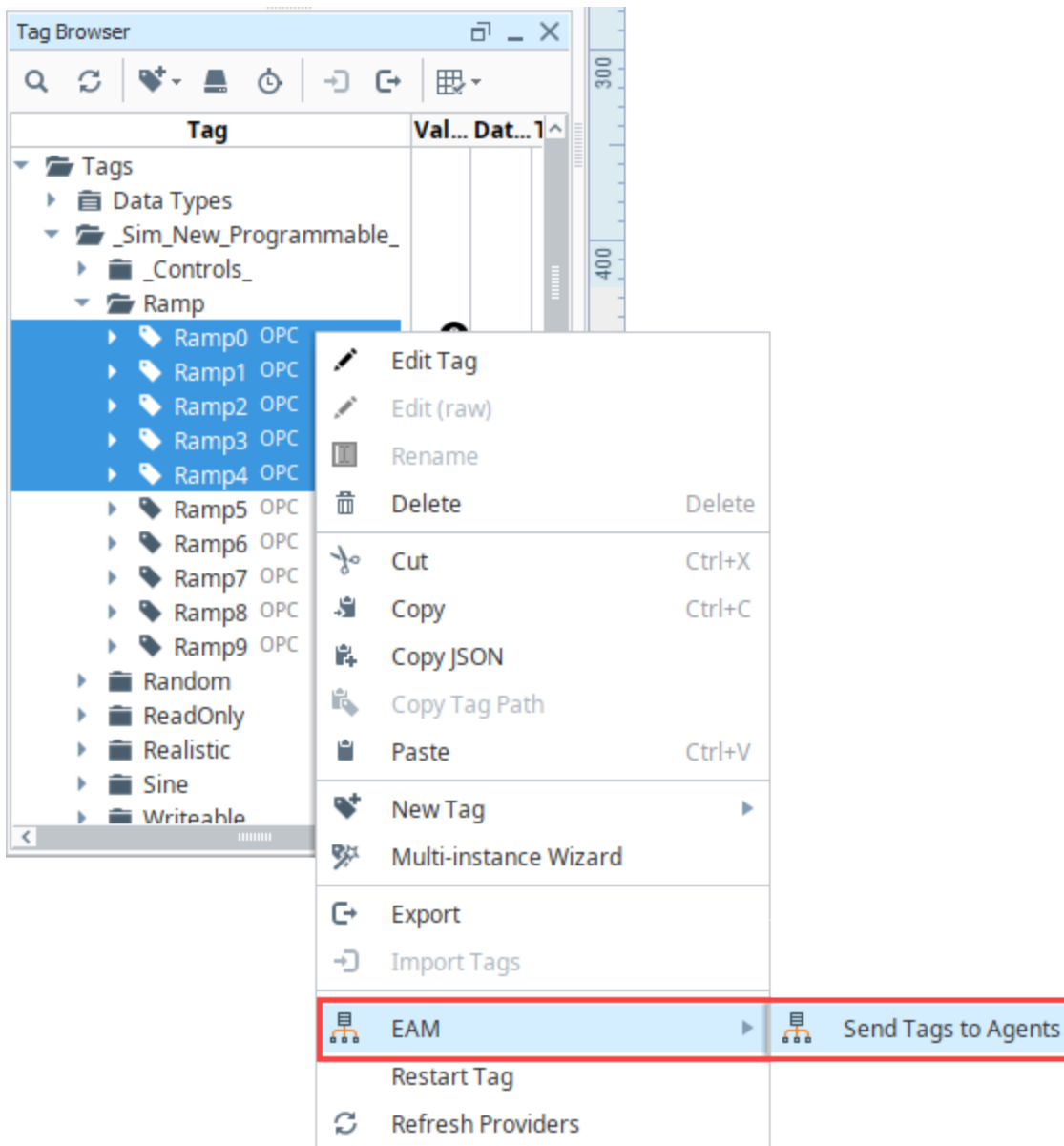
Configuring the Task from the Gateway

This task allows you to send one or more Tags within a provider on the controller, to one more agents. Configuring this task is similar to the other Tags, except for the unique options shown below.

The screenshot shows the Ignition! configuration interface. The top navigation bar includes the Ignition! logo, a 'Help ?' link, and a 'Get Designer' button. The breadcrumb trail is 'Config > EAM > Agent Tasks'. The left sidebar is divided into three sections: SYSTEM (Overview, Backup/Restore, Ignition Exchange, Licensing, Modules, Projects, Redundancy, Gateway Settings), NETWORKING (Web Server, Gateway Network, Email Settings), SECURITY (Auditing, Users, Roles, Service Security, Identity Providers, Security Levels, Security Zones), and DATABASES (Connections). The main content area is titled 'Settings' and contains two sections: 'Target Tag Provider' with a text input field and the instruction 'Tags will be sent to this tag provider on remote gateways.', and 'Tag Paths' with a large text area and the instruction 'A comma-separated list. Tags in this list (and their children) will be sent to remote gateways. Existing tags will be overwritten.' At the bottom of the settings area are three buttons: '< Previous', 'Next >', and 'Finish'.

