



GE LaunchNET User Guide

Version 5.6



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Overview

GE LaunchNET is a graphical front-end program that offers provisioning of device configuration at the beginning of a device's life cycle. It consists of two components:

GE LaunchNET: The web application, which allows for the creation/staging of device templates, management of device inventory, and GE PulseNET Integration.

Radio Admin: This client acts as the conduit between the application and the device being configured.

LaunchNET Roles

LaunchNET uses the underlying User/Role system of GE PulseNET, which contains two default roles, by default Administrators have access to all views and groups, Operators have no access to views or groups.

Login

Before the login menu will display, the GE PulseNET services must be running.

To log in to GE PulseNET using a Web browser:

1. Open a Web browser.
2. Navigate to the URL with the following syntax:

```
http[s]://<hostname>:<port>/
```

Where *<hostname>* is the name of the machine that has a running instance of GE PulseNET and *<port>* is the HTTP or HTTPS port specified during installation (the defaults are 8080 and 8443).

3. On the login screen that appears, enter the **Username** and **Password**.
4. Click **Login**.

Operator users are automatically taken to the Summary dashboard because access to other menus must be granted by an Admin first.



The appearance of GE PulseNET and the variety of accessible dashboards will vary depending on the role and permissions assigned. Administrators can access advanced dashboards and configuration workflows, while Operators have access to a restricted set of dashboards, based on the permissions they have been granted.

Admin Overview

The following section relates to tasks exclusive to Administrator users. Multiple Administrator users can be created, and any Administrator can create additional administrators and operators. The Administrator configures the integration of the system with other systems such as external databases and Microsoft CA servers, and is responsible for creating and staging the templates that Operators will employ to configure the devices.

Licensing

LaunchNET is integrated with GE PulseNET Enterprise and will require a separate license before the LaunchNET menu will appear on the Administration page.

One of the first administrative tasks is to request and install a valid **GE LaunchNET** license. Once in place, a second **LaunchNET Devices** license must be requested which will provide GE LaunchNET with the capacity to stage devices for provisioning. Follow the PulseNET licensing instructions below to generate a GE LaunchNET request, then a subsequent LaunchNET Device request.

To request a license:

1. Navigate to **Administration > Licensing > Request a License**. A dialog box will appear.
2. Select required product from the dropdown list of **Available Products**.

3. In the **Contact Name** field, type the name of the person at the company who will be the contact.
4. In the **Access Code** field, type the access code obtained from the GE Sales team.
5. In the **Desired Capacity** field, type the total number of licenses required. **Note:** LaunchNET is an activation license and does not require a quantity. However, subsequent LaunchNET Device license will require a quantity value.
6. In the **Comment** field, enter any comments which would help the Licensing team fulfill the license request.
7. Click **Save Request to a File** in order to create a licenseRequest.txt file. This must be sent directly to the GE Licensing Team at: gemds.pulsenet@ge.com

When the request is approved, the new license will be sent via email by GE.

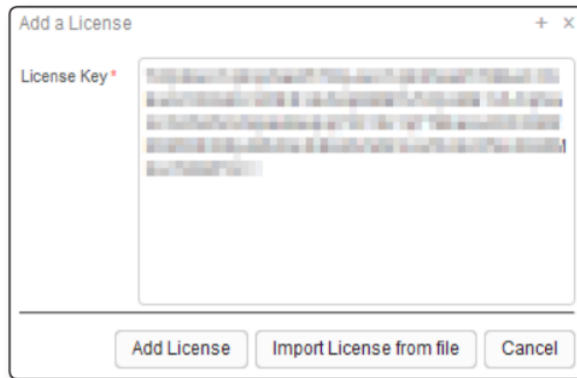
Adding Licenses

After receiving the new licenses, they must be added to PulseNET before the devices can be monitored.

To add a license:

1. Navigate to **Administration > Licensing > Add a License**.
2. In the dialog box that appears, click **Import License from File** and locate the license file locally (the file must be on the machine where the browser is running). The key can also be copied out of the license file and pasted directly into the **License Key** field.

3. Click **Add License**.



If the license is valid, it is added to GE PulseNET. Otherwise, a message will display stating that the license key is invalid. Contact the GE PulseNET Licensing team if this occurs.

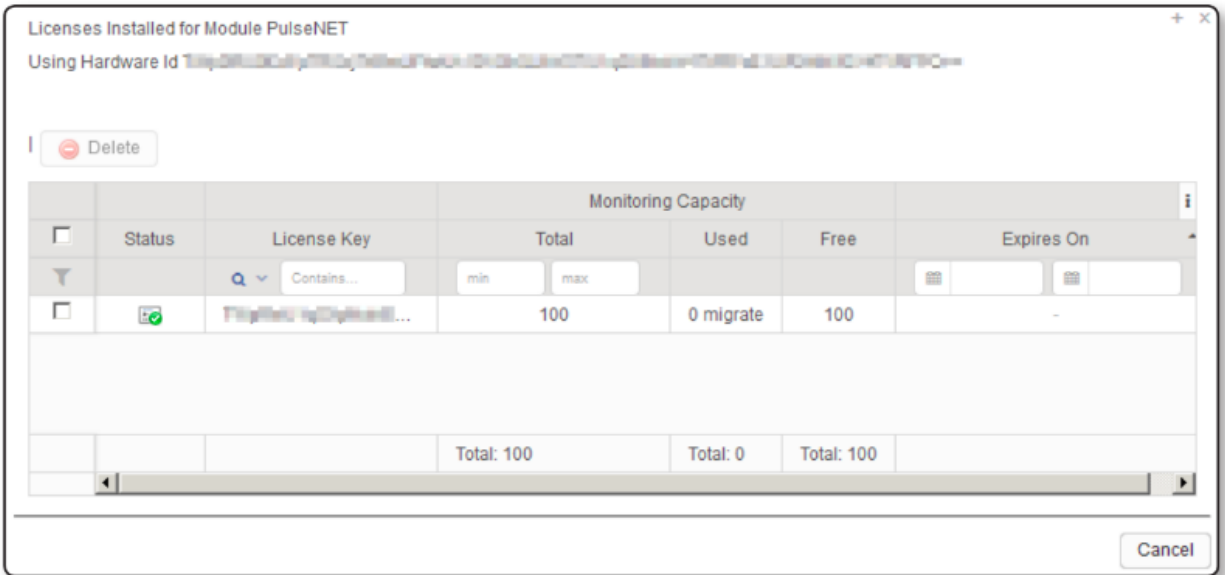
Managing Licenses

Installed licenses appear under **Administration > Licensing > Manage Licenses**. This menu allows deletion of expired licenses, migrating devices to new licenses, or requesting replacement licenses.

Name	Type	Expiry	License	Method
PulseNET	Permanent	-	100	Device

Click on any license row to view the details for a specific license. Here the Hardware ID that identifies the server to GE PulseNET can be referenced. Using the checkboxes, multiple rows can be selected and removed from the system, if expired. Click on the **License Key** field to view the GE PulseNET license key associated with this license.

The **Used** column provides the option to migrate devices that have been associated to this license. Click the **Migrate** link to view the list of devices and select them for migration. Once selected, choose another GE PulseNET license to which the selected devices should be migrated.





Working with Users

GE PulseNET controls user access to the web interface using the concept of users, groups, and roles. When administrators create new users, a role and/or group can be assigned to the user. The assigned role/group determines the features and views that users can access when they log in to GE PulseNET.

Creating Users

Create a New User

1. Navigate to **Administration > User Management > Users**
2. Click the **Add**  button
3. Enter a unique name for the new user
4. Enter the user's email address (if desired)
5. Enter a GE PulseNET password for this user, then confirm the password on the next line
6. Assign the new user one or more roles. Administrators also have access to all operator functionality.
7. Optionally assign the new user to one or more user groups
8. Click **Save** .

The new user now appears in the users table.

Managing Users

All users are listed in the **Users** table, along with the options to lock the account, edit the settings, or delete the user account.

- Click the **Lock** icon to lock or unlock a user account

Status	Actions	System	Name	User Roles	Last Login	Type
			admin	Administrator	12-14-2017 04:52:51 PM	Internal
			fieldtech2	Operator	12-14-2017 04:52:37 PM	Internal
			operator	Operator	12-14-2017 04:52:09 PM	Internal


- Click the **Copy** icon to make a duplicate of an existing user account
- Click the **Edit** icon to change account details (name, role, password)
- Click the **Delete** icon to remove an account from GE PulseNET
- Click the **Audit Trail** icon to view the GE PulseNET activity by this user

Configuring Password Policy

As an administrator, the global password policy for all user accounts can be modified. Click the **Edit** button to change any of the global defaults.

Settings	Value
Days before password expires (-1 for never)	-1
Incorrect login attempts before user lockout	5
Lockout duration in minutes (0 for manual)	15
Minimum number lower case letters	0
Minimum number upper case letters	0
Minimum number numeric characters	0
Minimum number special characters	0
Minimum password length	7

User Session Timeout


As an administrator the user session timeout can be configured. Enter the new value and click **Save** , or check the box which disables session timeout, if desired.



The image shows a dialog box titled "User Session" with a close button (X) in the top right corner. It contains a text input field with the label "Idle time before a user is logged out (mins) *" and the value "60". Below the input field is a checkbox labeled "Session never times out". At the bottom right of the dialog are two buttons: "Save" and "Cancel".


Managing User Roles

GE PulseNET has two default roles: **Administrator** and **Operator**. These roles allow each set of users to have the privileges they require in order to accomplish tasks related to GE PulseNET application administration, device management, and monitoring. Administrator users typically have full privileges to accomplish all tasks. Operator users typically have read-only access to view collected data and reports.

For most customers the two default roles will be adequate to delineate the needs of their GE PulseNET users. However, GE PulseNET also provides Administrators with the ability to create custom roles as needed. To create a new role, navigate to Administration > User Management > User Roles, click **Add**  to enter the unique name of the role and its description.

Managing User Groups

GE PulseNET user groups are defined based on the roles that have been created. GE PulseNET has two default user groups (Administrator and Operator) which correspond to the Administrator and Operator roles. These groups provide a higher level of abstraction for defining user privileges, since a single user group can consist of multiple user roles.

For most customers, the two default user groups will be adequate to delineate the needs of their GE PulseNET users. However, GE PulseNET also provides Administrators with the ability to create custom groups as needed. To create a new group, click the **Add**  button at the upper left corner of the user groups table to enter the unique name of the group and its description. Then select the different user roles which will be members of the group.

Configuring LDAP

Instead of duplicating existing Lightweight Directory Access Protocol (LDAP) or Active Directory users in GE PulseNET, it can be configured to authenticate directly to the LDAP or Active Directory server. GE PulseNET supports Lightweight Directory Access Protocol (LDAP version 3) compatible directory services, including Active Directory, Sun Java Systems Directory Server, OpenLDAP, and Novell eDirectory.

Familiarity with the details of the specific company LDAP directory service is required to set the appropriate configuration parameters in GE PulseNET. The following considerations are important when planning to integrate an external directory service with the GE PulseNET:

- Secure LDAP is supported, but not required
- LDAP with Transport Layer Security is not supported
- A persistent connection to the LDAP server is not required

LDAP groups can be imported into GE PulseNET and assigned GE PulseNET roles. This allows for users who have been granted special permissions within an organization to have associated permissions in GE PulseNET.

User credentials continue to be managed on the LDAP server. Any password changes in the LDAP directory service are transparent to GE PulseNET. After a password change in the directory service, that user can log into GE PulseNET with the new password, while any attempts to use the old password will fail. If a user account is removed from the directory service, any login requests with those credentials result in a login failure in GE PulseNET.

Similarly, if the LDAP authentication service is down, GE PulseNET cannot authenticate users whose accounts are defined there. At the same time, any internal GE PulseNET users, such as the built-in *admin* user or those created manually using the **Manage Users** dashboard, are unaffected during LDAP authentication service interruptions.

LDAP Configuration Wizard

Required info to connect and login to your primary and secondary LDAP servers to query users and groups

Type * Active directory

Protocol * Ldap

Primary Host * ldap.example.com

Primary Host Port * 389

Secondary Host ldap2.example.com

Secondary Host Port * 389

Base DN DC=example,DC=com

Anonymous

Username * administrator

Password * Test

< Previous Next > Finish Cancel

Configure LDAP Server Information

The first window in the **LDAP Configuration Wizard** serves to configure the connection and login for the LDAP server.

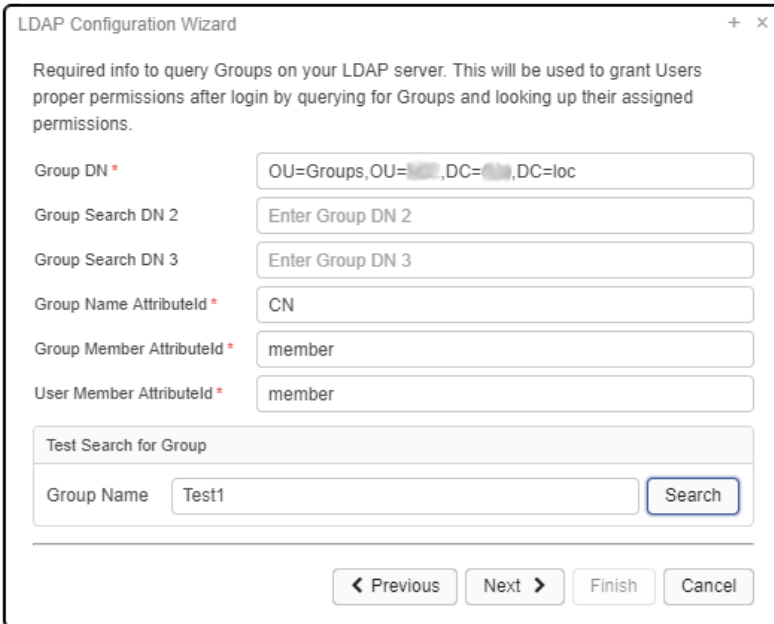
1. Navigate to **Administration > User Management > LDAP Configuration**.
2. In the **LDAP Configuration Wizard** window, select the Type of LDAP server, either Active directory or other.
3. In the **Primary Host** field, select Ldap or Ldap over SSL.
4. In the **Primary Host Port** field, the default port will appear.
5. If a failover server is in use, enter the details in the **Secondary Host** and **Secondary Host Port** fields.
6. In the **Base DN** field, enter the distinguished name (DN) of the service account to fetch users and groups. In Active Directory, typically a common name (CN) is used instead of DN. For example: CN=John Smith, OU=Employees, DC=company, DC=com.
7. If the **Anonymous** checkbox is enabled, GE PulseNET will use an

anonymous service account to search for users in the extended directory. The default user name for anonymous service accounts is `_anonymous_` and enabling this option sets the Distinguished Name of the service account to `_anonymous_`.

