# FlexNet Operations 2020 R1 On Premises Release Notes

June 2020
Revision 02

# Introduction

This Release Notes document summarizes the FlexNet Operations 2020 R1 On Premises updates delivered in June 2020. The document includes the following topics:

- Features and Enhancements

- Resolved Issues

- Known Issues

- Special Notes

- Security Notes

- System Requirements

- Legal Information

*Note •* *For additional details about the changes, contact Revenera support.*

# Resources

The following resources can help you stay up to date with FlexNet Operations news and product knowledge:

- In addition to providing case management, the Revenera Community site can help you quickly find answers to your questions by searching content from other customers, product experts, and thought leaders. You can also post questions on discussion forums for experts to answer. For each of Revenera's product solutions, you can access forums, blog posts, and knowledge base articles.

- You can find documentation for FlexNet Operations and all other Revenera products on the Revenera Product Documentation site:

- The Revenera Learning Center offers free, self-guided, online videos to help you quickly get the most out of your Revenera products. You can find a complete list of these training videos in the Learning Center.

# FlexNet Operations Videos

These brief, informative videos walk you through the getting-started exercises found in the *FlexNet Operations User Guide* (online help or PDF version). We recommend that you first read the appropriate "Getting Started" section in the *User Guide* to gain an understanding of the concepts it covers, and then click the section title in the table below to view the video.

| Guide | Topics |
|---|---|
| **Getting Started with Entitlement Management** | Creating an account, a user, a product, and an entitlement. |
| **Getting Started with FlexNet Embedded Licensing** | Setting up a publisher, identity, and a licensed product. Creating a device and activating its license. Creating and provisioning FlexNet Embedded license servers. |

| Guide | Topics |
|---|---|
| **Getting Started with Usage Management** | Creating a usage-based license model, a feature, a product, and an entitlement. Obtaining the license server URL to which the usage data is sent. Running a usage-capture client. Viewing usage information graphs and gauges. |
| **Getting Started with FlexNet Publisher License File-Based Licensing** | Activating and returning a certificate license. |
| **Getting Started with FlexNet Customer Growth** | Customer growth concepts and configuring notifications for expiring entitlements and expired entitlements. |

# Features and Enhancements

The new features and enhancements included in FlexNet Operations 2020 R1 On Premises impact users of these modules:

- System Administration
- User Experience
- Users and Accounts
- Entitlement Management
- Device Management
- Licensing
- Data Extracts
- SOAP Web Services
- FlexNet Usage Management
- Customer Growth
- General Enhancements

## System Administration

The following FlexNet Operations system administration features and enhancements have been included in this release.

- New User Permissions
- New Email Template Merge Tags
- New Account Name Column in Entitlement Management Template

# New User Permissions

The following a new permissions that can be assigned to a user role:

- A new permission, **Create Custom Attribute**, is now available for user roles. By default, this permission is active for the following roles:

  - Super User

  - System Administrator

  - Product Manager

  - Sales Operations Manager

  A generic custom attribute can only be created or edited if the user has **Create Custom Attribute** permission. Customers who were previously able to create or edit generic custom attributes using the **Create Transaction Key** permission must use the script provided by Revenera to change existing user roles to the new permission. This upgrade script finds all the roles that have **Create Transaction Key** permission and grants them **Create Custom Attribute** permission.

- A new permission, **Manage and View Customer Growth**, has been added for the Customer Growth feature that allows users to view and manage customer growth menus and pages. By default, this permission is active for all roles.

- A new permission, **Merge Entitlements from Self-Registered Account to Customer Account,** has been added. This permission is assigned by default to the System Administrator and Super User but is available to other roles. If enabled, this permission allows a user to choose a self-registered account when selecting a Source Account from the **Entitlements > Merge** page.

# New Email Template Merge Tags

As a part of the name change of *organization* to *account*, email template merge tags have been updated with two new tags:

- `[[AcctId]]`

- `[[FOR-EACH TAG="SoldToAcct"]]`

These tags function exactly like the `[[OrgName]]` and `[[FOR-EACH TAG="SoldToOrg"]]` merge tags. To ensure backward compatibility, the `[[OrgName]]` and `[[FOR-EACH TAG="SoldToOrg"]]` tags are currently still supported.

The following templates use the new merge tags:

- Entitlement
- Entitlement Certificate
- License
- Renewal Notification
- Renewal Intent for End Customer
- Renewal Reminder for Expired Entitlements
- Product Upgrade Job email
- Order Media
- Welcome Email for End User
- Welcome Email for Producer
- Multiple Licenses

# New Account Name Column in Entitlement Management Template

A new **AccountName** column has been added to the **Entitlement Management Template** for all tiers (for example, **End Customer > Account Name**, **Partner Tier 1 > Account Name**, and so forth). It allows users to include the tier's account name when importing an entitlement.

# User Experience

This section describes FlexNet Operations user-experience features and enhancements included in this release.