Running the Task in the Designer

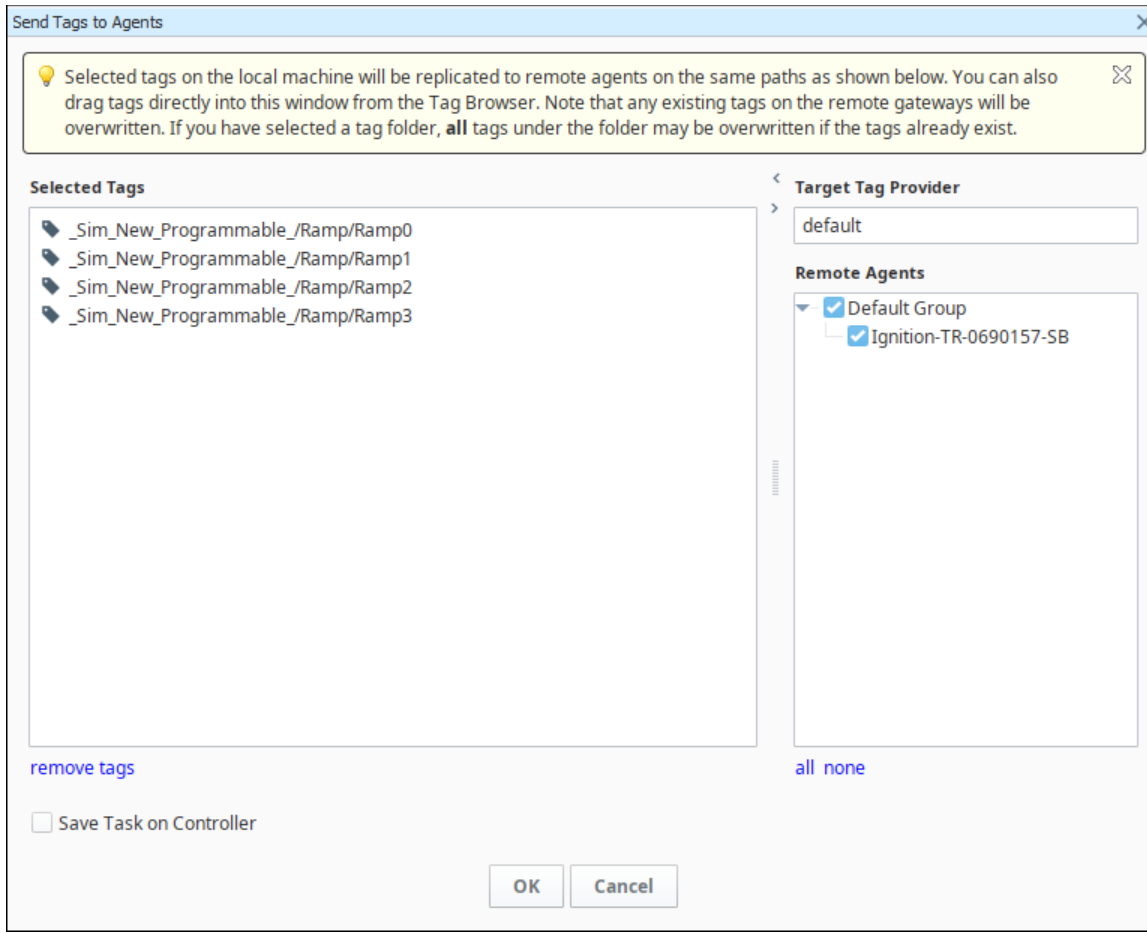
Sending Tags from a Controller Gateway to an Agent Gateway works a little differently than the other Agent Tasks, since the Send Tags Task can be executed from the Designer. Within the Controller's Designer, you can select any number of Tags from the Tag Browser that you want to send to any number of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

Clicking the **OK** button will begin the process of sending the Tags to the Agents. Once the Tags have all been sent, you will get a new popup, letting you know of the success.

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.



Related Topics ...

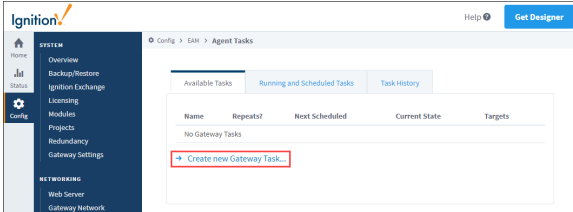
- [Automated Agent Installation](#)

Agent Task - Scheduling

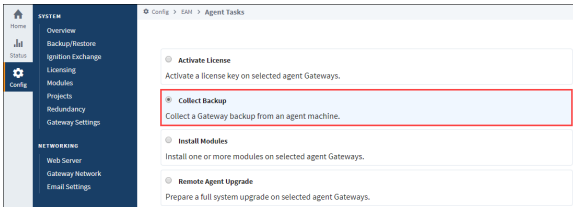
Agent Gateway Tasks

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:**

Option	Description
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.
	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

On this page

...

- Agent Gateway Tasks
- Gateway Task Results
- Running a Task Outside its Schedule
- Pausing and Canceling Tasks
 - Pause and Resume
 - Cancel



Agent Task Scheduling

[Watch the Video](#)

Execute On Schedule: pattern textboxes to build out the pattern for the schedule.

After you determined your task schedule, click Next.

- Next, 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.

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:

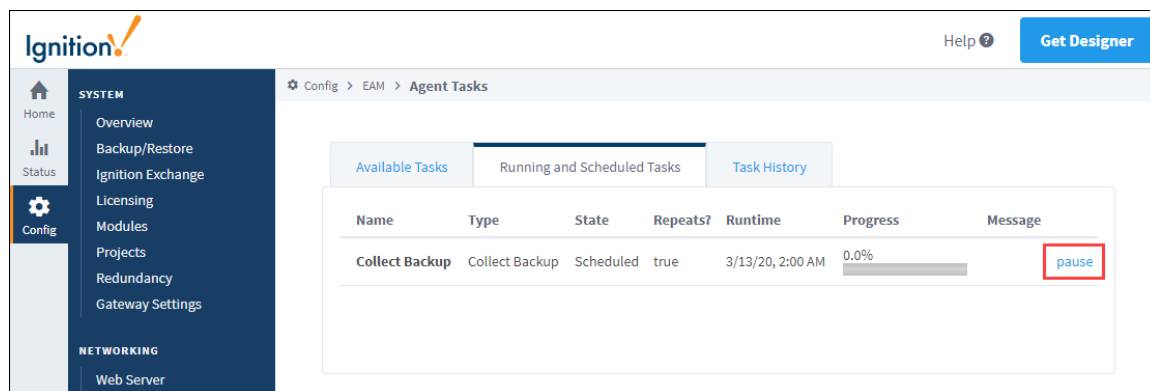
- Tasks that have been scheduled to run immediately are already running, and the “run now” link will not be visible.
- A task that has been scheduled to execute only once at a scheduled time or after a delay will be rescheduled to run immediately. The task will not run again after it has been rescheduled.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



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 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 setup 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.

On this page

...

- [Maintaining Your Agents](#)
- [Agent Management](#)
- [Agent Groups](#)

Agent Management

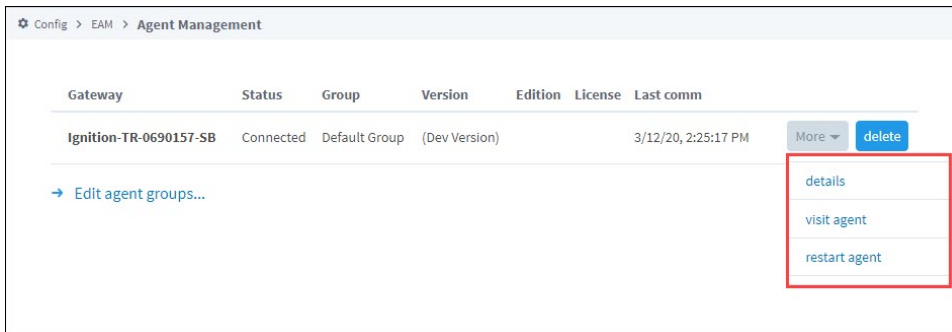
Once the agent is setup and connected, the **Setup** option disappears on the controller, and is replaced with a list of Enterprise Administration menu options.

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**.