8. In the **Username** and **Password** fields, enter the username and password of the service account used for user searching in the external directory.
9. Click the **Test** button to test system connection and login credentials for the LDAP server. If the Test is successful, proceed to the next step.
10. Click the **Next >** button.

Find LDAP User Groups

The second window in the **LDAP Configuration Wizard** grants Users proper permissions after login by querying for Groups and looking for their assigned permissions.

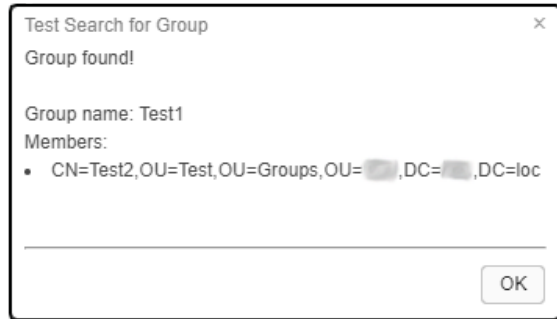


The screenshot shows the 'LDAP Configuration Wizard' window. It contains the following fields and controls:

- Group DN ***: `OU=Groups,OU=,DC=,DC=loc`
- Group Search DN 2**: `Enter Group DN 2`
- Group Search DN 3**: `Enter Group DN 3`
- Group Name AttributeID ***: `CN`
- Group Member AttributeID ***: `member`
- User Member AttributeID ***: `member`
- Test Search for Group** section:
 - Group Name**: `Test1`
 - Search** button
- Navigation buttons at the bottom: `< Previous`, `Next >`, `Finish`, and `Cancel`.

1. In the **Group DN** field, enter the search path for groups identified in the LDAP server. For example: `OU=Groups,DC=2k3,DC=dom`. The order in which the groups are searched is determined by the order of the groups listed in these settings. The **Group Search DN 2** and **3** fields are optional.
2. In the **Group Name Attribute-ID** field, enter the Attribute-ID

for finding Groups in the external directory. The default for Active Directory is “CN.”

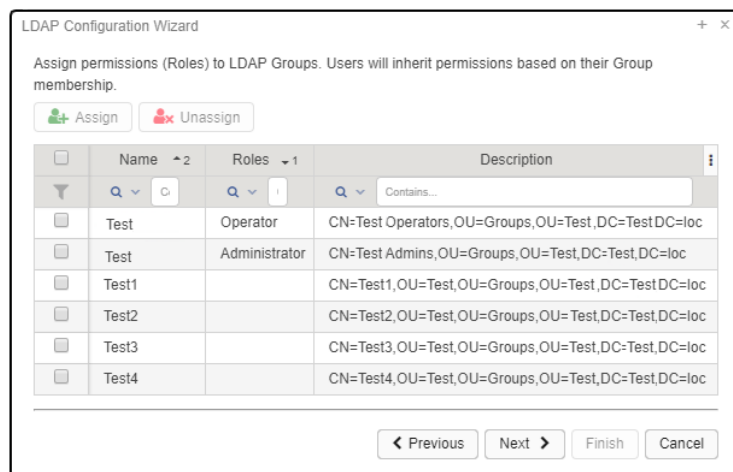



3. In the **Group Member Attribute-ID** field, enter the Attribute-ID for finding Group Members in the external directory. The default for Active Directory is “member.”
4. In the **User Member Attribute-ID** field, enter the Attribute-ID for finding Users in the external directory. The default for Active Directory is “member.”
5. To ensure the paths are correct for finding Groups, in the **Group Name** field, enter the name of a Group to search. Click the **Search** button. If the search is successful, the **Test Search for Group** dialog box will indicate “Group found!” and list the Group Members including the Users and any Subgroups.

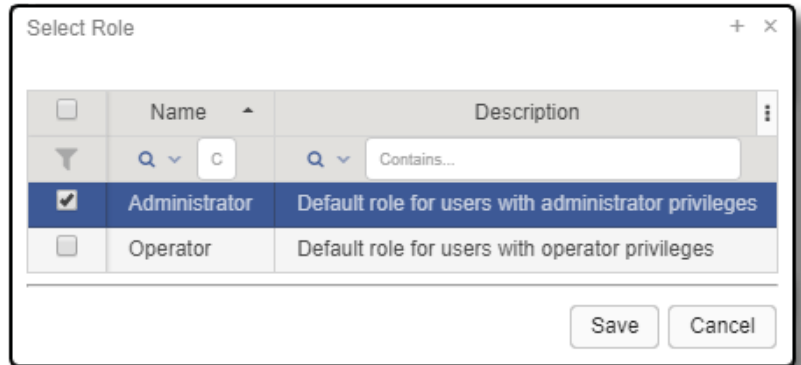
Assign Permissions (Roles) to LDAP Groups

The third window in the **LDAP Configuration Wizard** assigns permissions (roles) to LDAP Groups.

1.

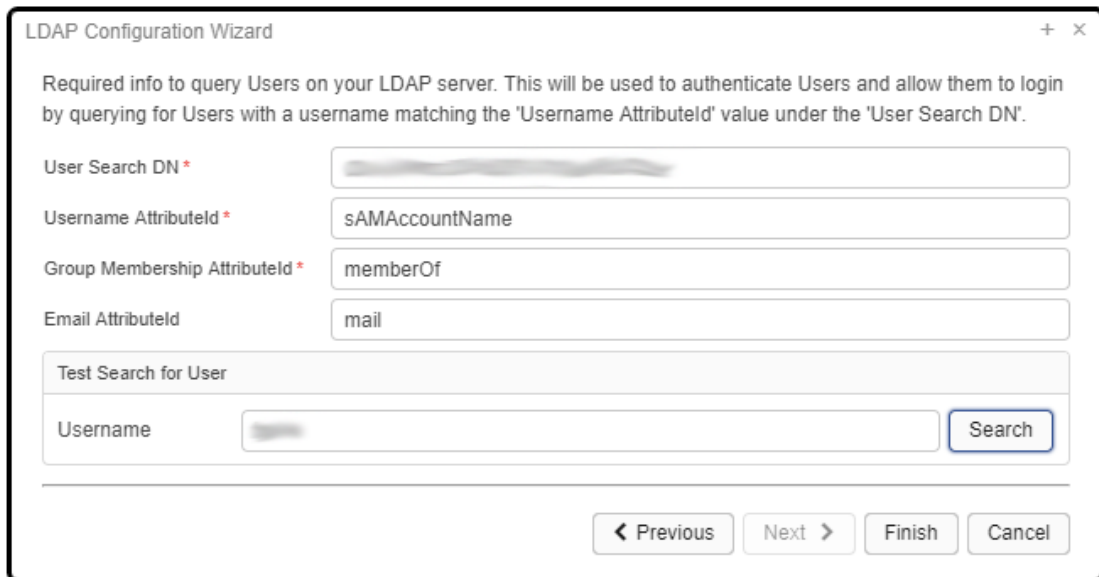


- Select the checkbox for LDAP Groups to which roles will be assigned.
- Click the **Assign** button.
- In the **Select Role** window, choose the role that will be assigned to selected LDAP Groups by clicking the checkbox.
- Click **Save** .
- To remove a role from a Group, select the LDAP Group by clicking the checkbox. Then, click the **Unassign** button.
- Click the **Next >** button.



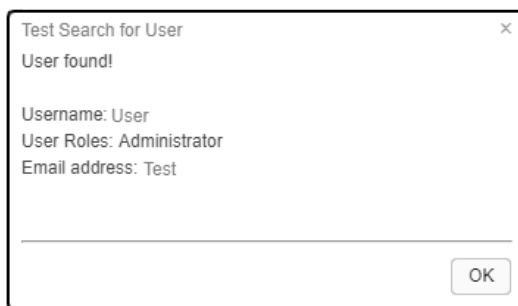
Finding LDAP Users

The fourth window in the **LDAP Configuration Wizard** provides a means to search for and test the connection of LDAP Users.



1. In the **User Search DN** field, enter the search path for users identified in the LDAP server. For example, in Active Directory, if the CN user accounts are defined in the sAMAccount=Users group, and the Active Directory domain is example.com, apply the following: CN=Users,DC=example,DC=com

2. In the **Username Attribute-ID** field, enter the Attribute-ID which contains the Username. For example, in Active Directory, the default is sAMAccountName.
3. In the **Group Membership Attribute-ID** field, enter the Attribute-ID which includes the Group Membership. For example, in Active Directory, the default is memberOf.
4. In the optional **Email Attribute-ID** field, enter the Attribute-ID which includes the User's Email. For example, in Active Directory the default is mail.
5. To ensure the paths are correct for finding Users, in the **Username** field, enter the name of a User to search. Click the **Search** button. If the search is successful, the **Test Search for User** dialog box will indicate "User found!" and list the Username, User Roles, and Email Address.



6. In the **LDAP Configuration Wizard** window, click the **Finish** button.

NOTE: All credentials and permissions are controlled by the LDAP server. Each time a user logs in, GE PulseNET will check the credentials and User Roles designated by LDAP, and update their permissions in PulseNET.

If GE PulseNET is being configured to use secure LDAP, an additional step is required.

GE PulseNET makes use of the standard Java LDAP service provider using *Java Secure Socket Extension (JSSE)* software for SSL support. To configure secure communication between GE PulseNET and the


LDAP server, ensure that the GE PulseNET LDAP client trusts the LDAP server by installing the LDAP server's root certificate (CA) in GE PulseNET's database of trusted certificates.

1. Navigate to `<pulsenet_home>\jre\lib\security`
2. Obtain the CA certificate for the secure LDAP server and make sure it is accessible under `<pulsenet_home>`
3. Use the Java keytool program to import the LDAP server's root CA certificate into the keystore. Refer to the documentation for the Java keytool command if needed (docs.oracle.com/javase/6/docs/technotes/tools/solaris/keytool.html). If the `jssecacerts` keystore does not exist, the following commands will create it. If it already exists, ensure the existing keystore password is known, and it can be accessed.
 - a. `<pulsenet_home>\jre\bin\keytool -import -file <path_to_ldap_server_CA_file>\<root_CA_Cert_filename>.crt-keystore jssecacerts`
 - b. Enter the `jssecacerts` keystore password, or enter a new password if none previously existed.
 - c. Look at the files in the security folder to verify that the `jssecacerts` keystore exists.
4. Restart the GE PulseNET service and log in as an admin user to retest LDAPS connectivity.

GE PulseNET can now send requests to the secure LDAP server.

LDAP User Groups

To manage the roles assigned to LDAP User Groups navigate to **Administration > User Management > LDAP** User Groups.

1. Select the checkbox(es) for all LDAP Groups to which roles will be assigned.
2. Click the **Assign** button.
3. In the **Select Role** window, select the checkbox(es) for the role that will be assigned to the selected LDAP Groups.
4. Click **Save** .
5. To remove a role from a Group, select the LDAP Group by clicking the checkbox. Then, click the **Unassign** button.

Note: GE LaunchNET currently supports only LDAP protocol version 3.

Access Control Overview

The Access Control feature allows administrators to grant unprivileged users the ability to view dashboards which would normally only be accessible to administrators. This provides a way for GE PulseNET administrators to delegate some of their routine tasks to power users that they have identified. These extra privileges can be granted by specific User Name, by User Group, or by User Role.

The screenshot shows the 'Access Control' interface with a table of roles. The table has columns for Actions, Name, Description, Access T..., View Name, and Apply to Names. There are search filters for Name and Description, and a dropdown for Access T... (set to 'Equal').

Actions	Name	Description	Access T...	View Name	Apply to Names
<input type="checkbox"/>	OperPlus-DLINKdiscovery	OperPlus role with access to DLINK Discovery	✓	Dlink Discovery	OperatorPlus
<input type="checkbox"/>	OperPlus-Decommission	OperPlus role with access to Decommissioning	✓	Decommission Device	OperatorPlus
<input type="checkbox"/>	OperPlus-SNMPdiscovery	OperPlus role with access to SNMP Discovery	✓	Snmp Discovery	OperatorPlus
<input type="checkbox"/>	OperPlus-AuditLog	OperPlus role with access to Audit Log	✓	Audit Log	OperatorPlus
<input type="checkbox"/>	OperPlus-ConfigCollection	OperPlus role with access to Configure SLINK Collection	✓	Dlink Config Collection	OperatorPlus
<input type="checkbox"/>	OperPlus-TriggerConfig	OperPlus role with access to Trigger Config Collection	✓	Trigger Config Collection	OperatorPlus
<input type="checkbox"/>	OperPlus-TriggerPerf	OperPlus role with access to Trigger Perf Collection	✓	Trigger Performance Collection	OperatorPlus


View Access Control Properties

Navigate to **Administration > Access Control**.

Delete Access Control Records

- Select the checkbox on one or more rows which are to be deleted
- Click the **Delete** button and confirm that the selected rows will be deleted
- Individual rows can also be deleted by clicking the **Delete** icon in the **Actions** section

Edit Access Control Records

Click the **Edit**  icon on the required row. Any property except the unique Access Control Name can be edited.

Adding an Access Control Record

To add a new record, click the **Add**  button at the top left of the Access Control table.

Add Access Control + x

Name*

Description

Rule Type* Device View

Access Type* Allowed Denied

Actions Access

View Selection* Views Selected Views

Certificate Management

Snmp Discovery

Add Bookmark

Configure Collection

Custom Data Configuration

Syslog Rules

Device Maintenance

Decommission Device

Collection Schedules

Custom Data

DLINK Collection Config

DLINK Discovery

At least one selection (Users, User Groups, User Roles) is required


Users User Roles User Groups

System	Name	Description	Groups Associated
Equi	Device Administrator	Default role for users with device administrator privileges	Device Administrat
	Operator	Default role for users with operator privileges	Operators

Enter a unique **Name** for this Access Control record, and provide a detailed **Description**. Select the specific dashboard or control that users must be able to access by choosing from the **View Selection** menu. If wanting to modify access to specific device types or groups, select **Rule Type: Device**, then specify within the lower menu.