- Expiration Column for Entitlements Now Sortable
- Ability to Direct-Type Values in Fields Associated with a Search Feature
- Trial Registration Enhancements
- Deactivating Shared User After Failed Login Attempts

# Expiration Column for Entitlements Now Sortable

The **Expiration** column on the **List Entitlements** page is now sortable in the FlexNet Operations End-User Portal. This enhancement is especially helpful when the expiration date range spans several years.

# Ability to Direct-Type Values in Fields Associated with a Search Feature

Fields that previously required you to open a pop-up window to search for and select an existing value now permit you to type a value directly in the field. This feature saves time for those users who know the exact value to enter. Manually typed entries are validated when the page is saved.

Certain fields also show a dropdown of possible values when you have typed a minimum of three values, enabling you to make a selection before completing the entry.

# Trial Registration Enhancements

The following enhancements are available for trial registrations:

- Access to Multiple Trial Part Numbers
- Show/Hide "Registering for Trial" option
- New Configuration for Trial Registration

### Access to Multiple Trial Part Numbers

Trial registration now allows existing customer users access to multiple trial part numbers through the End-User Portal.

Existing and new users can now register for one or more trials.

## Show/Hide "Registering for Trial" option

The **Register for Trial** option shown in the End-User Portal can now be hidden through the **System** > **Configure** > **End-User Portal Setup** > **Entitlements Page** > **Hide Register for Trial** system configuration. By default, this check box is selected so that the **Register for Trial** option is hidden.

## New Configuration for Trial Registration

Previously, FlexNet Operations could not register a trial when an attribute for a custom license module was required, but FlexNet Operations was not displaying the required license model attribute in the trial registration form. (To access the trial registration form, click **System** > **Custom Content** > **Create Content** > **Select Template** > **Trial Registration**.)

To resolve this, the publisher needs to edit the trial registration configuration as shown in the following code samples:

- Customizing custom content code for a single part number
- Customizing custom content code for multiple part numbers with different custom license attributes

### Customizing custom content code for a single part number

The following examples show how to customize the content code associated with a single part number to show a custom license attribute.

In these examples, CustLMA1 is the name of the custom license model attribute.

#### *Code sample for a required license custom attribute*

```
<li class="liExtProperty"><label class="required">CustLMA1:</label>
<input type='text' ng-model="formData.licenseCustomAttributes['CustLMA1'][0]" />
</li>
```

#### *Code sample for an optional license custom attribute*

```
<li class="liExtProperty"><label>CustLMA1:</label>
<input type='text' ng-model="formData.licenseCustomAttributes['CustLMA1'][0]" />
</li>
```

User custom attributes can also be collected in the same form using the following example code:

```
<div id="Extended Properties" class="WideColumnBlock left">
    <h2>Additional Information</h2>
    <p>Please answer the following questions:</p>
    <fieldset>
        <ol>
            <li class="liExtProperty"><label >TestAtt:</label>
                <input type='text' ng-model="formData.userCustomAttributes['TestAtt'][0]" />
            </li>
        </ol>
    </fieldset>
</div>
```

### Customizing custom content code for multiple part numbers with different custom license attributes

The following examples show how to customize the content code associated with multiple part numbers to show the license attribute for each part number.

### Code sample for customization with toggle switch (show/hide)

The custom license attributes will be displayed based on part number selection. The following sample code shows custom content for required license attributes:

```
<fieldset>
    <ol>
        <div id="Flexnet_Part1" class="WideColumnBlock left" style="display: none" >
            <li class="liExtProperty"><label class="required">CUSTLMA_4_Flexnet_Part1:</
                label>
                <input type='text' ng-model="formData.licenseCustomAttributes['CUSTLMA_4_
                Flexnet_Part1'][0]" />
            </li>
        </div>
        <div id="Flexnet_Part2" class="WideColumnBlock left" style="display: none" >
            <li class="liExtProperty"><label class="required">CustLMA1:</label>
                <input type='text' ng-model="formData.licenseCustomAttributes['CustLMA1']
                [0]" />
            </li>
            <li class="liExtProperty"><label >CustLMA2:</label>
                <input type='text' ng-model="formData.licenseCustomAttributes['CustLMA2']
                [0]" />
            </li>
        </div>
    </ol>
</fieldset>
```

**Notes:**

- **"Flexnet_Part1"** and **"Flexnet_Part2"** are the part numbers created and mapped to products for trial activation.

- `CUSTLMA_4_Flexnet_Part1`, `CustLMA1` and `CustLMA2` are the names of the custom license model attributes.

- If the code **style="display: none"** is added (as in the above code snippet), the license attributes will not be displayed in the custom content preview.

- To preview the license attributes, publishers need to remove **style="display: none"** and then generate a preview. After the preview, they must then add the **style="display: none"** back into the custom content. The `style` attribute is mandatory for the toggle switch functionality.