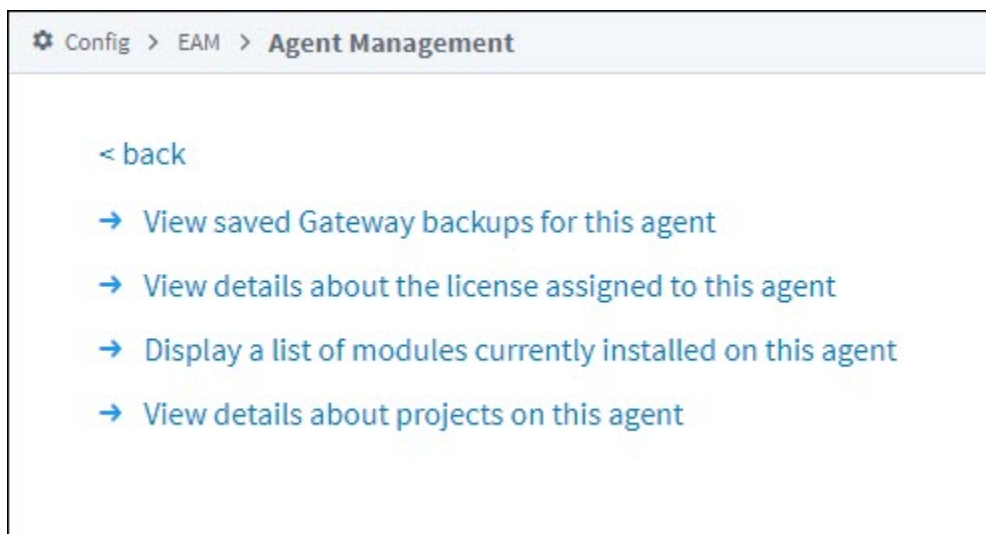
Details: Takes you to an agent details screen.

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.



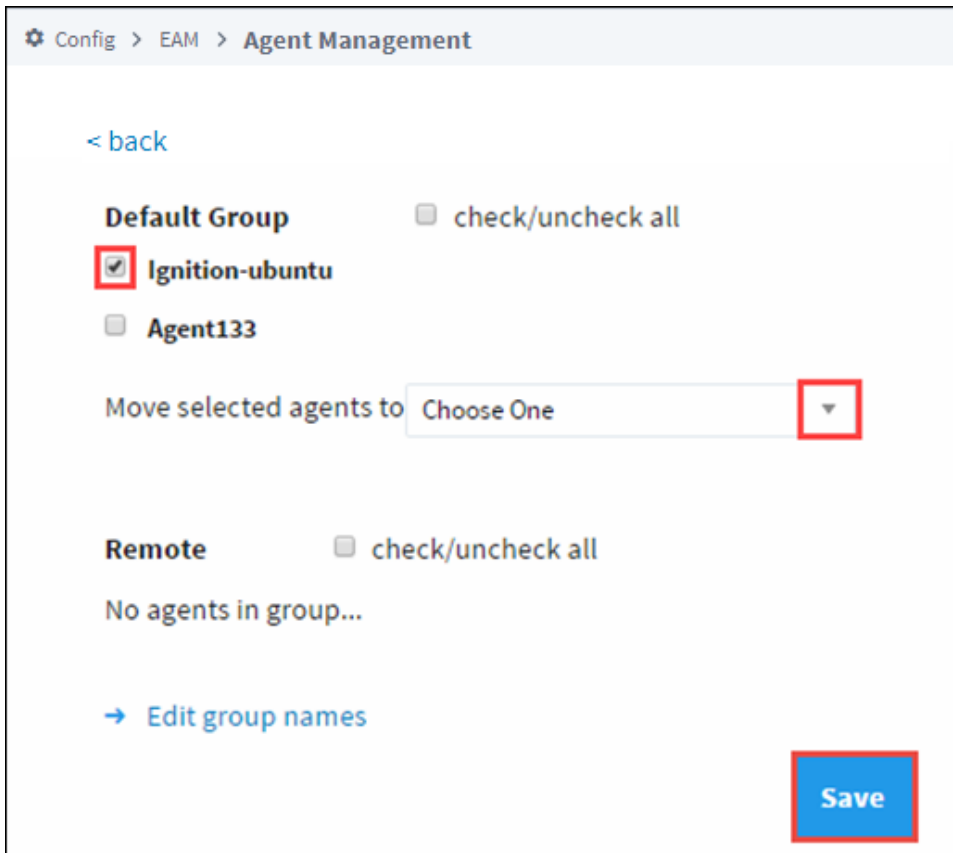
The following are the options in the Agent Details.

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.

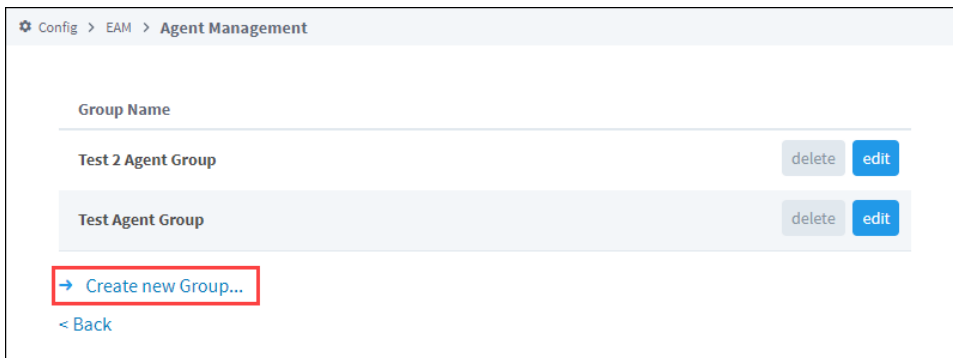
Agent Groups

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**.



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.



In This Section ...

Agent Recovery

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.

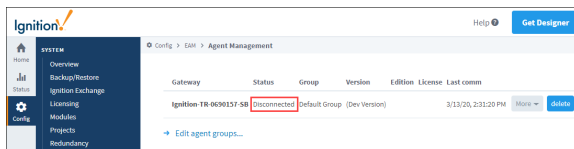
On this page

...