Access Controls can be constructed so that the selected dashboard is **Allowed** or **Denied**. This provides the flexibility to add features for users who need them, or remove features for users who should not be allowed to access them.

Users can be selected using any combination of the three methods represented under the User Management tabs. On the **Users** tab, exact User Names can be selected by using the checkboxes. On the **User Roles** tab one or more User Roles can be selected to which the access control will be applied. Finally, utilize the **User Groups** tab to specify one or more User Groups to which the access control will be applied.



When the access control has been created to specifications, click **Save**  to save the changes and view the new control in the **Access Control** table. Since each record can only grant access to one view at a time for one set of selected user(s), several different Access Control records may need to be created for each dashboard or user group.

For a LaunchNET specific Access Control example, see: [Access Control for LaunchNET](#)

Managing Device Filters

The Filters dashboard allows management of device filter definitions, which form the basis for Device Groups in GE PulseNET. To manage device filter settings, navigate to **Administration > Filters**. From the Filters table, it is possible to view, copy, edit, or delete filters, as well as add new filter definitions.


View Device List for a Filter

Click the green **Run**  icon in the **Actions** section of the row for the filter. A popup list will show the devices captured by this filter. Click the **Blue Information**  icon on any of the devices to view a detailed list of device properties that are available for filtering. Click the gray **X** to close the popup window.


Copy an Existing Filter

Click the **Copy** icon in the Actions section of the row for the filter that will be copied. For more information on working with filter definitions, see the [Adding Device Filters](#) section below.

View a Filter Definition


Either hover over or click the **Blue Information**  icon to the right of the filter **Name** on the row for the filter.

Edit a Custom Filter Definition

Previously-created custom filter definition settings can be edited by clicking the **Edit**  icon on the row for the filter.


Note: Predefined filters delivered with GE PulseNET cannot be edited.

Delete a Custom Filter Definition

Previously-created custom filter definitions can be deleted by clicking the **Delete**  icon on the row for the filter in question.

Note: Predefined filters delivered with GE PulseNET cannot be deleted.

Adding Device Filters

Click the **Add**  button to add a new device filter. Enter a unique device filter name and a description of the devices that will be included by the filter. Next, define the device filter by adding one or more filter conditions. This feature provides a robust and powerful set of operators that can be used to create complex search parameters. Search parameters may be defined using several types of operators: And, Or, Not, Compare.

The Compare operator allows devices to be selected via a specific parameter that matches a chosen value. For example, a comparison can be run to determine whether the IP address of a device starts with “10.0.0”.



Comparison operators include the following:

- **Equals:** The search string in the third field must exactly match the value of the chosen parameter. For example, if a device’s IP address EQUALS “10.0.0.54” it will be listed.

- **Not Equals:** The comparison will return a match if the parameter's value contains anything except the literal search string. For example, any device with a "Firmware Version" NOT EQUAL to "3.1.0" will be listed.
- **Contains:** The comparison will return a match if the search string is contained anywhere within the parameter's value. For example, if the device's model CONTAINS "MDS" then radios with any of the following models will be listed: GE MDS Orbit, MDS Orbit, GE Orbit by MDS.
- **Starts With:** The comparison will return a match if the parameter's value begins with the literal search string. For example, if the device's serial number STARTS WITH "250" then any radio with a serial number beginning with that sequence will be matched.
- **Ends With:** The comparison will return a match if the parameter's value ends with the literal search string. For example, if the device's serial number ENDS WITH "394" then any radio with a serial number ending with that sequence will be matched.
- **Matches:** Allows the use of regular expression wildcards to form the search string. For example, a search string of ^Orbit.* would match anything that starts with Orbit followed by zero or more characters. The search string of Orbit[0-9] would match the word Orbit immediately followed by any one of the digits within the brackets. See the [Appendix](#) for examples of wildcards that are supported.
- **Is In:** The comparison will return a match if the parameter's value matches any of the items in a comma separated list of values. For example, any device will be listed whose model is one of the following: "Orbit,MDS Orbit,Orbit-123,MyOrbit".

The **AND** operator allows inclusion of devices which have *all* of the specific parameters and matching values that are included in the filter. For example, devices might be selected based on whose IP address Starts With "10.10." AND whose "Firmware Version" Equals "3.0.3".

The **OR** operator allows inclusion of devices which have *any* of the specific parameters and matching values that are included in the filter. For example, devices might be selected based on whose IP address Starts With "10.10." OR whose IP address Starts With "10.11."

The **NOT** operator allows the exclusion of devices which have the specific parameters and matching values in the filter. For example, devices may be selected based on whose IP address does NOT Start With “10.20.”

At any time while defining the filter, the **Run Query** button is available to see the list of devices that match the currently selected settings. When satisfied that the filter definition is correct, click **Run Query** to view the list of devices that match the filter. In the device table at the bottom of the display, refine the device list even further by deselecting any matching devices that will not be included. This provides complete control of the final device list that will become part of this filter.

	Device Name	IP Address	Serial Number
<input checked="" type="checkbox"/>	-	10.10.12.3	2502394
<input type="checkbox"/>	-	10.10.12.4	2502400
<input checked="" type="checkbox"/>	-	10.10.12.2	2316752



The final filter can be saved in two different ways. If the filter will be created containing *all* of the devices that match the search criteria, click **Create From Query**. If the filter will be created using only the devices selected from the device list at the bottom of the display, click **Create From Selected Devices**. Either of these options will result in a new filter that is displayed in the **Manage Filters** table.

Managing Device Groups


The Device Groups dashboard allows management of device group definitions, which are built using GE PulseNET filters. To manage device group settings, navigate to **Administration > Device Groups**. From the Device Groups table it is possible to view, edit, or delete existing device groups, as well as add new device groups.

GE PulseNET device groups consist not only of associated devices, but also of associated users and time windows during which changes to the group's devices will be allowed. Each of these components are described in the [Adding Device Groups](#) section below.

View Device List for a Group

Click the green **Run**  icon in the **Actions** section of the row for the group. A popup list will show the devices included in this group. Click the **Blue Information**  icon on any of the devices to view a detailed list of device properties that are available. Click the gray **X** to close the popup window.


Edit Device Group Definition



Click the **Edit**  icon on the row for the group that will be edited. See [Adding Device Groups](#) for an explanation of the components that can be edited in a device group.


Delete Device Group

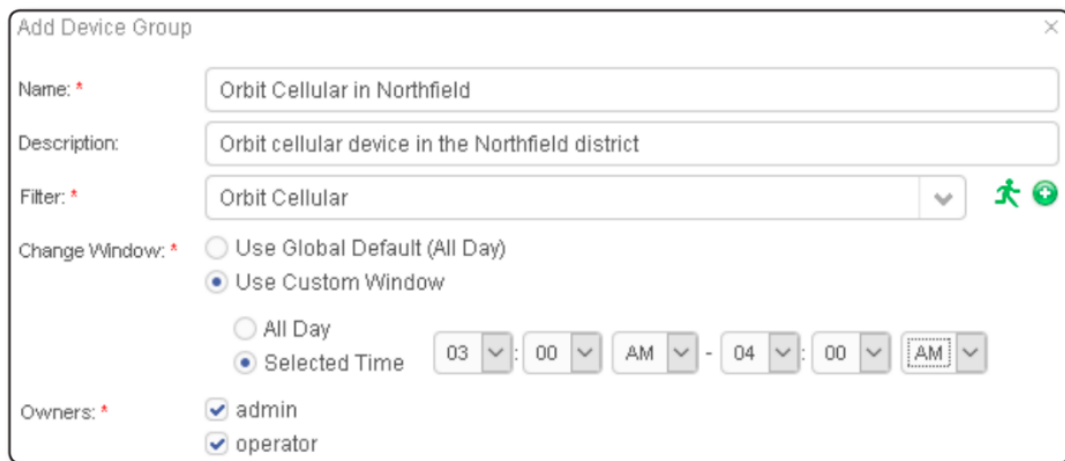
Click the **Delete** icon on the row for the group to be removed. Click **Yes** to confirm the deletion, or **Cancel** to cancel this action.

Adding Device Groups

Click the **Add**  button to add a new device group. Enter a unique device group name and a description of the devices that will be included in the group.

Next, select a device filter to be used to define the devices which are members of this group. If there is no appropriate filter in the dropdown list, click the green **Add**  icon to add a new filter. See the [Managing Device Filters](#) section for more information. Once a filter is selected, click the green **Run**  icon to view a list of the devices that will be included in this device group.

Next select the **Change Window**, which is the period of time during which changes will be allowed on this group of devices. Either use the global default change window, or define a custom time range. Finally, select the GE PulseNET users who are the owners or approvers for any change requests on this group of devices. Click **Save**  to save the new device group.

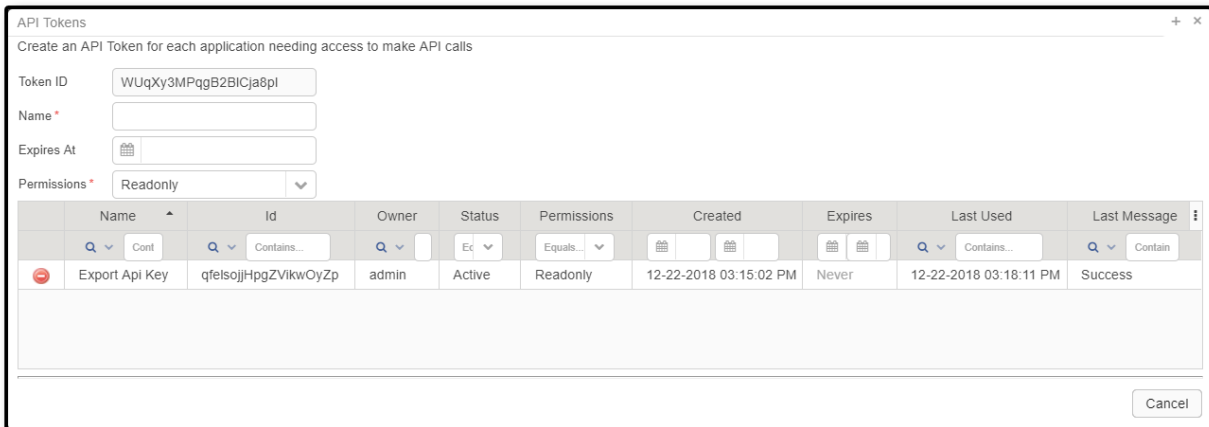


The screenshot shows the "Add Device Group" dialog box with the following details:

- Name:** * Orbit Cellular in Northfield
- Description:** Orbit cellular device in the Northfield district
- Filter:** * Orbit Cellular (with a green plus icon to add more filters)
- Change Window:** *
 - Use Global Default (All Day)
 - Use Custom Window
 - All Day
 - Selected Time: 03:00 AM - 04:00 AM
- Owners:** *
 - admin
 - operator

API Tokens

An API token is a unique identifier created by GE PulseNET for other applications to request access. To integrate with PulseNET, generate an API token and provide that token to the other application. To generate an API Token, navigate to **Administration > System Configuration > API Tokens**. The dialog box here creates a random Token ID.



In the **API Tokens** dialog box, view the unique **Token ID** in the first field. The **Name** field adds a descriptive name to the token ID to help identify it. The **Expires At** field sets an expiry date for the token to determine when it expires. Use the **Permissions** drop-down menu, to determine which privileges the token will provide.

Readonly: The software will only be allowed to view information. For example, it will be able to gather device information or view the current system debug level.

Device: The software will be able to perform modifications to devices. For example, it will be able to add a new device to the system or trigger a configuration poll.

System: The software will be able to perform modifications to the PulseNet system itself. For example, it will be able to change the system debug level or add a new license.

The **Token ID** table lists and describes all of the unique token IDs. The table contains all of the above information for each token and each column is sortable by clicking on the heading title. The **Last Used** category is useful when setting up an API token in order to ensure it is working properly. It will display the last date GE PulseNet received a call from that specific token ID and the status of the last call.

Getting Support

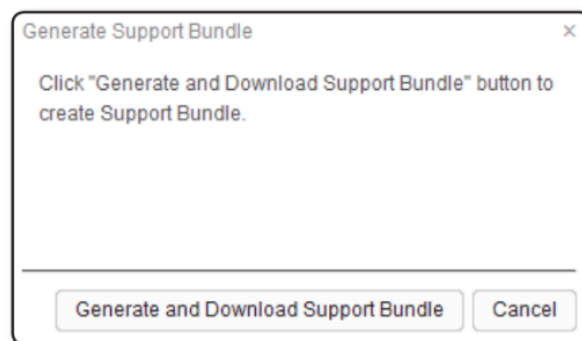
If problems arise, diagnostic data can be gathered and saved in a group of files called a support bundle. Support bundles can then be forwarded to the GE MDS Technical Support team to aid in identifying and correcting any issues. Each support bundle contains a diagnostic snapshot of the GE PulseNET services and log files.

Generating a Support Bundle

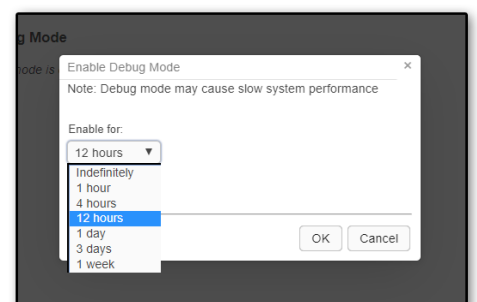
It is not difficult to generate a support bundle, but it does take time. The time it takes to generate a support bundle depends on the number of monitored devices and the length of time the system has been monitoring those devices.

Generate a Support Bundle

1. Navigate to **Administration > Support**.
2. On the Support view, click **Generate Support Bundle**.
3. When prompted, either view the support bundle using a local archive manager or download it to the local machine.



In order to conserve storage space, support bundles are not stored on the GE PulseNET machine.



Enabling Debug Mode

Click on the red “on” hyperlink to enable **Debug Mode**. In the dialogue box that appears, select a maximum runtime for Debug Mode from the drop-down menu. Click **OK**. Please keep in mind that Debug Mode may cause slowdowns in system performance.

Access Control for LaunchNET

For a LaunchNET-specific example, let’s assume a new user titled: “Test Operator” has just been created using the instructions above, and must now be given access to LaunchNET features.