### Code sample for customization without toggle switch (show/hide)

All custom license attributes related to available trial part numbers will be displayed no matter what part number is selected. The following sample code shows custom content for required license attributes:

```
<fieldset>
    <ol>
        <div id="Flexnet_Part1" class="WideColumnBlock left" >
            <li class="liExtProperty"><label class="required">CUSTLMA_4_Flexnet_Part1:</
                label>
                <input type='text' ng-model="formData.licenseCustomAttributes['CUSTLMA_4_
                Flexnet_Part1'][0]" />
            </li>
        </div>
        <div id="Flexnet_Part2" class="WideColumnBlock left"   >
            <li class="liExtProperty"><label class="required">CustLMA1:</label>
```

```
                    <input type='text' ng-model="formData.licenseCustomAttributes['CustLMA1']
                    [0]" />
              </li>
              <li class="liExtProperty"><label >CustLMA2:</label>
                    <input type='text' ng-model="formData.licenseCustomAttributes['CustLMA2']
                    [0]" />
              </li>
         </div>
     </ol>
</fieldset>
```

## Deactivating Shared User After Failed Login Attempts

Previously, FlexNet Operations did not place a limit on the number of consecutive failed login attempts for shared users, which could potentially pose a security risk. Now, shared users are deactivated after a specified number of consecutive failed login attempts. The number of consecutive failed authentications after which a user (shared or non-shared) will be deactivated can be set using the field **Consecutive Failed Authentications** (under **System Configuration** > **FlexNet Platform Server** > **General Options**). By default, non-shared users are deactivated after 3 consecutive failed login attempts. For shared users, the specified value is multiplied by 2. Therefore, by default, shared users are deactivated after 6 consecutive failed login attempts (3 x 2 = 6).

A shared user account can be automatically reactivated after a specified time. You can set this time in the Producer Portal using a new configuration setting called **Minutes for re-enabling a shared login after deactivation**. The setting is located in the **System Configuration** section, on the **FlexNet Platform Server** tab, subsection **General Options**. The default is 3 minutes. (A non-shared user account can only be reactivated manually.)

For shared users who want their locked account reactivated before the specified time has elapsed, the End-User Portal now includes a Google Recaptcha mechanism. To enable this mechanism, the producer must provide a Recaptcha Site Key and Secret Key in the corresponding fields under **System Configuration** > **FlexNet Platform Server** > **General Options**.

# Users and Accounts

Features and enhancements for FlexNet Operations accounts and users include the following.

- Default Account Restrictions
- Permission Enhancements to Allow Certain User/Account Edits

## Default Account Restrictions

The following default accounts have these restrictions:

- **MYORG**—Only the name can be updated. No other updates are permitted, nor can this account be deleted.
- **PORTAL_ORG_UNIT**—The account cannot be updated or deleted.
- **UNKNOWN_ORG_UNIT**—The account cannot be updated or deleted.

# Permission Enhancements to Allow Certain User/Account Edits

Previously, a user making changes to another user's role and contact information required at least the permissions of the user being managed.

Now, to modify a user's **Contact Details**, **Additional Attributes**, or **Product Lines**, the user's role is required only to have **View and Manage User** permission. However, updating a user's role in either the **Edit A User** or the **Create An Account** page still requires that the managing user's role and associated accounts not only have the **View and Manage User** and the **View and Manage Account** permissions, but at least the same level of permissions as the user being updated. This applies for both the FlexNet Operations Producer Portal as well as the End-User Portal.

# Entitlement Management

This section describes the FlexNet Operations Entitlement Management features and enhancements included in this release:

- Support for Multiple Values as Search Criteria in Advanced Search Dialog

- Account ID Added to Screens

- Support for Removing Users

- Entitlement Transaction History

- Configuration for Displaying Custom Attributes

- New Variable for Vendor String

- Ability to Link User/Entitlements from Self-Registered Account to Customer Accounts

- Specifying Email Template During Entitlement Creation

# Support for Multiple Values as Search Criteria in Advanced Search Dialog

Text-entry fields on the **Advanced Search** dialog now permit multiple-string values. Each entered string is separated with a comma. The OR operator is used to process multiple strings entered for a given field. This feature is available on only the **Advanced Search** dialog invoked from **List of Entitlements by Order** page.

# Account ID Added to Screens

The Account ID is now displayed along with the Account Name on Entitlement screens, making it easier to identify the correct account when multiple accounts have the same name. Also, the *account Name* (*account ID*) entries on drop-down lists are shown in alphabetical order to further help in locating an account.

# Support for Removing Users

Previously in FlexNet Operations, producers could permanently remove a user (customer or partner) if the user had no dependencies—such as line items, entitlements, fulfillment records, import jobs, shipment records, alerts, subscriptions, and so forth.

With this release of FlexNet Operations, if the user has such dependencies, a force delete option is now available. The force delete will ensure that the user record and its dependencies are retained but placed in an inactive state. In this state, all fields in the user record are rendered obsolete, login-credential resets for the user are prohibited, and no further access to the user record is allowed.