- [Perform an Agent Recovery](#)

Perform an Agent Recovery

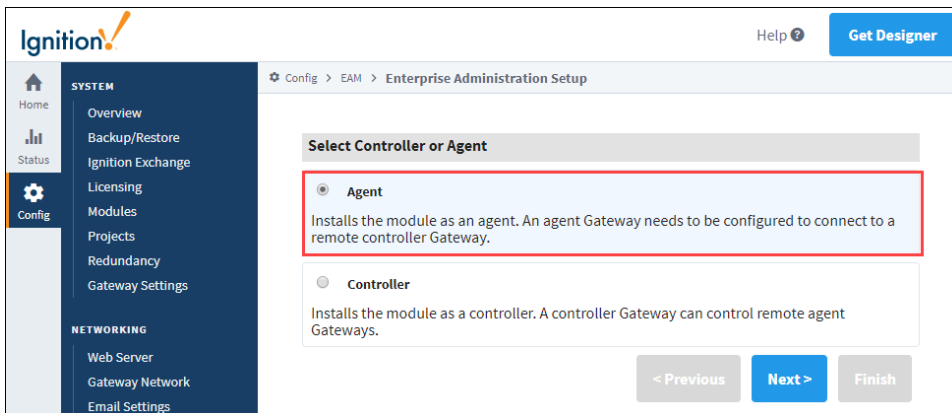
Let's assume that the Agent computer crashed. To check the status, go to your **Controller**, navigate to **Enterprise Administration > Agent Management** and check the status of the Gateway Agent. In this example, you can see that Ignition-TR-0690157-SB is disconnected.



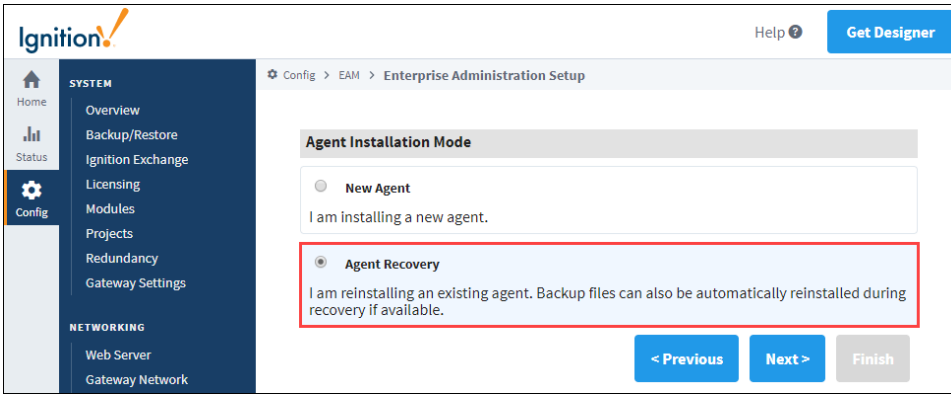
Agent Recovery

[Watch the Video](#)

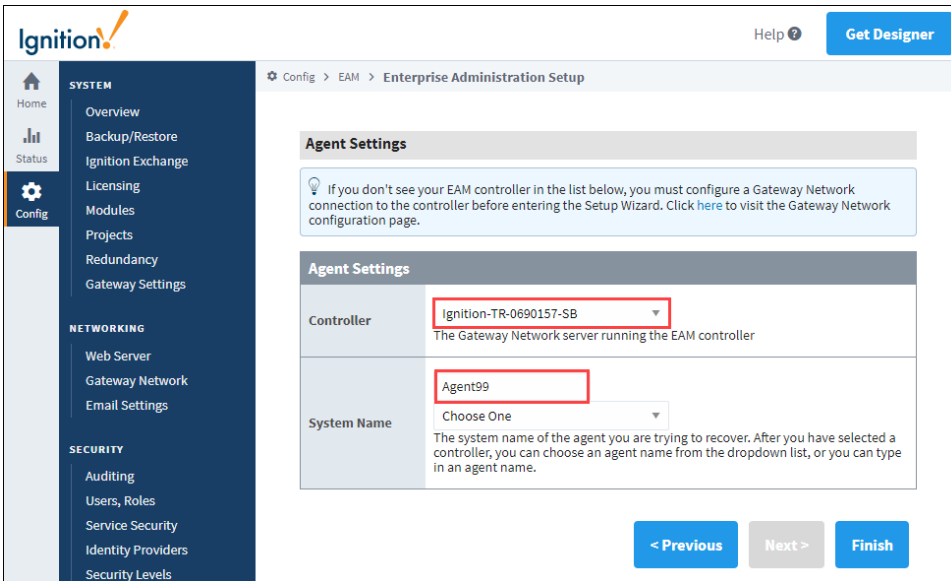
1. On the **Agent** computer, [install Ignition](#) and make sure the EAM Module is also installed (it is added by default if you use the **Typical** selection during installation).
2. On your **Agent**, go to the **Config** section and select the **Enterprise Administration Setup**. The EAM wizard will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



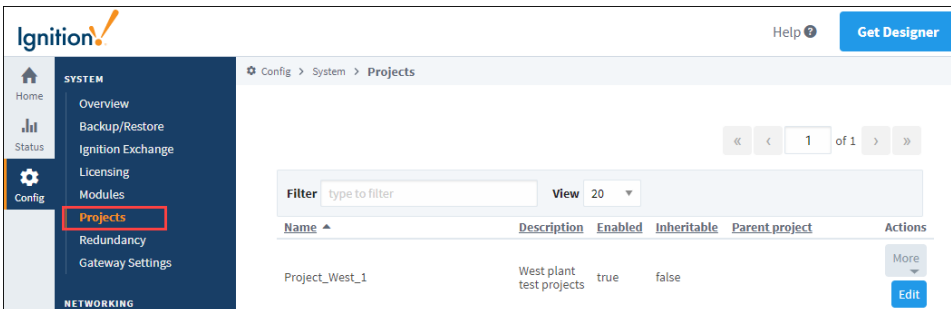
3. In order to continue with the Agent Recovery procedure, you must have a backup collection of the Agent. When you initially setup your Agent on the Controller, you created an [Archive Path](#) where the backup files are stored. EAM will automatically know where to retrieve the backup files. Click on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



- 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**.



- The Agent will go through a series of steps: check the Agent status on the Controller, retrieve the Ignition license file, download Ignition modules, and 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.
- The screen will refresh once the Gateway is up and running. Go to the **Config** section 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**.

The screenshot shows the Ignition web interface's 'Module Configuration' page. The left sidebar contains navigation options under 'SYSTEM', 'NETWORKING', 'SECURITY', and 'DATABASES'. The 'Modules' option is highlighted. The main content area is titled 'Inductive Automation' and features a table of installed modules. Each row includes the module name, version, description, license state, and a 'restart' button. A 'View Certificate' checkbox is also present at the top of the table.