Navigate to Access Control, and click **Add**. Provide a name, i.e. “Test Operator LaunchNET Access” Then select Rule Type - **View**. This will display the View Selection menu. Ensure Access Type - **Allowed** is also selected. Now scroll through the left-hand **Views** column to find the LaunchNET feature items, which appear as below:

LaunchNET Operator - grants only view access to all device/template/staging related information.

LaunchNET - Device Inventory

LaunchNET - Staging

LaunchNET - Template

NOTE: An additional API Token can be created so that the Users/Admins can Provision devices.

Using the center arrow controls, add these values to the **Selected Views** column, then select the “test operator” user from the User Selection menu below, and hit Save:

This will provide access to the LaunchNET menu, and sub-menus

Add Access Control

Name *

Description

Rule Type * Device View

Access Type * Allowed Denied

Actions Access

View Selection * Views

Device Backup

Device Filters

Device Groups

File Servers

Monitoring Configuration

NETCONF Discovery

Report Configuration

Rules

SNMP Discovery

Syslog Rules

Selected Views

LaunchNET

LaunchNET - Device Inventory

LaunchNET - Staging

LaunchNET - Template

At least one selection (Users, User Groups, User Roles) is required

Users **User Roles** User Groups

	Type	Name	User Groups	User Roles
<input type="checkbox"/>	internal	operator	Operators	Operator
<input checked="" type="checkbox"/>	internal	test operator	Operators	Operator

However, when creating templates, a device group must also be selected to 'hold' the template. For example, with two groups working on provisioning devices to different sites. The template will be assigned to a device group so that only that specific device group will see the template and related stagings when logged into LaunchNET. Similar to below:

Add Access Control

Name *

Description

Rule Type * Device View

Access Type * Allowed Denied

Actions * Read Write

At least one selection (Users, User Groups, User Roles) and one selection (Device Groups, Device Filters) is required

Users User Roles User Groups **Device Groups** Device Filters

	System	Name	Description	Filter
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	Production	Devices in Production environment	Production
<input type="checkbox"/>	<input checked="" type="checkbox"/>	Remote	Remote	Remote
<input type="checkbox"/>	<input checked="" type="checkbox"/>	SDMasterStation	SD Master Station (MPRS)	SDMasterStation
<input type="checkbox"/>	<input checked="" type="checkbox"/>	SerialAccessPoint	Serial Access Point	SerialAccessPoint
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	SerialDevice	Serial Device	SerialDevice

The Test Operator user will now have access to all LaunchNET features, and the ability to see the templates and stagings in the Production and Serial device groups.

LaunchNET Menu

The LaunchNET menu item can be located on the **PulseNET > Administration** page, provided that a LaunchNET license has been applied. Sub-menus explained below.

Provisioning

The provisioning process has two main functions: **Template** and **Staging**.

During the template creation process, an Administrator user chooses the set of parameters for each template and determines which groups and devices that template should be applied to.

Once a template has been fully created, it is Staged, making it available as a provisioning option to the chosen device groups.

Template

Templates are GE LaunchNET's key components, dictating what devices can be provisioned with what features by which users. They are where the User creates the features of how each set of devices will be configured.

After selecting GE and the device model the template applies to (thus removing options that don't apply to that specific device set), the User selects which features to include on the template. Some features, such as SNMP Location, can only appear once on the template. Other features, such as NAT entries for a router, are not unique and can be used multiple times on the same template to collect different data.

Once saved, a template can be edited to add additional features, but the existing features of that saved template cannot be deleted (to prevent a template from being overwritten). The best way to "delete" features is to copy an existing

template and create a brand new template with the desired changes. Copying a template duplicates the selected features, but offers the freedom to add, edit, or delete features as needed. This is extremely useful when creating a set of templates with very similar feature sets.

A User may delete a template entirely. Before complying, however, the **Delete** feature checks to see if the template has been staged. If it has not been staged, the template is removed. If it has been staged, and especially if devices have been provisioned based on that template, GE LaunchNET will warn of the ramifications of deleting the template and suggest steps to properly return the provisioned devices to inventory before deleting the template they were using.


NOTE: An IP Address for at least one interface in the template must be supplied in order for a GE Orbit device to be provisioned. Also, when provisioning a GE Orbit and selecting the LO1 or GRE1 interfaces in the templates, those interfaces must be in the golden config in order to provision those interfaces. If additional interfaces are required (i.e. LOx or GREx), please contact a sales representative to have them added.










Template List menu:

- Add a new template
- Edit, copy, or delete an existing template
- Search for existing templates using column filters

Administration > LaunchNET > Provisioning > **Template**

 **Template**



Actions			Name	Active	Vendor Name	Model Name
			Q Contains...	Equals... ▾	Q Contains...	Q Contains...
			Test	Yes	GE	Orbit
			Test Template 4	Yes	GE	SDx
			Test Template 18	Yes	GE	TransNET

Click **Add** to access the Create New Template menu:

- Provide a Template Name
- Mark that template as Active (i.e. ready for Staging - Y/N)
- Select which device group(s) the template will be associated with
- Select GE and Model of the devices that will use this template

Create New Template

Template Name (Slashes are prohibited) *

Active? Yes No

Groups with Access *

Remote	<input type="checkbox"/>	<input type="checkbox"/> Production <input type="checkbox"/> Orbit
SDMasterStation	<input type="checkbox"/>	
SerialAccessPoint	<input type="checkbox"/>	
SerialDevice	<input type="checkbox"/>	
SerialRemote	<input type="checkbox"/>	
TD220MAX	<input type="checkbox"/>	
TD220MAXAccessPoint	<input type="checkbox"/>	
TD220MAXRemote	<input type="checkbox"/>	
TD220x	<input type="checkbox"/>	
TD220xAccessPoint	<input type="checkbox"/>	
TD220xRemote	<input type="checkbox"/>	

Vendor *

Vendor Model *

Serial Number Required? Yes No

Assign Serial Number to Templates? Yes No

GUID/Asset Tag Required? Yes No

Created Templates can be edited at any time by clicking the notepad “edit” icon to the left of the template name in this menu.

Staging

The Staging menu is where Administrator users are able to release or publish created templates so that Operator users can use the Radio Admin client to configure the device.

 **Staging**



Actions	Template Name	User Name	Status	Vendor Name	Vendor Model	Staged	Deployed	Failed	Active
 	test	admin	STAGED	GE	Orbit	0	1	0	Yes

Click the Add button, then on the resulting menu select a previously created Template to stage from the dropdown list.

Staging + x

Template *

Active? Yes No

Vendor Name

Vendor Model Name

Device Inventory

Serial Number Required?

GUID/Asset Tag Required?

Select Serial Numbers *

SNMP location

If the template is ready to be staged, keep it marked as Active? - YES. If this is a test template that is not yet ready for staging, select NO.

The Vendor Name, Vendor Model Name, Device Inventory is dictated by the

underlying template and cannot be modified from this menu but is provided for reference.

Under **Select Serial Numbers**, use the arrow controls to add the specific serial(s) of the devices this template will provision. If the **SNMP Location Override** option for this template was selected at creation, a field to enter the custom **Location Name** will automatically appear below as each serial # is selected. Ensure the **Location Names** are set before clicking **Save**. (**NOTE:** If there is no serial number selected or assigned in the template, the number of deployments can exceed the inventory, as serial numbers from the inventory are not checked.)

Users can allow users to provision radios multiple times within a single template. If the **“Allow Re-provisioning of Inventory”** box has been set to **Active - YES** (instead of the default **NO**) on the **Company Information** page, a specific serial number can be staged and restaged multiple times. This option allows specific serial numbers to be reprovisioned without actually having to restage the full template.

Device Inventory

The **Device Inventory** allows authorized users to manually add one device at a time or import/export a list of devices from a CSV file as a batch action.

Administration > LaunchNET > Device Inventory



Device Inventory

Actions	Vendor	Model	Serial No.	Custom Model	GUID/Asset Tag	SCEP Required	Status
	GE	Orbit	2981973	Orbit 243	4C4C4544-0000-2010-8020-80C04F202020	Yes	AVAILABLE
	GE	Orbit	2560457	Orbit 244	4C4C4544-0000-2010-8020-80C04F202021	No	AVAILABLE
	GE	Orbit	2560396	Orbit 245	4C4C4544-0000-2010-8020-80C04F202022	No	AVAILABLE

Click **Add** to create a new device entry. Select a **Vendor** and **Model** from the dropdown menus, then provide the **Serial Number**. Click **Save** when ready. The following additional information can be added, but is not required:

- GUID/Asset Tag
- Custom Model Name
- SCEP Required [Y/N]

Create New Inventory
+ x

Vendor *	GE	▼
Model *	Orbit	▼
Status *	Available	▼
Serial Number *	987654	
GUID/Asset Tag	09876543211234567890	
Custom Model Name	Custom Model Name	
SCEP Required	No	▼

Once a device has been added to the Inventory, it can be edited.
 The following statuses can be edited from the edit in the device inventory view:

- Staged > Available** - This will unstage the device from a staging.
- Deployed > Available** - This will remove all staging information and set the device to Available to be provisioned again.
- Completed > Available** -This will remove all staging information and set the device to Available to be provisioned again.

The full device list can be exported using the **Export as CSV** option. The export will be created in **GE_MDS\PulseNET\reports**.

To Import a **Device Inventory** list, select the **Import Inventory** option.

Import Menu:

- Select the device Vendor and Model
- Select whether the uploaded table has header rows
- Select which column contains the serial number/guid/asset tag (or ignore)
- Upload file*

Import Inventory
+ x

Vendor*

Model*

Header Rows

First Column

Second Column

Choose File

No file chosen

Upload

Note: One serial number, GUID with model name and SCEP required per line

Samples:

serial number, guid, customer model, SCEP
 , guid, customer model, SCEP
 serial number, , customer model, SCEP

Cancel

***NOTE:** The **Upload File** must be in a comma separated format that includes the following fields: **serial/GUID, model name, and SCEP flag**.

The **SCEP flag** tells GE LaunchNET to configure the device with X.509 RSA certificates prior to device configuration with configuration templates, and must be in the following format:

- Values to set the field false: 0,f,F,false,False,FALSE,n,N,no,No,NO
- Values to set the field true: 1,t,T,true,True,TRUE,y,Y,yes,Yes,YES

Report

All the reports in this section are predefined with some search options. Hyperlinks in the deployments completed section give more details on each deployment. The Company Admin may click on the **Export** button to see these details.

Device Inventory

This menu acts as a live report of the current inventory, allowing the user to search or sort the list by vendor, model, serial number, GUID/Asset tag, or staging status.

Administration > LaunchNET > Report > Device Inventory



Vendor	Model	Serial No.	Status
<input type="text" value="Q"/> Contains	<input type="text" value="Q"/> Contains	<input type="text" value="Q"/> Contains	<input type="text" value="Equals..."/>
GE	Orbit	123567	AVAILABLE
GE	Orbit	453114	AVAILABLE
GE	Orbit	123456	STAGED

Deployments Completed

This section allows the Administrator to:

- Generate a Deployment Detail Report which will display information sent between Radio Admin, ZTP, and LaunchNET.
- Search deployments by template name, vendor name, or vendor model name
- Sort recent deployments by template, vendor, or model
- Show the status of recent deployments (staged or provisioned)
- View deployments released back into inventory (highlighted in pink)
- Export the data to a CSV file
- Export deployment details to a CSV file (user, timestamp, vendor, model, serial number, GUID/Asset Tag, and IP addresses)

Note: If a Staging attempt is later deleted, the Deployments Completed history for that staging attempt will also be removed.

Administration > LaunchNET > Report > Deployments Completed



Deployments Completed

Deployments Completed

Deployment Detail Report

Template Name	Status	Vendor Name	Vendor Model	Staged	Deployed	Failed	Active
test	STAGED	GE	Orbit	0	1	0	Yes

Management

Integrations

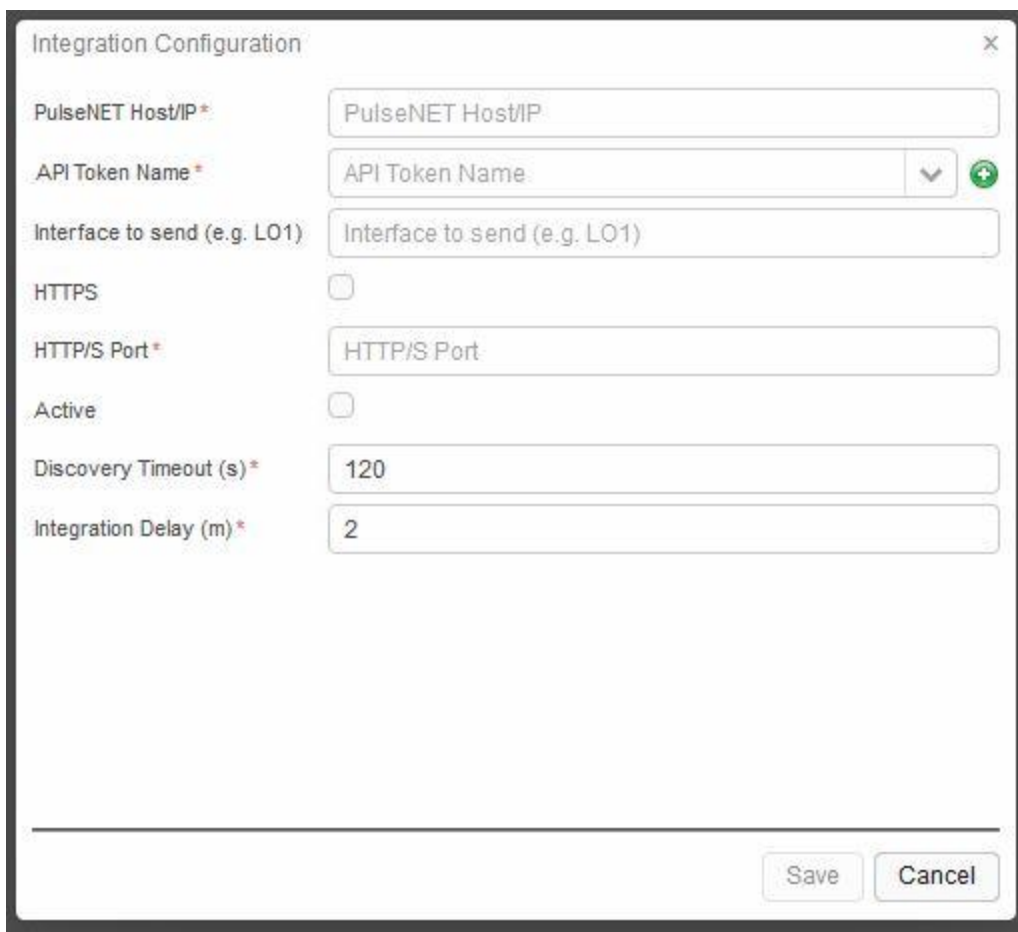
Configuration

After GE LaunchNET has configured a new SNMP device, it can automatically discover and authorize it in PulseNET. (NOTE: SNMP Credentials must be entered in PulseNET and the device must be online in order to accomplish).