Note that this option applies only to the forced deletion of *non-producer* users with dependencies.

For more information about deleting users, see the Producer Portal help system.

# Entitlement Transaction History

Entitlements have been added to the list of entities viewable in the transaction history. The entitlements can be accessed either by searching for the transaction history (click **System Transaction History**) or by clicking the **View Transaction** link on the **Create an Entitlement** page (click on **Entitlements > List Entitlements by Order** then click on an entitlement). The transaction history of an entitlement includes a summary section listing the entity type, entity ID, user ID, event timestamp, and event type. The transaction details also include two tabs—**Show all fields**, which displays all the information about the entitlement, and **Show only differences**, which displays only the before and after values of the changed fields.

# Configuration for Displaying Custom Attributes

A new configuration setting **Show maintenance line items custom attributes in Entitlements Page** has been added to the Producer Portal. The setting is located in **System Configuration > FlexNet Operations > General Options**.

The setting controls whether custom attributes for maintenance lines are visible in the Producer Portal and End-User Portal at the following locations:

- On the **List Entitlements** and **List Entitlements By Order** pages

- On the **Maintenance Line Item Details** panel

By default, this setting is not enabled, nor are custom attributes for maintenance lines visible.

# New Variable for Vendor String

A new variable `{Feature.version}` has been introduced for the **Vendor String** field. If this variable is defined on the **Create a License Model** page, the FlexNet Publisher license generated with the specified license model will contain the feature versions.

The format of the feature version specified using the `{Feature.version}` variable depends on its location:

- The **Vendor String** field outside of the FlexNet Publisher license lists all the feature versions available in the product as comma-separated values.

  **Example**

  ```
  5.0, 1.0, 2.0
  ```

- Within the FlexNet Publisher license, each individual INCREMENT line displays the VENDOR_STRING keyword with a specific feature version.

**Example**

```
SERVER this_host ANY
VENDOR demo
USE_SERVER
INCREMENT F5 demo 5.0 permanent 1 VENDOR_STRING=5.0 \
    PLATFORMS="alpha_n alpha_l amd64_s" DUP_GROUP=SITE \
    ISSUER=UNKNOWN_ORG_UNIT ISSUED=24-oct-2018 \
    NOTICE=UNKNOWN_ORG_UNIT SN=UNKNOWN_ORG_UNIT START=22-oct-2018 \
    SIGN="003E 53DI 42ID 56ZN 9568 EI41 NM3B 397R 307A 4B4T 9568 \
    EI41 NM3B IE35 33ER"
INCREMENT F1 demo 1.0 permanent 1 VENDOR_STRING=1.0 \
    PLATFORMS="alpha_n alpha_l amd64_s" DUP_GROUP=SITE \
    ISSUER=UNKNOWN_ORG_UNIT ISSUED=24-oct-2018 \
    NOTICE=UNKNOWN_ORG_UNIT SN=UNKNOWN_ORG_UNIT START=22-oct-2018 \
    SIGN="TZ3E 540I 4ILD 90HN ZN95 68EI 41NM 3B39 7R30 7A4B 4568 \
    IE55 IL51 NMIE 3533 K3ER"
INCREMENT F2 demo 2.0 permanent 1 VENDOR_STRING=2.0 \
    PLATFORMS="alpha_n alpha_l amd64_s" DUP_GROUP=SITE \
    ISSUER=UNKNOWN_ORG_UNIT ISSUED=24-oct-2018 \
    NOTICE=UNKNOWN_ORG_UNIT SN=UNKNOWN_ORG_UNIT START=22-oct-2018 \
    SIGN="3E54 0I4I LD90 HNZN 9568 EI41 NM3B 397R 307A 4B45 69UE \
    ILK8 5NMI E353 3K3E LP9R"
```

## Ability to Link User/Entitlements from Self-Registered Account to Customer Accounts

On the **Entitlements > Merge** page, user roles assigned the **Merge Entitlements from Self-Registered Account to Customer Account** permission have the option of selecting a self-registered account for the Source Account. In this way, a user and entitlements from a self-registered account to be linked to a customer account. A user from the customer account logging into the End-User Portal is then able to see the entitlements and users of the self-registered account.

## Specifying Email Template During Entitlement Creation

User can now select an email template from the **Email Template variation** drop-down when creating an entitlement. If no template is specified, then the template specified by the license technology is used. If an email template is not configured for the license technology, then the default email template is used.

# Device Management

The following features and enhancements have included for FlexNet Operations Device Management in this release.

- Option to Show Vendor Dictionary Information for a Device

## Option to Show Vendor Dictionary Information for a Device

A new configuration setting **Display vendor dictionary information in Devices page** has been added to the Producer Portal. The setting is located on the **System Configuration > End-User Portal Setup > Devices Page**. The setting controls whether vendor dictionary information is visible on the **View Device** page in the End-User Portal.