Name	Version	Description	License	State	More	restart
Alarm Notification	5.0.11-SNAPSHOT (b2020030902)	Provides alarm notifications via email	Trial	Running	More	restart
Allen-Bradley Driver	5.0.11-SNAPSHOT (b2020030902)	Allen-Bradley driver suite for the OPC UA module.	Trial	Running	More	restart
DNP3 Driver	3.0.11-SNAPSHOT (b2020030902)	A driver supporting DNP3 (Distributed Network Protocol) device.	Trial	Running	More	restart
Enterprise Administration	3.0.11-SNAPSHOT (b2020030902)	A remote Gateway administration system, allowing you to manage Gateways and automate tasks from a single controller.	Trial	Running	More	restart
Logix Driver	4.0.11-SNAPSHOT (b2020030902)	A driver for communicating with Allen-Bradley Logix5000 series PLCs, and includes firmware version 21 support	Trial	Running	More	restart
Modbus Driver	6.0.11-SNAPSHOT (b2020030902)	A driver for communicating with devices via Modbus-TCP.	Trial	Running	More	restart
Omron Driver	3.0.11-SNAPSHOT (b2020030902)	Drivers for Omron PLCs.	Trial	Running	More	restart
OPC-UA	8.0.11-SNAPSHOT (b2020030902)	Provides Ignition's OPC UA client and server functionality.	Trial	Running	More	restart
OpCom	5.0.11-SNAPSHOT (b2020030902)	Bridge that exposes COM based OPC-DA servers to the system.	Trial	Running	More	restart
Perspective	1.0.11-SNAPSHOT (b2020030902)	A module that provides modern, responsive html based graphical interfaces for Ignition projects.	Trial	Running	More	restart

Related Topics ...

- Automated Agent Installation
- License Management

Automated Agent Installation

Automated Agent Installation

The EAM allows an agent Gateway to be automatically configured from text files the first time the Gateway is started. This capability is enormously useful when installing multiple agent Gateways in your network, as otherwise you must install each Gateway, log in, and install and configure the EAM agent. To automatically configure an agent, 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 machines.



For `init.properties`, you are not required to use all the settings shown below. The Gateway will use its standard default settings instead.



Note 2: Multiple 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
```

Example init.properties

init.properties

```
# SystemName: sets the Gateway name in Gateway Settings
SystemName=Agent1
# AutoDetectLocal: 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.
AutoDetectLocal=false
# LocalInterface: manually sets the IP address of the Gateway. If set, the AutoDetectLocal setting must
be set to false
LocalInterface=10.20.11.17
# UseSSL: set to true to force all connecting web browsers to connect to the Gateway over SSL
UseSSL=false
# PingRate: how often in milliseconds to ping the remote machine
gateway.network.0.PingRate=1000
# Enabled: set to false to disable the gateway connection after it is created
gateway.network.0.Enabled=true
# Host: the address of the remote machine
gateway.network.0.Host=10.20.11.18
# Port: the port of the remote machine.
gateway.network.0.Port=8088
# Enable SSL: set to true to use SSL to connect to the remote machine. Note that you must change the
Port setting to use the Gateway Network SSL port. This port is 8060 by default.
gateway.network.0.EnableSSL=false
# PingTimeout: how long in milliseconds to wait for a ping request to be processed by the remote machine
gateway.network.0.PingTimeout=300
# PingMaxMissed: the number of failed pings allowed before the connection state is set to Faulted.
gateway.network.0.PingMaxMissed=30
# EnableWebSockets: set to true to allow faster asynchronous communications with the remote machine.
gateway.network.0.EnableWebSockets=true
# WebSocketTimeout: how long to wait in milliseconds for a message to be processed over the web socket
gateway.network.0.WebSocketTimeout=10000
# HttpConnectTimeout: how long to wait in milliseconds to initially connect the http data channel
gateway.network.0.HttpConnectTimeout=10000
# HttpReadTimeout: how long to wait in milliseconds to read data from the http data channel
gateway.network.0.HttpReadTimeout=60000
```

Example eam-install.properties

eam-install.properties