This feature will auto-instantiate the new device in PulseNET Enterprise and trigger a configuration/performance collection in PulseNET. If this feature is active, then every new provisioned device will be sent to PulseNET Enterprise.

Note: Integration in this version is compatible with GEMDS Orbit devices only.

To enable Integration, navigate to: **Administration > LaunchNET > Management > Integrations > Configuration:**



The screenshot shows a dialog box titled "Integration Configuration" with a close button (X) in the top right corner. The dialog contains the following fields and controls:

- PulseNET Host/IP***: A text input field containing "PulseNET Host/IP".
- API Token Name***: A dropdown menu showing "API Token Name" with a green plus icon to its right.
- Interface to send (e.g. LO1)**: A text input field containing "Interface to send (e.g. LO1)".
- HTTPS**: A checkbox that is currently unchecked.
- HTTP/S Port***: A text input field containing "HTTP/S Port".
- Active**: A checkbox that is currently unchecked.
- Discovery Timeout (s)***: A text input field containing "120".
- Integration Delay (m)***: A text input field containing "2".

At the bottom right of the dialog, there are two buttons: "Save" and "Cancel".

Enter the PulseNET server Hostname or IP, and [a PulseNET API token](#).

Interface to Send allows the required interface (LO1, GRE1, Bridge, etc...) to be selected.

If the PulseNET instance was installed as HTTPS Secure Server only, check **HTTPS**, otherwise leave as is.

Default ports are: **HTTP 8080 - HTTPS 8443**

Discovery Timeout sets the amount of time GE PulseNET waits for device response during discovery.

Integration Delay - Customizable delay is the time taken for a device to be discovered in PulseNET after the device has been provisioned.

Once configured, compatible devices provisioned by GE LaunchNET will now automatically be added to the Integration Queue.

Queue

To review the Integration Queue, navigate to **Administration > LaunchNET > Management > Integrations > Queue.**

Here, view any pending Integration discovery request, or review past Integrations. Devices that have the status of error or failed can be set to retry for auto-instantiate by clicking the “Retry All” button. The Delete button will become available if any record(s) are selected. Keep in mind, any record, whether pending or not can be deleted. Please verify before confirming the action.

Administration > LaunchNET > Management > Integrations > Queue

Queue


Refresh Retry All Delete

Time Created	Serial	IP Address	Host Name	Active	Status
05-07-2020 04:19:50 PM	2693713	192.168.1.150	E2ELT-	true	Failed
05-07-2020 04:28:57 PM	2693708	192.168.1.151	E2ELT-	true	Success

Company Information

The Company Information menu allows Administrator users to manage company contact/account and Microsoft CA server information.

Administration > LaunchNET > Management > Company Information

 **Company Information**

Company Information

RUK

Account Details

Company Name

Contact Name

Contact Email

SNMP Location Override

Enable Yes No

Allow Re-provisioning of Serial Numbers when required by

Inventory Yes No

Template Yes No

RUK - [Field is not used in this release.]

Enter Company and Contact information as needed in **Account Details**.

SNMP Location Override will activate the option to enter a custom location name for each device serial number during the Template creation process.

Allow Re-provisioning of Serial Numbers - if checked, allows radios to be provisioned multiple times within a single template, overriding the “once provisioned, don’t do it again” approach. If set to **Yes**, a specific serial number can be staged and restaged multiple times without issue using the same template, or inventory. This option is designed for customers using external inventories that limit changes to the inventory system, and allows specific serial numbers to be reprovisioned without actually having to restage the full template. Note: This only works when the Serial Numbers are Required and correctly checked in the Template.

The lower menu is used to enter CA server, connection, and redundant/backup server information.

Microsoft CA Server 1	Enable	<input checked="" type="radio"/> Yes <input type="radio"/> No
	IP Address	<input type="text" value="IP Address"/>
	Port	<input type="text" value="443"/>
	User ID	<input type="text" value="null"/>
	Password	<input type="password" value="*****"/>
	Authentication Type	<input type="text" value="NTLM"/>
	Security	<input type="text" value="Http"/>
Microsoft CA Server 2	Enable	<input type="radio"/> Yes <input checked="" type="radio"/> No
	IP Address	<input type="text" value="IP Address"/>
	Port	<input type="text" value="443"/>
	User ID	<input type="text" value="null"/>
	Password	<input type="password" value="*****"/>
	Authentication Type	<input type="text" value="NTLM"/>
	Security	<input type="text" value="Http"/>

External Inventory Details allows a customer to import a device inventory from an external MySQL or MSSQL database. Fill in the fields with the external database information and save. Note: Doing this will disable internal device inventory.

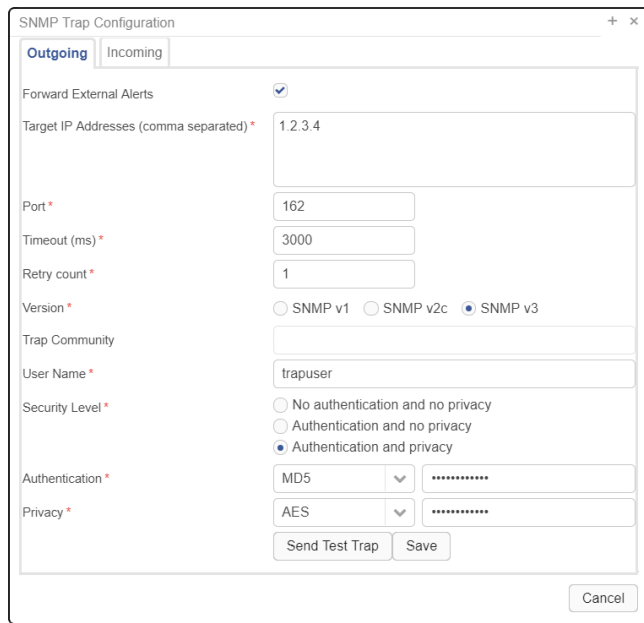
External Inventory Details	Active	<input checked="" type="radio"/> Yes <input type="radio"/> No
	DB Type	<input type="text" value="My SQL"/>
	DB Host	<input type="text" value="10.11.0.249"/>
	DB Port Number	<input type="text" value="3306"/>
	DB Name	<input type="text" value="E2EProv"/>
	DB Username	<input type="text" value="root"/>
	DB Password	<input type="password" value="*****"/>
	DB Table Name	<input type="text" value="ext_inventory"/>
	Serial Number Column Name	<input type="text" value="serialNumber"/>
	Status Column Name	<input type="text" value="status"/>
	Available Column Name	<input type="text" value="Available"/>

Notifications

If for some reason a PulseNET Integration should fail, the Notifications feature can activate an SNMP trap that will be sent to a Manager of Managers system. Select “Yes” and **Save** to enable.



This notification will use the GE PulseNET SNMP Trap Settings which can be found by navigating to **Administration > System Configuration > SNMP Trap Configuration**.



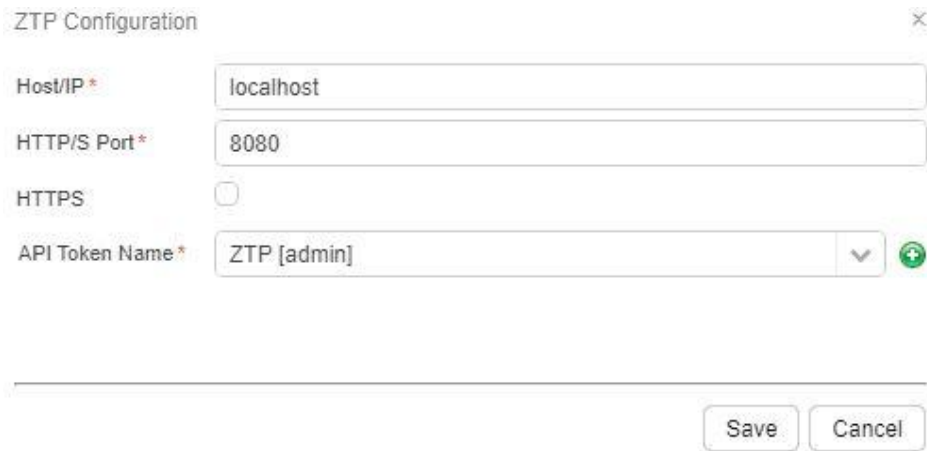
Outgoing Tab

In the **Outgoing Tab**, enable and define where to send outgoing alerts, including the destination and credentials for messages. When the **Forward External Alerts** checkbox is not selected, trap messages are sent only when PulseNET Enterprise rules generate alerts. When the **Forward External Alerts** checkbox is selected, PulseNET Enterprise will also send alerts received from the external devices.

Click the **Send Test Trap** button to test the trap message. To confirm trap messages are being sent, verify the test message has been received.

ZTP Configuration

Zero-Touch Provisioning (ZTP) is an advanced automation feature that allows devices to be provisioned and configured automatically.



The screenshot shows a 'ZTP Configuration' dialog box with the following fields:

- Host/IP *: localhost
- HTTP/S Port *: 8080
- HTTPS:
- API Token Name *: ZTP [admin] (with a dropdown arrow and a green plus icon)

At the bottom right of the dialog are 'Save' and 'Cancel' buttons.

ZTP Logs

Logs for Zero Touch Provisioning are kept here and can be updated using the Refresh button to pull the latest between ZTP and the device.

Operator User

The main function of the Operator is to take templates created by the Administrator and manage the provisioning process for the devices they have authorization to oversee. This authorization is based on the Access Control and device groups the Operator is a member of.

Device Inventory

This section allows Operators to:

- Search for devices by vendor, model, or status
- Export the inventory to a CSV file
- View or sort the list of current inventory

Provisioning

This section allows Operators to:

- Search by template name, vendor name, or vendor model
- View/sort list of current deployments

Template

This section allows Operators to search for Admin-created templates, view or sort the list of current templates, and view all template details and parameters.

Staging

Here Operator users can review templates that have been Staged by an Administrator. Once referenced, the Radio Admin client will be used to provision the device.

Report

Device Inventory

This section allows Company Users to:

- Search the current inventory by vendor, model, or status
- View or sort the current inventory

Deployments Completed

This section allows Company Users to:

- Search deployments by template, vendor, or model
- View or sort the deployment list
- View the status of recent deployments (staged or provisioned)
- Export the data to a CSV file
- Export deployment details to a CSV file (user, timestamp, vendor, model, serial number, GUID/Asset Tag, and IP addresses)
- Review deployments released back into inventory.

Provisioning with Radio Admin

Radio Admin Client for Provisioning

In order to accomplish field deployments of new devices using the GE LaunchNET templates, field technicians will have a local copy of the Radio Admin software on their computers. The Provisioner tab on the Tools menu will allow field technicians to contact the Provisioning server and select the list of deployment options that are available to them.

For Radio Admin software installation and configuration, please refer to the full Radio Admin User guide that is delivered with the software. The GE LaunchNET currently supports the following GE MDS device models:

- Orbit
- SD
- TransNET

Settings for Provisioning with Radio Admin

Navigate to the **Tools > Provisioner > Settings** tab to provide the GE LaunchNET Server credentials. This tells Radio Admin how to connect to the LaunchNET Server in order to get the list of configuration templates that have been provided for the specific field technician who is deploying a specific device on the network.

- Enter the server name or IP address of the Provisioning server on which the staged entries reside
- Enter the field technician username for the Provisioning server
- Enter the field technician password for authenticating to the Provisioning server
- Enter the RUK for this user and company
- Select whether secure HTTPS protocol is used to connect to the Provisioning server

Radio Admin will connect to the local device that is being provisioned using either an Ethernet cable (Orbit) or a serial cable (SD & TransNET). If connecting to the device serially, enter the COM port, baud rate, data bits, stop bits, and parity.

Save the Radio Admin settings by clicking the **Save Changes** button.

Radio Admin Provision Tab

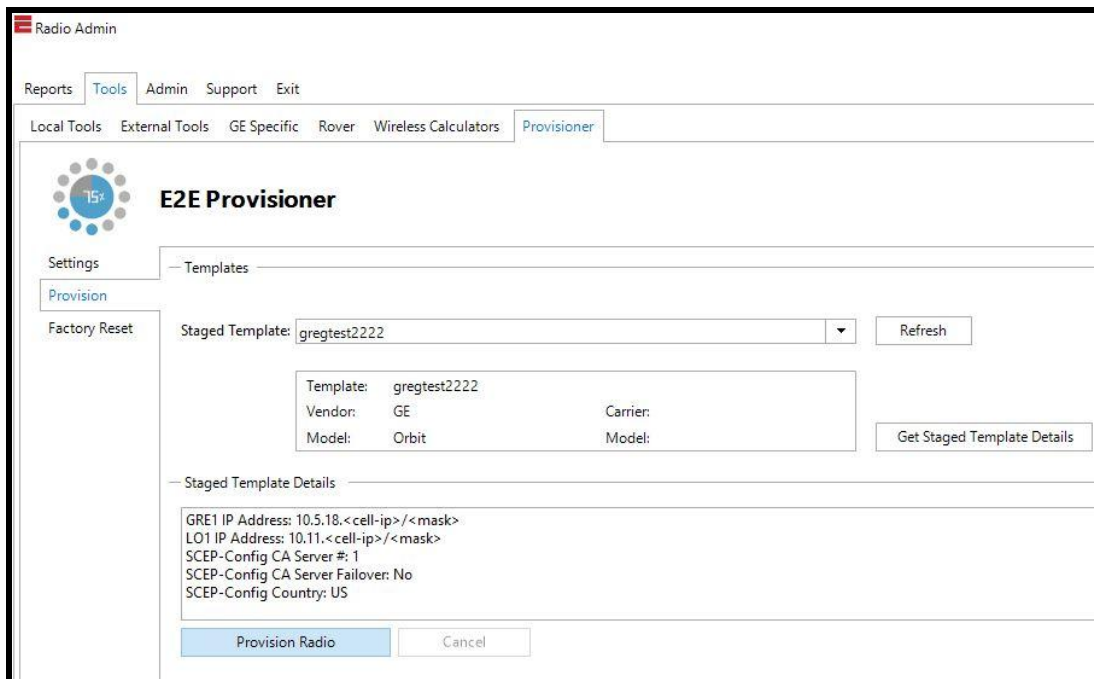
Once the settings have been saved, click on the **Provision** tab and **Radio Admin** will attempt to connect with the Provisioning server using the credentials provided.