By default, this setting is enabled and vendor dictionary information is visible on the **View Device** page.

# Licensing

This section describes the FlexNet Operations Licensing features and enhancements introduced in this release.

- Options to Configure Secure External License Generators

- Data Extracts

## Options to Configure Secure External License Generators

Administrators are now able to secure an external license generator that uses the External SOAP service. The license generator can use either HTTP or SOAP header-based authentication (or no authentication). The new parameters on the **Create a License Technology** page enable you to configure this security. For more information, refer to the FlexNet Operations online system.

## Support for FNP Time Zones in License Model

Time zones currently supported by FlexNet Publisher are now available when creating license models for software products built with the FlexNet Publisher toolkit. A new screen, available under **Administer > FlexNet Publisher > Time zones**, provides the means to create a list of time zone options available for selection in the license model. The time zones range from GMT -12 to GMT +14. (The GMT +14 time zone must be used by FlexNet Publisher 11.15.1 or greater.)

Only the FlexNet Operations Super User can create the list of available time zone options for use when creating license models.

# Data Extracts

This section describes the FlexNet Operations Data Extracts features and enhancements introduced in this release.

- Product Packaging Extraction

- "AccountID" Column Added to the User Data Extracts

- New "AccountName" in Entitlement Data Extracts

- All REST Data Extracts in Real Time

## Product Packaging Extraction

A Packaging Extract job is now available to capture details of products and their dependent entities (such as maintenance, suites, part numbers, and license models). It also captures features (including version, state, and quantity) associated with the products. The job output is a snapshot of the products created or updated; it does not include historical product data.

For more information, see the *FlexNet Operations Web Services Integration Guide*.

## "AccountID" Column Added to the User Data Extracts

A new **Account ID** column has been added to the User Data Extract output. This attribute can provide a means to distinguish between accounts that have same name.

## New "AccountName" in Entitlement Data Extracts

The Entitlement Data Extract REST service has a new **AccountName** column for all tiers (for example, **End Customer>AccountName**, **Partner Tier 1>AccountName**, and so forth). It allows users to include the tier's account name when importing an entitlement.

## All REST Data Extracts in Real Time

The run time for all REST data extracts has changed from being constrained to run once in the previous 24 hours to running in real time. This means that users can schedule a REST data extract job to occur more than once a day. Previously, if the schedule was set for more than once a day, the first extract of that day would contain data from the last successful run to midnight of the previous day, and all subsequent jobs that day would return an extract with no data. Now, as before, the first extract contains all data up to midnight of the previous day, but any subsequent runs fetch all data from the last successful run up to the current time, even if it is on the same day.

# SOAP Web Services

This section describes the FlexNet Operations SOAP Web Services features and enhancements introduced in this release. For more information about using SOAP Web Services, refer to the *FlexNet Operations Web Services Integration Guide*. For reference information about the custom data types and XML Schema elements specific to each Web Service interface, see the *FlexNet Operations SOAP Web Services Guide*.

**Note** • *The SOAP Web Services are recommended for use by only producers for integration with the back office.*

- Latest SOAP Web Service Versions
- New Query Filters for Maintenance Line Items
- New Email Template Fields for Entitlement Order Service
- Ability to Link Users and Entitlements from Self-Registered Accounts to Customer Accounts
- New Parameters for "getDevice" Method

- New "searchDevices" Method

- New "countDevices" Method

- Support for cc/bcc on Entitlement Email

- Enhancements to the User Account Hierarchy Service

## Latest SOAP Web Service Versions

The following table shows the current version for each SOAP service.

| Web Service | Current Version |
|---|---|
| **Product Packaging Service** | v2 |
| **Entitlement Order Service** | v4 |
| **FlexNet Authentication Service** | v1 |
| **Manage Device Service** | v3 |
| **License Service** | v1 |
| **User Account Hierarchy Service** | v3 |
| **Download Packaging Service** | v2 |
| **Usage** | v1 |

*Tip •* *For more information about versioning, see the FlexNet Operations Web Services Integration Guide or the FlexNet Operations SOAP Web Services Guide.*

## New Query Filters for Maintenance Line Items

The following parameters have been added to the **getEntitlementMaintenanceLineItemPropertiesQuery** method (in the **v4 EntitlementOrderService** SOAP Web Service) to filter maintenance lines by their creation and last-modified timestamps:

- **createdDateTime**

- **lastModifiedDateTime**

These filters can help users determine the most recently updated maintenance lines.

# New Email Template Fields for Entitlement Order Service

In the **EntitlementOrderService** SOAP Web Service, a new field is now available for the **createSimpleEntitlement** and **updateSimpleEntitlement** methods, enabling you to specify an email template when creating or updating an entitlement. Additionally, a new field has been added to the **getEntitlementQuery** and **getEntitlementCount** methods, enabling entitlement searches by the associated email template.