```
# installSelection: always set this setting to Agent
setup.installSelection=Agent
# controllerServerName: the Gateway Network server name of the controller
agent.controllerServerName=Ubuntu-Controller
# sendStatsInterval: the amount in seconds that the agent will wait before sending new metrics and
configuration data to the controller. Note that if there are currently no interesting metrics or updated
config data to send, the agent will not send any data.
agent.sendStatsInterval=5
```

Related Topics ...

- [License Management](#)

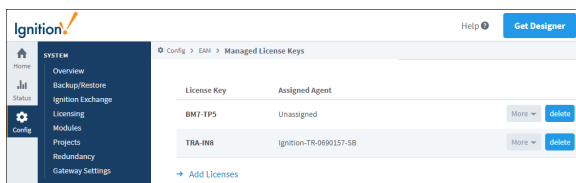
License Management

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.



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

On this page

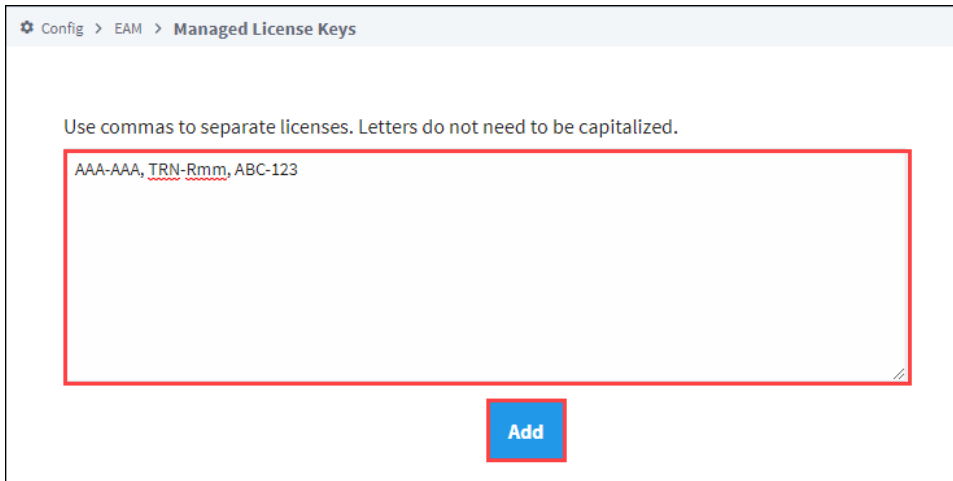
...

- License Management
 - Agent License Reporting
 - License Details
- Activate and Unactivate a License
- Preloading Licenses
- Deleting Licenses



License Management

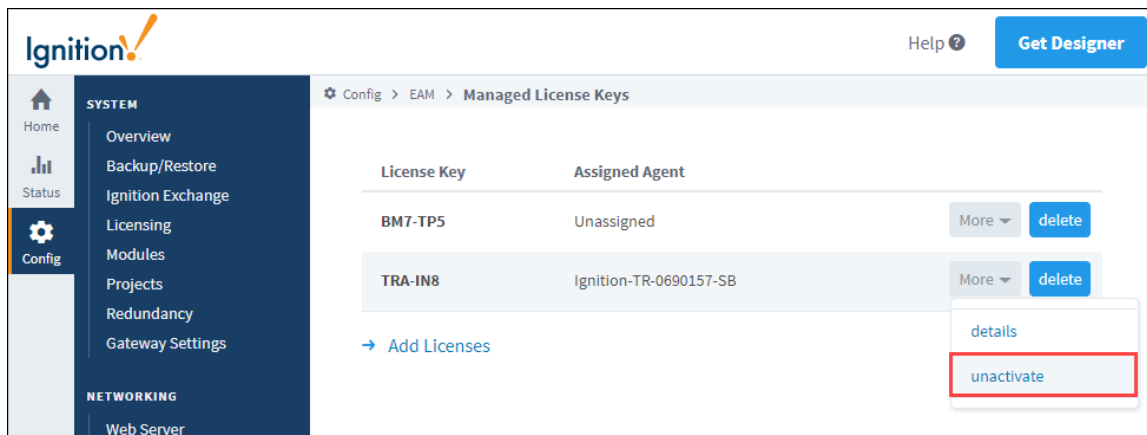
[Watch the Video](#)



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.



Related Topics ...

- Agent Task - Scheduling

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.

! 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

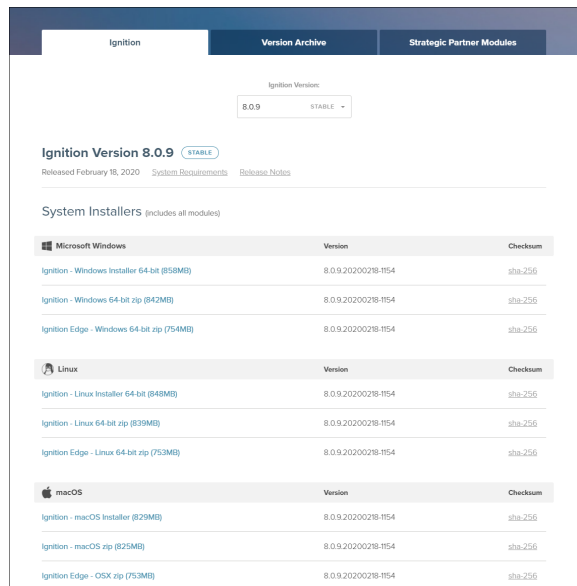
When upgrading a redundant pair of agents, it is recommended that the backup be upgraded before the master.

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



The screenshot shows the Ignition Version Archive page. At the top, there are tabs for 'Ignition', 'Version Archive', and 'Strategic Partner Modules'. The 'Version Archive' tab is active. Below the tabs, there is a dropdown menu for 'Ignition Version' set to '8.0.9' and a 'STABLE' indicator. The main content area is titled 'Ignition Version 8.0.9' and includes a 'STABLE' badge, release date 'Released February 18, 2020', and links for 'System Requirements' and 'Release Notes'. Below this, there is a section for 'System Installers (includes all modules)' with three sub-sections: Microsoft Windows, Linux, and macOS. Each sub-section contains a table of installers with columns for 'Version' and 'Checksum'.

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 the **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**.

On this page