NOTE: Administrators MUST create an Device Level API Token in order for the user to communicate with LaunchNET. This API Token is tied to the user so that the user will only be able to see provisions in which they have access.

If successful, the list of available templates for this user will be displayed in the Staged Templates drop-down list. If unsuccessful, an error message will appear suggesting validation of the GE LaunchNET account and connection settings.

If “Use secure connections (HTTPS)” was selected on the **Settings** tab, an error message indicating Radio Admin could not establish a trust relationship for the SSL/TLS secure channel may appear. To resolve this issue, ensure that the Radio Admin CA certificate includes an entry for the Provisioning Server. Ask an IT Admin to add a certificate to the Windows computer.

Click on the drop-down list to select the template that will be applied to the device that is being deployed. To view the details of the selected template, click on the **Get Staged Template Details** button. This will show any unique configuration settings that are included in the template for deployment to the device. Once satisfied that the correct template for the device being deployed has been selected, and that the configuration settings appear to be correct, click the **Provision Radio** button to start the process of deploying the template settings to the device. Status messages will be displayed during each step of the configuration process.



Radio Admin Serial # Orbit AutoProvision

If the Provisioning Server administrator has locked specific device serial numbers to templates for deployment, the option to “Use Device Serial Number to Start Provision.” is enabled for GE Orbit radios.

Miscellaneous

Connection Attempt Timeout:	<input type="text" value="120"/> sec.	<input type="checkbox"/> Use Device Serial Number to start provision *
Operation Timeout:	<input type="text" value="45"/> sec.	<input type="checkbox"/> Request DHCP renew after provision completes

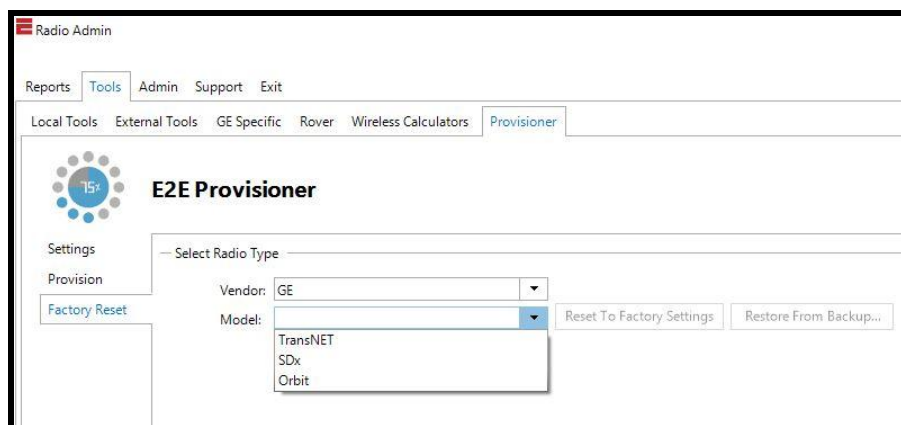
If this checkbox is selected, Radio Admin assumes a connection to an Orbit radio via Ethernet cable and that the Orbit has the factory default IP address (192.168.1.1). **Save Changes** must be clicked before the option will take effect.

Radio Admin will automatically connect to the Orbit radio, send its serial number to the Provisioning Server to obtain the correct template (where the serial number is staged in a template), and immediately begin applying the template settings to the Orbit device.

Radio Admin Factory Reset

To reset a GE MDS device to its factory default configuration values, navigate to the **Factory Reset** tab and select the vendor and model. Reset the device to its factory configuration settings by clicking on **Reset to Factory Settings**. Restore the configuration settings from a backup file by clicking **Restore from Backup**.

NOTE: If using an IP device, it must be set to the default of the device from the factory (i.e. 192.169.1.1).



How to Provision Devices

The initial steps for provisioning devices need to be done within GE LaunchNET using an Administrator user. This allows an administrator to create and stage company templates with the required parameters. Once the templates are set, any user can deploy them to the desired networks without fear of changing or tampering with the company-wide settings. The device inventory, template creation, and staging happens within GE LaunchNET, while the actual deployment happens within Radio Admin using the provisioner toolbar.

Zero-Touch Provisioning (ZTP) is a feature that allows devices to be provisioned and configured automatically. It eliminates most of the manual labor involved in adding radios or sensors to the network. Once the hardware is powered on, it will be automatically added to the network and instantly configured. This advanced network automation saves time and streamlines updates.

Create Device Inventory

There are three ways to create a device inventory:

1. Connect to an existing external database (instructions for this are found in the Company Information section).
2. Import a CSV file of serial numbers or GUID tags using the **Import Inventory** button (instructions for this are found in the Device Inventory section).

3. Add device details manually using the **Add New** button (instructions for this are found in the **Device Inventory** section).

If the device inventory doesn't yet exist or doesn't contain the desired devices for the current deployment, use one of these methods to create the inventory of devices for provisioning. If the device inventory is already in the list of existing inventories, simply verify that it contains the specific devices that will be provisioned and that they are available (i.e., not marked as inactive or already provisioned elsewhere.)

Create Template

1. Under **LaunchNET > Provisioning > Template > Add**, input details, such as template name, groups that will have access, and device types/models. If needed, ensure "Serial Number Required" and "Assign Serial Number to Templates?" are set to **Yes**, and the template is marked "Active".

Create New Template

Template Name (Slashes are prohibited) *

Active? Yes No

Groups with Access *

<div style="font-size: 0.8em;"> Remote SDMasterStation SerialAccessPoint SerialDevice SerialRemote TD220MAX TD220MAXAccessPoint TD220MAXRemote TD220x TD220xAccessPoint TD220xRemote </div>	<div style="font-size: 1.2em;"> > < </div>	<div style="border: 1px solid #ccc; padding: 5px; font-size: 0.8em;"> Production Orbit </div>
---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------	-----------------------------------------------------------------------------------------	--------------------------------------------------------------------------------------------------------------------------------

Vendor *

Vendor Model *

Serial Number Required? Yes No

Assign Serial Number to Templates? Yes No

GUID/Asset Tag Required? Yes No

- Under the **Golden Config** section, type the connection information for the reference device. These details will then be pushed out to all other selected devices in the network.

Golden Configuration	
IP Address	<input type="text" value="10.11.0.244"/>
Port Number	<input type="text" value="161"/>
Admin User ID	<input type="text" value="admin"/>
Admin Password	<input type="password" value="*****"/>
Status	Specified and valid XML

- Once the connection details are set, click the **Build Golden Config** button. This will open the GE MDS Device Manager interface in a new window. Input desired changes and parameters here to set up the Golden Config device exactly the way the whole network is to be arranged. When finished, click **Save** to be returned to the **Provisioner Template** tab.
- Click the **Import Golden Config** button to retrieve the new parameters from the poster child device. Click the **Display Golden Config** button to verify that all the updated changes have successfully been brought over from the poster child device.
- From the **Vendor Model Feature List** drop-down menu, select any additional parameters not already included in the template or the GE MDS device manager window and fill in the required data. Once satisfied that all desired parameters and information have been set, click **Save**. The template is now prepared and ready to be released for provisioning.

Add Vendor Model Feature

Stage Template

All templates need to be staged (released for provisioning) before they will appear in the **Radio Admin Provisioner** toolbar. Only an Admin can create and stage templates.

- Under **LaunchNET > Provisioning > Staging > Add**, select the desired template from the list of existing templates. (If not in the list, the template may not have been saved in the previous step, or may not have been marked as **Active**.) Fill in the desired parameters and verify that existing parameters are correct. If attempting to re-run a previously staged or deployed template, it may need to be released first. This essentially resets the template to allow for a new deployment.

Staging + x

Template *

Active? Yes No

Vendor Name

Vendor Model Name

Device Inventory

Serial Number Required?

GUID/Asset Tag Required?

Select Serial Numbers *

SNMP location

- Click the **Select Serial Numbers** button. From the **Available Device Serial Numbers** list, click the checkboxes to select the devices this template will be applied to, and click **Next**. (If a certain device is not in the list, it may not have been included in the inventory in use for this deployment.)
- Verify that all information is correct, and click **Save**. The template has now been matched with the specific devices required for the provision, and

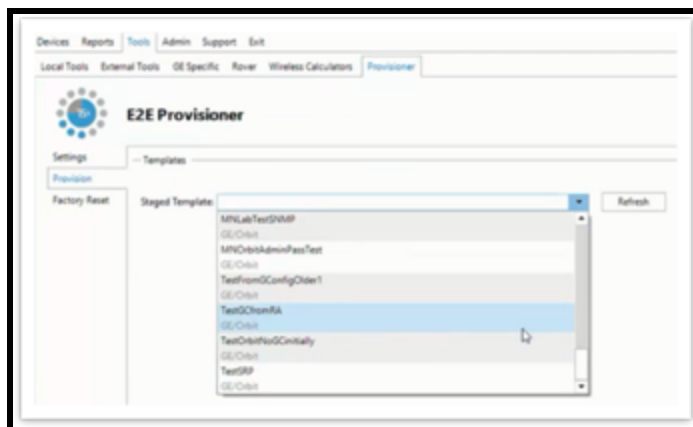
those serial numbers will show up as “Staged” in the device inventory list. All further steps will be taken care of by a User within the Radio Admin provisioner tooltab.

Provision Devices Using Radio Admin

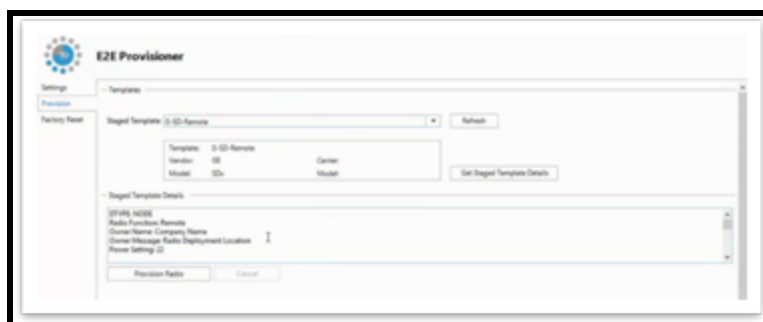
1. Within Radio Admin, under **Tools > Provisioner > Settings**, enter the connection details. Ensure a correct username and password in order to connect the Radio Admin system to GE LaunchNET.

The screenshot shows the 'E2E Provisioner' settings page. The interface includes a top navigation bar with 'Reports', 'Tools', 'Admin', 'Support', and 'Exit'. Below this is a sub-menu with 'Local Tools', 'External Tools', 'Rover', 'Wireless Calculators', and 'Provisioner'. The main content area is titled 'E2E Provisioner' and has a 'Settings' tab selected. On the left, there are two sub-sections: 'Provision' and 'Factory Reset'. The 'Provision' section includes fields for 'Server Host/IP' (set to 'e2eprov.com'), 'Use legacy authentication' (checkbox), and 'API Key'. The 'Serial Settings' section includes dropdown menus for 'COM Port', 'Baud Rate' (9600), 'Data Bits' (8), 'Stop Bits' (1), and 'Parity' (None). The 'Miscellaneous' section includes spinners for 'Connection Attempt Timeout' (120 sec), 'Operation Timeout' (45 sec), 'Retry to Reconnect for' (5 min), and 'PKI Timeout (when applicable)' (600 sec). There are also checkboxes for 'Use secure connections (HTTPS)', 'Use Device Serial Number to start provision *', 'Request DHCP renew after provision completes', 'Update device with GPS coordinates *', and 'Send GPS coordinates with provision results'. A 'GPS Serial Port' dropdown is also present. A 'Save Changes' button is at the bottom.

2. Under **Tools > Provisioner > Provision**, select the staged template to use to provision the devices from the **Staged Template** dropdown menu. (If the required template does not appear, the staged templates list may need to be refreshed. If it still does not appear, it may not have been properly staged.)



All information should be contained in the staged template—device parameters, serial numbers, etc.—and can’t be changed at this step. In the **Staged Template Details** box, verify that the parameters of the Golden Config are correct for the current provisioning attempt.



3. Once everything has been confirmed, click the **Provision Device** button. This will provision the required data to the selected devices. Depending on the number of devices being provisioned, the process may take several minutes.

Provision Devices Using ZTP

Zero Touch Provisioning (ZTP) is an advanced option using LaunchNET along with the capability of the GE Orbit radio. The customer will work with GE to include in the shipped radio a URL that the radio will access when it is powered on and with the ZTP option enabled as shown below.

Orbit Radios

The Orbit radio must have the ZTP service enabled and the URL must be pointed to the ZTP service (For example: <http://192.168.1.1:8080/api/orbit/register>):



On LaunchNET, navigate to **Administration > LaunchNET > Management > ZTP Configuration**. Here enter the host credentials that will be used for provisioning devices.

ZTP Configuration ✕

Host/IP*

HTTP/S Port*

HTTPS

API Token Name* ▼ +

Host: The IP where the ZTP Service is running.

HTTP/S Port: The Port where ZTP Service is running.

HTTPS: Enabled or Disabled.

API Token Name: The API Token that ZTP will use to communicate with LaunchNET ([See API Tokens](#)).

NOTE: The API Token MUST have device level permissions in order to Provision a device Successfully.

In the **LaunchNET > Report > Deployments Completed** menu, history is kept for each provision attempt. **Note:** If a Staging attempt is later deleted, the Deployments Completed history for that staging attempt will also be removed.

ZTP will decrement the license count configured within GE LaunchNET/PulseNET as each radio is provisioned.

Addendum

Introduction

This document is intended for customers that have purchased the LaunchNET product and are wanting to interact with the LaunchNET's web services programmatically. The requests must be in the Content-Type: application/json with https.