The email-template specification for entitlements also affects the behavior of the **emailActivatableItem** and **emailEntitlement** methods. When an email template is specified, the specified template is given preference when sending the email. If no email template is specified, preference is given to the email template configured for the license technology. If no email template is configured, the default email template is used. However, if the specified email template is not active or the "send" indicator is not switched on, then no email is sent.

# Ability to Link Users and Entitlements from Self-Registered Accounts to Customer Accounts

For **mergeEntitlements** method in the **EntitlementOrderService** SOAP Web Service, users who have been granted proper permission can specify either self-registered accounts or customer accounts for the **accountFrom** parameter. The **accountTo** parameter can be a customer account only. This enables you to link a user and entitlements from a self-registered account to a customer account. See also Ability to Link User/ Entitlements from Self-Registered Account to Customer Accounts.

# New Parameters for "getDevice" Method

The following parameters have been added to the element defining the **getDevice** method in the **ManageDeviceService** SOAP Web Service to return time-line information for add-ons to a device:

- **addOnCreatedDate**

- **addOnLastModifiedDate**

These parameters, when set to "true", provide responses that include the time when the entitlement line was added to the device or when the relationship was modified.

# New "searchDevices" Method

The **ManageDeviceService** SOAP Web Service now includes a new **searchDevices** method which is a companion to the **getDevice** method introduced in FlexNet Operations 2018 R1. Whereas **getDevice** returns full information about an individual device, the **searchDevices** operation takes one or more query parameters and returns the matching devices. If no specific query parameters are provided, all active client and server devices are returned. You can limit which fields are returned; however, **searchDevices** returns host identifier and last modified information only if no response configuration is specified. However, **searchDevices** does not return certain details; if more details are required for any of the devices found, use **getDevice** to retrieve them. These two services replace **getDevicesQuery**, which is being deprecated.

To enable sorting of the devices returned by **searchDevices**, an optional **sortBys** element was added. The **sortBys** element, in turn, includes a **sortBy** element that comprises **sortKey** and boolean **ascending** elements.

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*Important • Although the WSDL allows the use of multiple **sortBy** elements, **searchDevices** currently supports sorting by a single key only.*

## New "countDevices" Method

Similar to the **searchDevices** SOAP Web Service method with respect to the query parameters, the **countDevices** method returns the count of only those devices that match the search criteria. The **countDevices** method replaces the existing **getDeviceCount** method (which is being deprecated) and provides better performance.

## Support for cc/bcc on Entitlement Email

The following parameters have been added to the **emailEntitlement** and **emailActivableItem** methods (in the **v4 EntitlementOrderService** SOAP Web Service).

- **ccEmailIdList**

- **bccEmailIdList**

These parameters enable users to optionally specify one or more CC and BCC recipients in the email. Previously, all recipients were automatically added to the "To" list.

## Enhancements to the User Account Hierarchy Service

This release provides the following enhancements to the **UserAcctHierarchyService** SOAP Web Service:

- The service has been enhanced with new operations for adding, updating, and deleting users who belong to a domain, provided that the domain is added and active in FlexNet Operations.

- Timezone values can now be specified as GMT#.#DST#. Previously, they could be specified only as an offset of GMT.

- A new option to filter by role has been added to the **getUsersQuery** method.

- For the **deleteAccount** and **updateAccount** methods, the following restrictions are in effect for default templates:

  - **MYORG**—Only the name can be updated. No other updates are permitted, nor can this account be deleted.

  - **PORTAL_ORG_UNIT**—The account cannot be updated or deleted.

  - **UNKNOWN_ORG_UNIT**—The account cannot be updated or deleted.

# FlexNet Usage Management

The FlexNet Usage Management (for producers) includes the following features and enhancements.

- Transaction Time Now Reported for Usage Events

## Transaction Time Now Reported for Usage Events

Every usage event has the following two timestamps:

- **Received time**—When the usage event is received by FlexNet Operations On Premises

- **Transaction time**—When the usage event is triggered, as recorded by the license server

Previously, reporting was based on the *received time* of a usage event. However, the local license server does not synchronize data with FlexNet Operations frequently enough to keep the received time in sync with the transaction time. As a result, the received time in FlexNet Operations does not take into account when the customer actually triggered the usage event; the transaction time does.

Now, reporting is based on the *transaction time* of a usage event rather than its *received time*.

> ⚠
>
> ***Important*** • *Verify that all local license servers have synchronized with FlexNet Operations before generating billing reports for your statement period.*

Usage data extracts report both transaction time and received time.

# Customer Growth

This release introduces the following FlexNet Operations Customer Growth features and enhancements:

- Rest API for Renewal Data

> ⚠
>
> ***Important*** • *Customer Growth is a paid module.*

## Rest API for Renewal Data

A new REST API is available to retrieve the renewal data (`/operations/health/renewals`). For more information, see the Swagger documentation at this location:

https://YOUR_FNO_INSTANCE.flexnet/swagger-ui.html

For more information about the Swagger URL, see REST API Documentation Now in Swagger.