...

- [Upgrading Redundant Agents](#)
- [Remote Agent Upgrade Task](#)
 - [Creating the Remote Agent Upgrade Task](#)
- [Upgrading the Agent](#)
 - [Remotely Upgrading an Agent](#)

The screenshot shows a web interface for configuring agent tasks. On the left is a navigation menu with sections: Overview (Home, Status, Config), NETWORKING (Web Server, Gateway Network, Email Settings), and SECURITY (Auditing, Users, Roles, Service Security, Identity Providers, Security Levels). The main content area is titled 'Config > EAM > Agent Tasks' and contains a list of tasks, each with a radio button and a 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.

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. You can leave the schedule set to **Execute On Demand**.



This task does not upgrade the agent, it only prepares the files for later. You may continue without worry that the agent will be restarted.

Config > EAM > Agent Tasks

Task Scheduling

Task Name: Remote Agent_5 Upgrade

Execute Immediately

Execute On Demand

Execute Once, Scheduled

3/13/20 11 : 44 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. Next Select the Agent you want to upgrade. Click **Next**.

6. 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

- 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.
- The **Task Summary** page will appear. Review the information, and click **Finish**. The new task will run, and pass the files to the agent. Once complete, the agent will be prepared for a remote upgrade.

Config > EAM > Agent Tasks

Task Summary

Task Name	Task Type	Schedule	Target Groups/Agents
Remote Agent Upgrade	Remote Agent Upgrade	On Demand	Ignition-TR-0690157-SB

< Previous Next > Finish

Upgrading the Agent

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

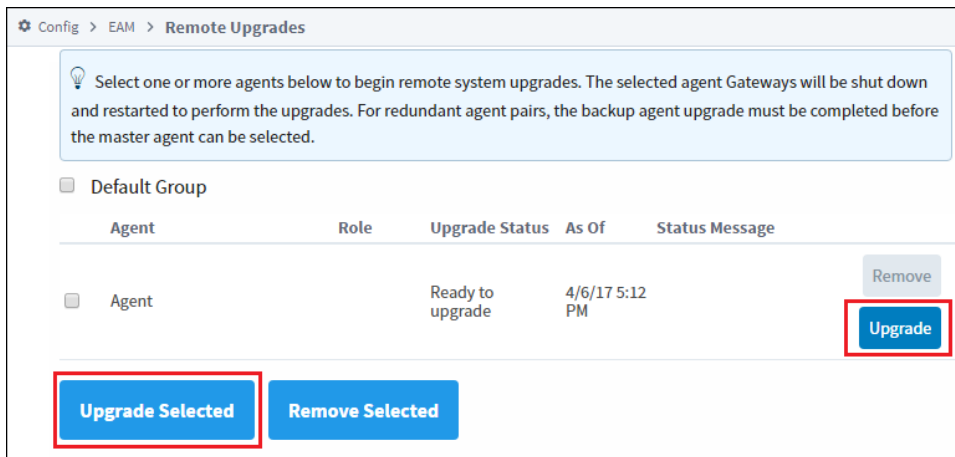
i As with all upgrades, it is highly recommended to take a backup of the Agent before starting the upgrade process. Information on taking a backup from an Agent can be found on the [Agent Task - Backup and Restore](#) page.

Remotely Upgrading an Agent

- 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.



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

Related Topics ...

- Agent Task - Send Project
- Agent Task - Backup and Restore