The different endpoints are listed in the document and require authentication. The samples will have a "X-Sting-API-Key" that is associated with the user account per company. A device level API Token will need to be generated in order to make these calls. Please see Creating an API Token for information. The <> symbols show where customers will enter their own specific information.

Below is an example of a endpoint command:

```
curl -k -H "X-Sting-API-Key: <Insert API Token Here>" -H "Content-Type: application/json" -X POST -d @acstagedtemplates.json <https://ipORhost:port>/api/e2em2m/userapi/acstagedtemplates
```

Insert the API token with device level privileges in the <insert API token here>

Insert LaunchNET's host and port information in the <<https://ipORhost:port>>

At the end of the url after "userapi/" is the endpoint in which is being called. The example above is using the acstagedtemplate (Auto-create Staged Templates) endpoint. This endpoint uses a request. To run this endpoint save a text file and insert the json formatted text from the Request. Save the json file where the call is being run.

Request:

```
{
  "templatename": "For Demo Use",
  "numbertobestaged": "1",
  "Serial_Number": "462346",
  "SNMP_Location": "North Pole"
}
```

Disclaimer

This software is provided “as is” and any express or implied warranties, including, but not limited to, the implied warranties of merchantability and fitness for a particular purpose, are disclaimed. In no event shall the author be liable for any direct, indirect, incidental, special, exemplary, or consequential damages (including, but not limited to, procurement of substitute goods or services; loss of use, data, or profits; or business interruption) however caused and on any theory of liability, whether in contract, strict liability, or tort (including negligence or otherwise) arising in any way out of the use of this software, even if advised of the possibility of such damage.

List of Staged Templates

This endpoint will respond with a list of templates that have been staged for provisioning. The response shows two templates.

Type: POST

CURL:

```
curl -H "X-Sting-API-Key: <Insert API Token Here>" -H "Content-Type: application/json" -X POST -d"{}" <https://ipORhost:port>/api/e2em2m/userapi/templates
```

Sample Response:

```
{
  "status": "success",
  "payload": [
    {
      "tmpl_name": "For Demo Use",
      "vendor_name": "GE",
      "tmpl_id": "5fa31838487e092a4469e598",
      "vendor_need_guid": "No",
      "vendor_orbit_userid": "admin",
      "vendor_orbit_ipaddress": "192.168.1.1",
      "vendor_id": "5e78c57a8379a45944cefc80",
      "ext_inventory": "No",
      "vendor_model_name": "Orbit",
      "vendor_orbit_password": "admin",
      "assign_serenum": "Yes",
      "vendor_need_serial": "Yes",
      "vendor_orbit_portnum": "830"
    },
    {
```

```
    "tmpl_name": "Set Firewall Configuration",
    "vendor_name": "GE",
    "tmpl_id": "5fb56433306fba5bc86c5311",
    "vendor_need_guid": "No",
    "vendor_orbit_userid": "admin",
    "vendor_orbit_ipaddress": "192.168.1.1",
    "vendor_id": "5e78c57a8379a45944cefc80",
    "ext_inventory": "No",
    "vendor_model_name": "Orbit",
    "vendor_orbit_password": "admin",
    "assign_serenum": "Yes",
    "vendor_need_serial": "Yes",
    "vendor_orbit_portnum": "830"
  }
]
}
```

The information in the response informs the user of the name of the template, vendor name, vendor model, and if any serial number or GUID/Asset tags are required. In the response, the information that is relevant to the user is the “tmpl_id” value, as it will allow the user to get the staging details later.

List of Configured Templates

This endpoint will respond with a list of templates that are configured and ready to be staged.

Type: POST

CURL:

```
curl -k -H "X-Sting-API-Key: <Insert API Token Here>" -H "Content-Type: application/json" -X POST -d "{}" <https://ipORhost:port>/api/e2em2m/userapi/configtemplates
```

Sample Response:

```
{
  "status": "success",
  "payload": [
    {
      "tmpl_name": "For Demo Use",
      "vendor_name": "GE",
      "tmpl_id": "5fa31838487e092a4469e598",
      "vendor_need_guid": "No",
      "vendor_orbit_userid": "admin",
      "vendor_orbit_ipaddress": "192.168.1.1",
      "vendor_id": "5e78c57a8379a45944cefc80",
```

```
    "ext_inventory": "No",
    "vendor_model_name": "Orbit",
    "vendor_orbit_password": "admin",
    "assign_sernum": "Yes",
    "vendor_need_serial": "Yes",
    "vendor_orbit_portnum": "830"
  },
  {
    "tmpl_name": "Set Firewall Configuration",
    "vendor_name": "GE",
    "tmpl_id": "5fb56433306fba5bc86c5311",
    "vendor_need_guid": "No",
    "vendor_orbit_userid": "admin",
    "vendor_orbit_ipaddress": "192.168.1.1",
    "vendor_id": "5e78c57a8379a45944cefc80",
    "ext_inventory": "No",
    "vendor_model_name": "Orbit",
    "vendor_orbit_password": "admin",
    "assign_sernum": "Yes",
    "vendor_need_serial": "Yes",
    "vendor_orbit_portnum": "830"
  }
]
}
```

Staged Template Details

This endpoint will respond with details of a specific template that has been staged for provisioning. The 'tmpl' (in the command in bold below) is from the previously requested list of templates.

Type: POST

CURL:

```
curl -k -H "X-Sting-API-Key: <Insert API Token Here>" -H "Content-Type: application/json" -X POST -d>{"tmpl\" :\"5fa31838487e092a4469e598\"}" https://192.168.1.5:8443/api/e2em2m/userapi/provisions
```

Sample Response:

This response is for template id 5fa31838487e092a4469e598 and gives the vendor model features that will be set and to what value. Additionally, it will provide a placeholder for the serial numbers assigned as the devices are provisioned in the vendormodelserialandguid property. This shows how many are left for allocation. The "rpid" is also used in other endpoint's requests.

```

{
  "status": "success",
  "payload": {
    "tmpl_name": "For Demo Use",
    "vendor_name": "GE",
    "tmpl_id": "5fa31838487e092a4469e598",
    "vendormodelserialandguid": [
      {
        "radio_serial": "2693708",
        "radio_guid": "",
        "rpid": "5fb6e1b2b6cd8e38dc402962"
      }
    ],
    "vendor_need_guid": "No",
    "vendor_orbit_userid": "admin",
    "vendor_orbit_ipaddress": "192.168.1.1",
    "vendor_id": "5e78c57a8379a45944cefc80",
    "ext_inventory": "No",
    "vendor_model_name": "Orbit",
    "vendor_orbit_password": "admin",
    "assign_serenum": "Yes",
    "vendor_need_serial": "Yes",
    "vendor_orbit_portnum": "830",
    "vendormodelfeatures": {
      "SNMP_Location": {
        "SNMP_Location_only_entered_if_assigned_by_Provisioner": {
          "0": "Saint Paul MN",
          "Comment": "data/system/location"
        },
        "SNMP_Location_Use_Selected_Interface": [
          "NA"
        ],
        "SNMP_Location_Assignment": [
          "Provisioner"
        ]
      },
      "GE-Orbit-Production-APN": [
        "mw01.VZWSTATIC"
      ],
      "GE-Orbit-Network_Interfaces_IP_Address_List_Settings_1": {
        "GE-Orbit-Network_Interface_IP_Address_List_Netmask_1": {
          "0": "30",
          "Comment":
            "data/interfaces/interface[name='INTERFACEREPLACEME']/ipv4/address/prefix-length"
        },
        "GE-Orbit-Network_Interface_List_1": [
          "Cell"
        ],
        "GE-Orbit-Network_Interface_IP_Address_List_1": {
          "Comment":
            "data/interfaces/interface[name='INTERFACEREPLACEME']/ipv4/address/ip",
          "Available": "192.168.1.1"
        }
      },
      "GE-Orbit_Generate_One-Time-Password": {

```



```

    "0": "Yes",
    "Comment_2": "<rpc xmlns=\\\\"urn:ietf:params:xml:ns:netconf:base:1.0\\\\"
message-id=\\\\"0\\\\">otp-create
xmlns=\\\\"com:gemds:mds-system\\\\"><function>login</function></otp-create></rpc>"
  },
  "GE-Orbit-Tech-Password": {
    "0": "RosesAreRed123",
    "Comment": "rpc/change-password/password",
    "Comment_2": "<rpc xmlns=\\\\"urn:ietf:params:xml:ns:netconf:base:1.0\\\\"
message-id=\\\\"0\\\\">change-password
xmlns=\\\\"com:gemds:mds-system\\\\"><user>tech</user><password></password></change-passw
ord></rpc>"
  },
  "GE-Orbit-Core": [
    "<data><logging
xmlns=\\\\"com:gemds:mds-logging\\\\"><debug><devel-log-enabled>>false</devel-log-enabled></de
bug></logging><services
xmlns=\\\\"com:gemds:mds-services\\\\"><dhcp
xmlns=\\\\"com:gemds:dhcp-service\\\\"><enabled>>true</enabled><v4subnet><network>192.168.1.0/
24</network><range-start>192.168.1.2</range-start><range-end>192.168.1.10</range-end><b
roadcast-address>192.168.1.255</broadcast-address><router>192.168.1.1</router></v4subne
t></dhcp><serial
xmlns=\\\\"com:gemds:mds-serial\\\\"><ports><name>COM1</name></ports><ports><name>COM2</name>
</ports><ports><name>USB1</name></ports><console><serial-ports>COM1</serial-ports><seri
al-ports>COM2</serial-ports><serial-ports>USB1</serial-ports></console></serial><remote
-management
xmlns=\\\\"com:gemds:mds-service-remote-management\\\\"><shared-secret>$8$GkYKxwVhFR0clh4EM10
MN8dRDyQQc1mEa6bCxq99f94=</shared-secret></remote-management><firewall
xmlns=\\\\"com:gemds:services:firewall\\\\"><enabled>>false</enabled><address-set><name>LOCAL-
NETS</name><addresses>192.168.1.0/24</addresses></address-set><filter><name>IN_TRUSTED<
/name><rule><id>10</id><match><protocol>all</protocol></match><actions><action>accept</
action></actions></rule></filter><filter><name>IN_UNTRUSTED</name><rule><id>1</id><matc
h><protocol>icmp</protocol></match><actions><action>accept</action></actions></rule><ru
le><id>2</id><match><protocol>udp</protocol><src-port><services>dns</services></src-por
t></match></rule><rule><id>3</id><match><protocol>tcp</protocol><dst-port><services>htt
ps</services><services>netconf</services><services>ssh</services></dst-port></match><ac
tions><action>accept</action></actions></rule><rule><id>10</id><match><protocol>all</pr
otocol></match><actions><action>drop</action></actions></rule></filter><filter><name>OU
T_TRUSTED</name><rule><id>10</id><match><protocol>all</protocol></match><actions><actio
n>accept</action></actions></rule></filter><filter><name>OUT_UNTRUSTED</name><rule><id>
1</id><match><src-address><address-set>LOCAL-NETS</address-set><add-interface-address>t
rue</add-interface-address></src-address></match><actions><action>accept</action></acti
ons></rule><rule><id>10</id><match><protocol>all</protocol></match><actions><action>dro
p</action></actions></rule></filter><nat><source><rule-set><name>MASQ</name><rule><id>1
</id><source-nat><interface></source-nat></rule></rule-set></source></nat></firewall><
netconf
xmlns=\\\\"com:gemds:services:netconf\\\\"><enabled>>true</enabled><port>830</port></netconf><
snmp
xmlns=\\\\"com:gemds:services:snmp\\\\"><agent><enabled>>true</enabled><port>161</port><versio
n><v1/><v2c/><v3/></version><engine-id><enterprise-number>4130</enterprise-number><from
-text>00:06:3d:09:94:b3</from-text></engine-id><max-message-size>50000</max-message-siz
e><debug-enabled>>false</debug-enabled></agent><system/><community><index>public</index>
<sec-name>public</sec-name></community><vacm><group><name>all-rights</name><member><sec
-name>public</sec-name><sec-model>v1</sec-model><sec-model>v2c</sec-model><sec-model>us
m</sec-model></member><access><sec-model>any</sec-model><sec-level>no-auth-no-priv</sec
-level><read-view>internet</read-view><write-view>internet</write-view><notify-view>int

```

```
ernet</notify-view></access></group><view><name>internet</name><subtree><oids>1.3.6.1</oids><included/></subtree></view></vacm></snmp><ssh
xmlns=\"com:gemds:services:ssh\"><enabled>true</enabled><port>22</port></ssh><web
xmlns=\"com:gemds:services:web\"><http><enabled>>false</enabled><port>80</port></http><h
ttps><enabled>true</enabled><port>443</port></https></web></services><interfaces
xmlns=\"urn:ietf:params:xml:ns:yang:ietf-interfaces\"><interface><name>Bridge</name><ty
pe
xmlns:mds_bridge=\"com:gemds:mds-if-bridge\">mds_bridge:bridge</type><bridge-settings
xmlns=\"com:gemds:mds-if-bridge\"><members><port><interface>ETH1</interface></port><por
t><interface>ETH2</interface></port><port><interface>ETH3</interface></port><port><inte
rface>ETH4</interface></port><wifi-ap><ssid>GEMDS_2693708</ssid></wifi-ap></members><st
p-mode>disabled</stp-mode></bridge-settings><filter
xmlns=\"com:gemds:services:firewall\"><input>IN_TRUSTED</input><output>OUT_TRUSTED</out
put></filter><ipv4
xmlns=\"urn:ietf:params:xml:ns:yang:ietf-ip\"><address><ip>192.168.1.1</ip><prefix-leng
th>24</prefix-length></address></ipv4></interface><interface><name>Cell</name><type
xmlns:mds_cell=\"com:gemds:mds-if-cell\">mds_cell:cellular</type><cell-config
xmlns=\"com:gemds:mds-if-cell\"><connection-profile><name>Production</name><bearer-conf
ig><apn>mw01.VZWSTATIC</apn></bearer-config></connection-profile></cell-config><filter
xmlns=\"com:gemds:services:firewall\"><input>IN_UNTRUSTED</input><output>OUT_UNTRUSTED</
output></filter><nat
xmlns=\"com:gemds:services:firewall\"><source>MASQ</source></nat><ipv4
xmlns=\"urn:ietf:params:xml:ns:yang:ietf-ip\"><dhcp
xmlns=\"com:gemds:mds-interfaces\"><point-to-point-connection>true</point-to-point-conn
ection></dhcp></ipv4></interface><interface><name>ETH1</name><type
xmlns:mdsif=\"com:gemds:mds-interfaces\">mdsif:ethernet</type></interface><interface><n
ame>ETH2</name><type
xmlns:mdsif=\"com:gemds:mds-interfaces\">mdsif:ethernet</type></interface><interface><n
ame>ETH3</name><type
xmlns:mdsif=\"com:gemds:mds-interfaces\">mdsif:ethernet</type></interface><interface><n
ame>ETH4</name><type
xmlns:mdsif=\"com:gemds:mds-interfaces\">mdsif:ethernet</type></interface><interface><n
ame>Wi-Fi</name><type
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xmlns=\"com:gemds:mds-if-ieee80211\"><mode>access-point</mode><ap-config><ap><ssid>GEMD
S_2693708</ssid><broadcast-ssid>true</broadcast-ssid><privacy-mode>wpa2-personal</priva
cy-mode><psk-config><psk>$8$ILYU6U/5ztK/DJ8dPflf1XMHDq0kEKzFc7fs+cn0gAc=</psk></psk-con
fig></ap></ap-config></wifi-config></interface></interfaces><system
xmlns=\"urn:ietf:params:xml:ns:yang:ietf-system\"><ntp><use-ntp>>false</use-ntp></ntp><s
imple-web-mode xmlns=\"com:gemds:mds-system\">false</simple-web-mode></system></data>\"
    ],
    "SNMP_Contact": {
      "SNMP_Contact_only_entered_if_assigned_by_Provisioner": {
        "0": "Brandon",
        "Comment": "data/system/contact"
      },
      "SNMP_Contact_Assignment": [
        "Provisioner"
      ]
    }
  }
}
```

Auto-Create Staged Template Entry

This endpoint will allow an external system to automatically create a staged template entry.