# General Enhancements

This section describes general enhancements included in this release.

- Support for the JDK Platform

- Support for New hostid Type

- REST API Documentation Now in Swagger

- Easier Accessibility to FlexNet Operations Documentation

# Support for the JDK Platform

FlexNet Operations now runs on the JDK 1.8 and OpenJDK 1.8 platforms. Certain configuration is needed to enable it for FlexNet Operations. For more information, see the *FlexNet Operations On Premises Installation and Implementation Guide*.

# Support for New hostid Type

The `CONTAINER_ID` is now available as a hostid type for the FlexNet Embedded served client devices running in containerized environments. Note that the `CONTAINER_ID` hostid is not universally unique. However, it is sufficient for node-locking for concurrent and metered (usage–based) licensing due to its being short-lived (it is available only while the container is running).

This hostid type applies to served client devices only, not to license servers. Additionally, the device serving the licenses must be a FlexNet Embedded local license server.Currently, the only supported containerization technology is Docker.

# REST API Documentation Now in Swagger

Complete documentation of the FlexNet Operations application REST services is now maintained in the Swagger-based guide *REST API Documentation for FlexNet Operations*. To get to your Swagger instance, you need to replace the YOUR_FNO_INSTANCE in the following URL with the location of your FlexNet Operations On Premises Instance:

https://YOUR_FNO_INSTANCE.flexnet/swagger-ui.html

For example, if your FNO instance was https://prod2222.mycompany.com, then the URL to the Swagger documentation would be:

https://prod2222.mycompany.com/flexnet/swagger-ui.html

Previously, a description of the application REST services was found only in the *FlexNet Operations Web Services Integration Guide*. This guide will continue to retain a description of basic application REST services as a reference. However, for a description of the entire FlexNet Operations application REST interface, refer to the Swagger documentation.

# Easier Accessibility to FlexNet Operations Documentation

The FlexNet Operations documentation has undergone the following changes to improve content accessibility:

- Combined User Guide
- Other Merged Documentation
- Renamed Documentation
- Documentation Not Merged or Renamed

## Combined User Guide

The former *FlexNet Operations Administration Guide*, *End-User Portal Branding Guide*, *Reporter Quick Reference*, *Reporter Standard Reports*, and all *Getting Started* guides have been merged into a single *FlexNet Operations User Guide*. All content in the *User Guide* is searchable from one HTML help system available from the Producer Portal and on the Revenera Product Documentation site (https://docs.revenera.com).

A PDF version of the *User Guide* is also available. You can access it on the Revenera Product Documentation site or download it from the Product and Licensing Center (https://flexerasoftware.flexnetoperations.com).

## Other Merged Documentation

The following documentation has also been merged into fewer books.

| Previous Documentation | Now Combined As... | Accessibility |
|---|---|---|
| FlexNet Operations Data Warehouse Guide<br><br>Using Jasper Reports with FlexNet Operations | **FlexNet Operations On Premises Reporting Guide** | This book is available in both HTML and PDF format on the Revenera Product Documentation site ((https://docs.revenera.com).<br><br>The PDF is also downloadable from the Product and Licensing Center (https://flexerasoftware.flexnetoperations.com). |
| FlexNet Operations Implementation Guide<br><br>FlexNet Operations Installation Guide<br><br>Recommendations for FlexNet Operations Performance Improvement | **FlexNet Operations On Premises Installation & Implementation Guide (PDF)** | This book is available in PDF format only and is downloadable from the Product and Licensing Center (https://flexerasoftware.flexnetoperations.com). |

## Renamed Documentation

The former *FlexNet Operations Web Services Guide* has been renamed to *FlexNet Operations SOAP Web Services Guide* to clarify its contents. It is available as a PDF for downloading from the Revenera Product Documentation site (https://docs.revenera.com) or from the Product and Licensing Center (https://flexerasoftware.flexnetoperations.com).

## Documentation Not Merged or Renamed

The following documentation has not changed:

- *FlexNet Operations Web Services Integration Guide*, downloaded from the Revenera Product Documentation site (https://docs.revenera.com) or the Product or Licensing Center (https://flexerasoftware.flexnetoperations.com)

- *REST API Documentation for FlexNet Operations* on Swagger (available through a link)

# Resolved Issues

Issues in these categories have been resolved:

- System Administration Issues Resolved

- Entitlement Management Issues Resolved

- Accounts and User Issues Resolved

- Device Management Issues Resolved

- Licensing Issues Resolved

- SOAP Web Services Issues Resolved

- FlexNet Usage Management Issues Resolved

- General Issues Resolved

## System Administration Issues Resolved

The following FlexNet Operations system administration issues have been resolved:

- Editing Custom Attribute Values No Longer Throwing Concurrency Errors

- Host Type Error in Imports Resolved

### Editing Custom Attribute Values No Longer Throwing Concurrency Errors

Attempts to edit values for a custom host, license, or license generator attribute are no longer generating a "concurrent modification error".