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. This includes approving new agents and running agent tasks.
- 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.

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.

Related Topics ...

- [Gateway Network](#)
- [Setting Up Redundancy](#)

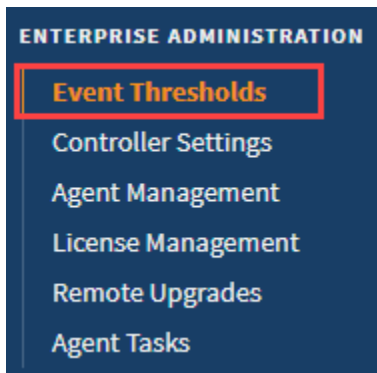
Event Threshold Settings

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**.



On this page

...

- Overview
- General Settings
 - Alarm Evaluation
 - Activity Monitor
 - Advanced Properties - System Metric Thresholds



Agent Event Threshold Settings

[Watch the Video](#)

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.

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. <pre>project:ProjectName:/pipeline:PipelinePath</pre>

	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	<p>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.</p> <pre>project:ProjectName:/pipeline:PipelinePath</pre> <p>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.</p>

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.)

Related Topics ...

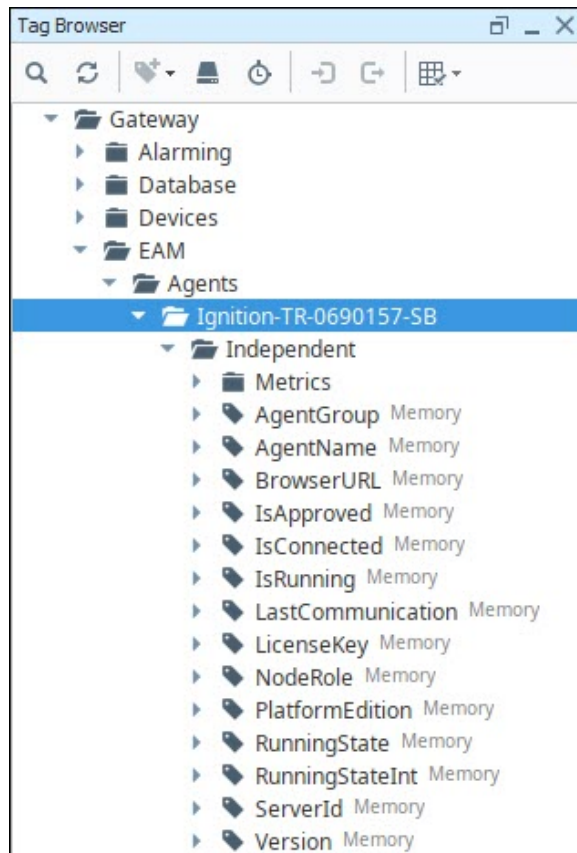
- [EAM in the Designer](#)
- [Perspective Alarm Status](#)
- [Vision Alarm Status](#)
- [Alarm Journal](#)

EAM in the Designer

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.



On this page

...

- Agent System Tags
- Property Binding Functions
- Scripting Functions
- Tag Distribution for Development Servers



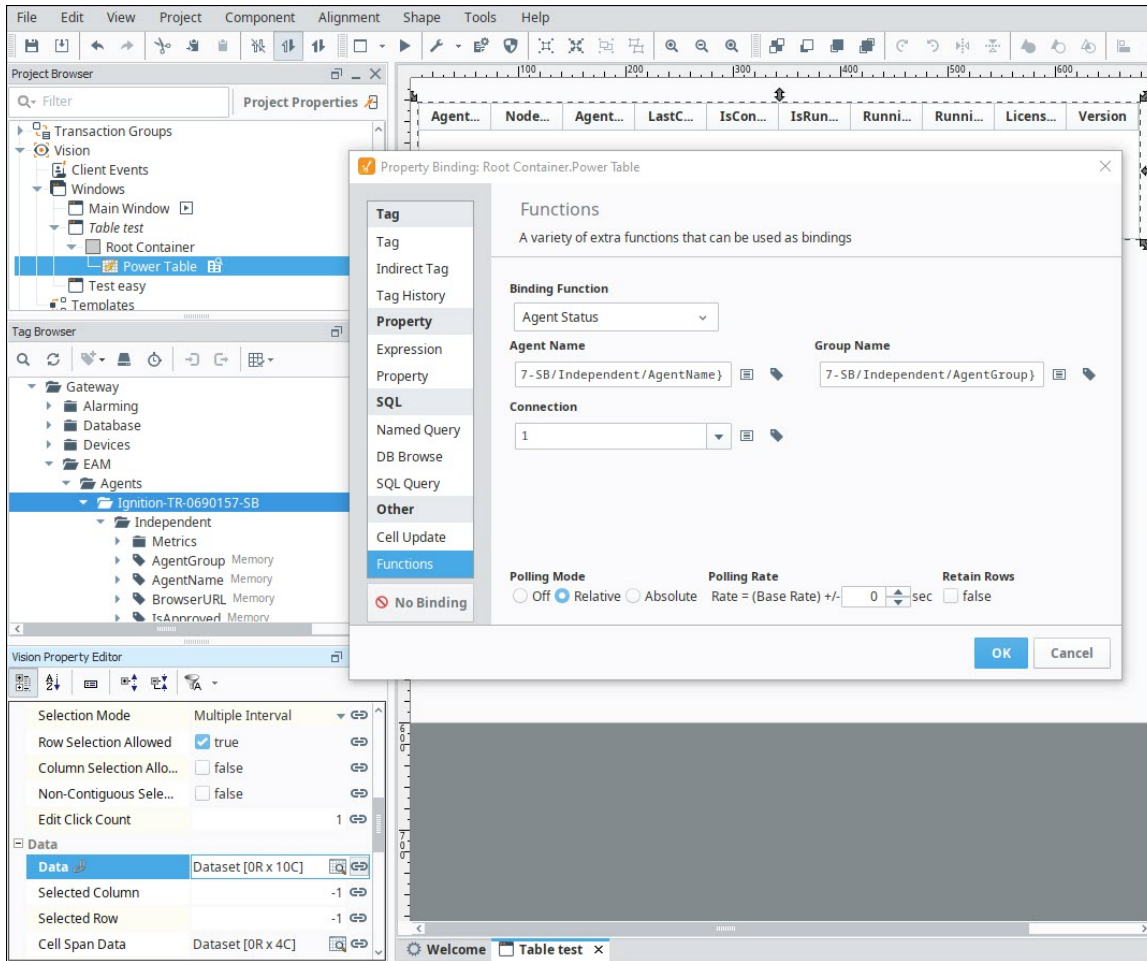
EAM in the Designer

[Watch the Video](#)

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.



Scripting Functions

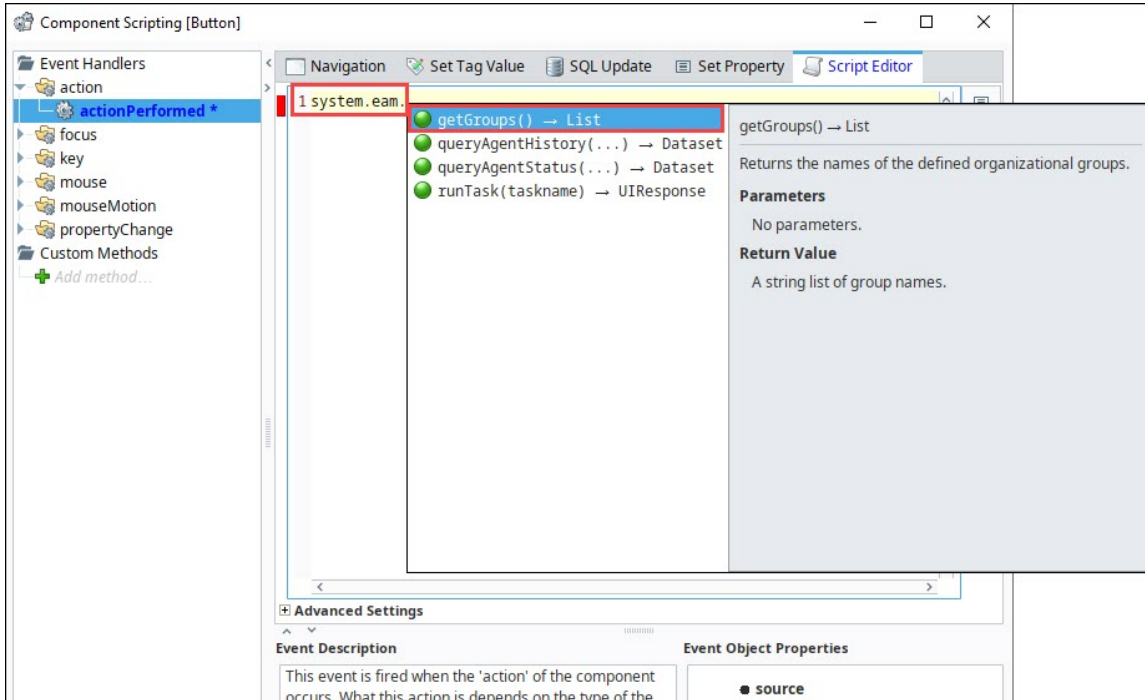
There are several scripting functions that are included in the system.eam package:

- **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

The following feature is new in Ignition version **8.0.3**
[Click here](#) to check out the other new features

- **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.

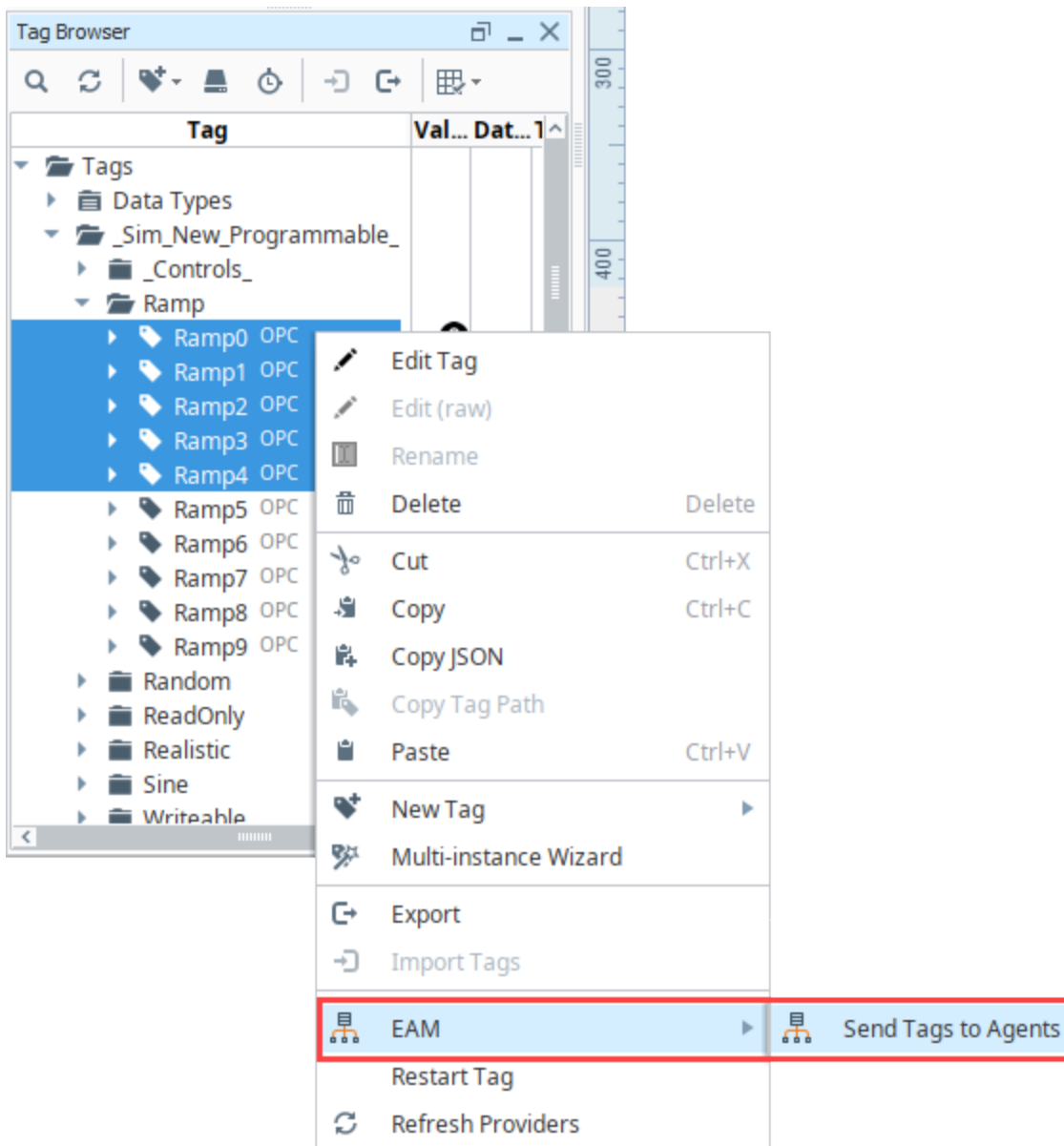
More details and examples can be found in the [system.eam](#) section of the [Appendix](#).



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.



Related Topics ...

- Agent Tasks
- Understanding Tags
- Property Binding Types
- Scripting Functions