Type: POST

CURL:

```
curl -k -H "X-Sting-API-Key: <Insert API Token Here>" -H "Content-Type: application/json" -X POST -d @acstagedtemplates.json <https://ipORhost:port>/api/e2em2m/userapi/acstagedtemplates
```

Request:

```
{
  "templatename": "For Demo Use",
  "numbertobestaged": "1",
  "Serial_Number": "2693708",
  "SNMP_Location": "North Pole"
}
```

Required:

- “templatename” is the name of the template to be staged
- “numbertobestaged” is the number of the devices for the template to stage [this is a value of “1” for devices where the serial number is being sent –if no serial number, then it can be up to a value of “9999”]

Optional:

Each of the features may be selected in the request. If the feature has an option for LaunchNET or Radio Admin, the feature must be set to LaunchNET to allow for the API to function correctly:

- “Serial_Number” is for the device to be created and assigned to the template (if the template requires a serial number)
- “SNMP_Location” is for the SNMP Location text (if the template has this feature)
- “SNMP_Contact” is for the SNMP Contact text (if the template has this feature)

Additional Notes:

1. SNMP Location has a drop-down for “Use Selected Interface”, except for the value “NA”. If the contents equal one of the selections (i.e., “Bridge”), then the value for the “SNMP Location (Use Selected Interface)” would be set to the value sent. Otherwise, the “SNMP Location (only entered if

assigned by LaunchNET)” would have the sent value. Default value is “NA” for the “SNMP Location (Use Selected Interface)” field.

2. When the SNMP Contact and SNMP Location are added, the admin has the option to have Radio Admin set the value or use the value that is in LaunchNET in the template. Those feature entries must be in the template AND they must be set to LaunchNET to be processed via the API. For serial number (the other optional property), if it is required by the template and the web request doesn't have it, the web request will be ignored. Also, SNMP Location and SNMP Contact will be ignored if the template doesn't contain those features.

Sample Response:

```
{
  "status": "success",
  "message": "<On success, return the record number. On failure, message for failure>"
}
```

Status can be 'success' or 'failure'.

Import Inventory

This endpoint will allow the user to import inventory as 'Available' to LaunchNET.

Type: POST

URL:

```
curl -k -H "X-Sting-API-Key: <Insert API Token Here>" -H "Content-Type: application/json" -X POST -d @importinventory.json <https://ipORhost:port>/api/e2em2m/userapi/importinventory
```

Request:

```
{
  "vendor": "GE",
  "model": "Orbit",
  "Inventory": [{
    "serial": "25501318",
    "guid": "GE-0000002550138"
  },
  {
    "serial": "25501319",
    "guid": "GE-0000002550139"
  }
}
```

```
    }  
  ]  
}
```

Note that the payload is listed in pairs of serial and guid (which can be an asset tag as well) whether they are populated or not. However, one of them must be populated. Additionally, if you are populating GE Orbits for the guid, it must be in the format of a GE asset tag (i.e., GE-000000<serial number>).

The vendor name and vendor model name must be populated correctly. Please review your user interface for your appropriate selection options, spelling, and syntax. If these are not correct, your import will fail.

```
{  
  "vendor": "GE",  
  "model": "Orbit",  
  "Inventory": [{  
    "serial": "25501318",  
    "guid": ""  
  },  
  {  
    "serial": "25501319",  
    "guid": ""  
  }  
]  
}
```

Where guid may be "" if not being used.

Sample Response:

```
{  
  "status": "success"  
}
```

OR

```
{  
  "status": "failure"  
}
```

Export Deployments List

This endpoint allows the user to export the information just as they can in the UI for the 'Export List as CSV' in the Deployments Completed of the Reports section. Below is a sample of the output from the UI as a CSV.

A	B	C	D	E	F
1	# Template	Vendor	Model	Staged	Provisioned
2	1 GE SD Node	GE	SDx	20	0
3	2 MN Lab Orbit no SCEP no SN required Test 2	GE	Orbit	11	9
4	3 MN Lab Orbit no SCEP no SN required Test 2 with SNMP Location	GE	Orbit	12	8
5	4 MN Lab Orbit no SCEP WITH SN required Test 2 with SNMP Location	GE	Orbit	18	2
6	5 MN Lab Orbit with SCEP no SN required Test 3	GE	Orbit	38	2
7	6 MN Lab TransNET Node	GE	TransNET	20	0

Type: POST

CURL:

```
curl -k -H "X-Sting-API-Key: <Insert API Token Here>" -H "Content-Type: application/json" -X POST -d @exportdeploymentlist.json <https://ipORhost:port>/api/e2em2m/userapi/exportdeploymentlist
```

Request:

```
{
  "template": "For Demo Use"
}
```

If all deployments are needed in a report run the following command without using a json:

```
curl -k -H "X-Sting-API-Key: <Insert API Token Here>" -H "Content-Type: application/json" -X POST -d {} <https://ipORhost:port>/api/e2em2m/userapi/exportdeploymentlist
```

Sample Response:

This response below tells the user that there are 2 templates and lists how many devices were staged & provisioned.

```
{
  "status": "success",
```

```

"payload": [
  {
    "Staged": 2,
    "Failed": 0,
    "Model": "Orbit",
    "Vendor": "GE",
    "Provisioned": 1,
    "Template": "For Demo Use"
  },
  {
    "Staged": 1,
    "Failed": 0,
    "Model": "Orbit",
    "Vendor": "GE",
    "Provisioned": 0,
    "Template": "For Demo Use"
  }
]
    
```

Export Deployment Details

This endpoint allows the user to export the information just as they can in the UI for the 'Export Details as CSV' in the Deployments Completed of the Reports section. Below is a sample of the output from the UI as a CSV.

#	User	Date/Time	Vendor	Model	Serial	GUID/Asset Tag	IP Address
1	Den Pakizh	5/11/2016 20:06	GE	Orbit	2568693	GE-0000002568693	172.16.173.97;10.5.173.97;192.168.1.97
2	Den Pakizh	5/11/2016 20:18	GE	Orbit	2568693	GE-0000002568693	172.16.173.97;10.5.173.97;192.168.1.97
3	Den Pakizh	5/11/2016 20:45	GE	Orbit	2568693	GE-0000002568693	172.16.173.97;10.5.173.97;192.168.1.97
4	Den Pakizh	5/11/2016 21:42	GE	Orbit	2568693	GE-0000002568693	172.16.207.0;10.5.207.0;192.168.1.0
5	Den Pakizh	5/11/2016 21:55	GE	Orbit	2568693	GE-0000002568693	172.16.28.206;10.5.28.206;192.168.1.206
6	Den Pakizh	5/12/2016 11:09	GE	Orbit	2568693	GE-0000002568693	172.16.58.59;10.5.58.59;192.168.1.59
7	Den Pakizh	5/12/2016 12:05	GE	Orbit	2568693	GE-0000002568693	172.16.152.23;10.5.152.23;192.168.1.23
8	Den Pakizh	5/13/2016 10:14	GE	Orbit	2568693	GE-0000002568693	172.16.111.143;10.5.111.143;192.168.1.143
9	Den Pakizh	5/13/2016 10:22	GE	Orbit	2568693	GE-0000002568693	172.16.131.103;10.5.131.103;192.168.1.103
10	Den Pakizh	5/13/2016 15:26	GE	Orbit	2568693	GE-0000002568693	172.16.150.191;10.5.150.191;192.168.1.191
11	Den Pakizh	5/13/2016 15:34	GE	Orbit	2568693	GE-0000002568693	172.16.150.191;10.5.150.191;192.168.1.191
12	Den Pakizh	5/13/2016 15:54	GE	Orbit	2568693	GE-0000002568693	172.16.33.212;10.5.33.212;192.168.1.212
13	Den Pakizh	5/13/2016 16:08	GE	Orbit	2568693	GE-0000002568693	172.16.142.181;10.5.142.181;192.168.1.181
14	Den Pakizh	5/13/2016 16:17	GE	Orbit	2568693	GE-0000002568693	172.16.204.195;10.5.204.195;192.168.1.195
15	Den Pakizh	5/13/2016 17:59	GE	Orbit	2568693	GE-0000002568693	172.16.3.151;10.5.3.151;192.168.1.151
16	Den Pakizh	5/16/2016 14:30	GE	Orbit	2568693	GE-0000002568693	172.16.19.68;10.5.19.68;192.168.1.68
17	Den Pakizh	5/18/2016 10:44	GE	Orbit	2568693	GE-0000002568693	172.16.242.53;10.5.242.53;192.168.1.53
18	Den Pakizh	5/18/2016 15:25	GE	Orbit	2568693	GE-0000002568693	172.16.35.96;10.5.35.96;192.168.1.96
19	Den Pakizh	5/19/2016 5:54	GE	Orbit	2568693	GE-0000002568693	172.16.88.126;10.5.88.126;192.168.1.126
20	Den Pakizh	5/20/2016 13:45	GE	Orbit	2568693	GE-0000002568693	172.16.221.201;10.5.221.201;192.168.1.201
21	Den Pakizh	5/20/2016 13:57	GE	Orbit	2568693	GE-0000002568693	172.16.254.15;10.5.254.15;192.168.1.15
22	Den Pakizh	5/20/2016 13:57	GE	Orbit	2568693	GE-0000002568693	172.16.254.15;10.5.254.15;192.168.1.15

Type: POST

CURL:

```
curl -k -H "X-Sting-API-Key: <Insert API Token Here>" -H "Content-Type: application/json" -X POST -d @exportdeploymentdetails.json <https://ipORhost:port>/api/e2em2m/userapi/exportdeploymentdetails
```

Request with json information:

```
{  
  "template": "For Demo Use"  
}
```

If all deployments are needed in a report run the following command without using a json:

```
curl -k -H "X-Sting-API-Key: <Insert API Token Here>" -H "Content-Type: application/json" -X POST -d {} <https://ipORhost:port>/api/e2em2m/userapi/exportdeploymentdetails
```

Sample Response:

This response tells you what the users have deployed and associated details.

```
{  
  "status": "success",  
  "payload": [  
    {  
      "Serial": "2693708",  
      "IP Address": "Bridge - 192.168.1.1",  
      "User": "admin",  
      "GUID/Asset Tag": null,  
      "Date/Time": "11/19/2020 01:26:16 PM",  
      "Model": "Orbit",  
      "Vendor": "GE"  
    }  
  ]  
}
```

Release a Staged Device

This endpoint will release a device from being staged and if a local inventory, set it to a status of 'Available'.

It can work in two scenarios. It can work on "rpid" as well as serial number, requiring only one of them at a time. If both are passed then "rpid" is used. So, at least one of "rpid" or "serial" is always required. "guid" is always optional.

"rpid": - Lookup by "rpid" is the best bet for the job so this should be used whenever possible. If passed then other two params would be skipped. The "rpid" is found in the provisions endpoint.

"serial": If "rpid" is not available then this is the only other option "serial" is required if "rpid" key is not present.

"guid": This is optional but can be passed with "serial" to make the lookup stronger. This should be passed whenever possible with serial even if it's optional.

Type: POST

CURL:

```
curl -k -H "X-Sting-API-Key: <Insert API Token Here>" -H "Content-Type: application/json" -X POST -d @releaseserial.json <https://ipORhost:port>/api/e2em2m/userapi/releaseserial
```

Request:

```
{
  "rpid": "5fb6c45eb6cd8e4b7c726970",
  "serial": "4353522",
  "guid": "4353522"
}
```

Sample Response:

This response simply tells you success or failure on releasing the device.

Success Response:

```
{
  "status": "success",
  "payload": ""
}
```

Error Response:

```
{
  "status": "error",
  "payload": "<error message>"
}
```

Report a Failed Deployment

This endpoint allows a report of a failed provision deployment.

Type: POST

CURL:

```
curl -k -H "X-Sting-API-Key: <Insert API Token Here>" -H "Content-Type: application/json" -X POST -d @reportfaileddeployment.json <https://ipORhost:port>/api/e2em2m/userapi/reportfaileddeployment
```

Request:

```
{
  "rpid": "5fb6e1b2b6cd8e38dc402962",
  "serial": "2693708",
  "remarks": "Testing reporting of deployment failure."
}
```

Sample Response:

This response simply tells you success or failure reporting a failure of a deployment.

Success Response:

```
{
  "status": "success",
  "payload": ""
}
```

Error Response:

```
{
  "status": "error",
  "payload": "<error message>"
}
```

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