### Host Type Error in Imports Resolved

The import process is now reading the host type in the import request and is no longer attempting to use the default host type that is set at product creation (as it previously attempted to do in certain cases).

## Entitlement Management Issues Resolved

The following issues related to FlexNet Operations Entitlement Management have been resolved:

- Permissions Now Correctly Applied to Merge-Entitlements Operations

- Improved Performance When Loading Map Entitlements Page

- Issues with Entitlement Mapping Resolved

# Permissions Now Correctly Applied to Merge-Entitlements Operations

Previously, a producer with just read-only permissions could merge entitlements and fulfillments. In this release, only producers with sufficient permissions can perform these operations. As a result, the following restrictions now apply to the **Merge Entitlements** page in the FlexNet Operations Producer Portal:

- In the **Assets to be Merged** section, the **Entitlements and Fulfillments** option is available for selection only if the producer is assigned the **Update Entitlements** permission.

- In this same section, the **Users** option is available for selection only if the producer is assigned the **View and Manage Users** permission.

- If the producer is not assigned either permission, the **Complete** button on the **Merge Entitlements** page is disabled to prohibit any entitlement merging.

These same permission restrictions apply to the **mergeEntitlements** method in the **EntitlementOrderService** Web Service.

# Improved Performance When Loading Map Entitlements Page

Improved queries enable a faster load of the **Map Entitlements** page in the FlexNet Operations End-User Portal.

# Issues with Entitlement Mapping Resolved

Issues that occurred when attempting to map entitlements to devices in the End-User Portal have been addressed.

# Accounts and User Issues Resolved

The following issues in the management of FlexNet Operations accounts and users have been resolved:

- "View and Manage Users" Permission Now Allowing User Profile Editing
- "View and Manage Accounts" Permission Now Allowing Account Profile Editing

# "View and Manage Users" Permission Now Allowing User Profile Editing

The **View and Manage Users** permission now allows users to edit all user profiles, despite the permission level of the user associated with the profile.

# "View and Manage Accounts" Permission Now Allowing Account Profile Editing

The **View and Manage Accounts** permission now allows users to edit all account profiles, despite the permission level of the users associated with the profile.

# Device Management Issues Resolved

The following issues related to FlexNet Operations Device Management have been resolved:

- Unauthorized Access to Device Management Functionality Resolved
- Device with Associated Licenses Properly Obsoleted
- "Map by Activation ID" Validate Button Working Properly
- Resolved Localization Issue in Device Management Pages

## Unauthorized Access to Device Management Functionality Resolved

Users who did not have permissions to manage devices had potential access to Device functionality by entering an URL in their browser that linked them to a **Device** page. No known exploitation has occurred. This security loophole is now remedied.

## Device with Associated Licenses Properly Obsoleted

Previously, users who had permission to manage devices but did not have permission to manage entitlements were unable to obsolete a device to which entitlements were mapped. In this release, permission to manage devices is sufficient to obsolete devices that have entitlements. Permission to manage entitlements is *not* required.

## "Map by Activation ID" Validate Button Working Properly

When users map entitlements to a device using the **Map by Activation IDs** dialog specific to the device, the **Validate** option now properly checks the entered IDs and no longer throws an internal server error.

## Resolved Localization Issue in Device Management Pages

In the French user interface, the **Device Management** pages now display the correct content. Previously, some content was displayed in Spanish.

# Licensing Issues Resolved

The following issues related to FlexNet Operations Licensing have been resolved:

- Invalid Capability Request Now Providing Appropriate Response
- Message Issued When Response Contains Status Issues
- Obsolete Custom License Values Properly Retained in Existing Fulfillments

## Invalid Capability Request Now Providing Appropriate Response

A capability request sent through the Offline Device Management facility can either fully succeed, partially succeed, or not succeed at all. Previously, the response for such a request simply indicated that the license file was created but provided no indication of possible error. Only when users attempted to download the response did they discover whether it was usable.

Now, any message reported in the Status field of the downloadable response is also shown in the **Offline Device Management** page in the UI.

## Message Issued When Response Contains Status Issues

If the response generated from a capability request that was uploaded using Offline Device Management contains status issues, a message is now displayed to notify the user of these issues. For example, the message might inform the user of the existence of invalid activation IDs (thus indicating the possibility of only a partial fulfillment of requested licenses).

## Obsolete Custom License Values Properly Retained in Existing Fulfillments

When a value for a custom license attribute is removed, the value is retained in any existing License Fulfillment and line items that still use that value.

# SOAP Web Services Issues Resolved

The following issues related to FlexNet Operations SOAP Web Services have been resolved:

- "getFulfillmentsQuery" Omitting Fulfillments Associated with Inactive Line Items
- "getFulfillmentsQuery" No Longer Timing Out
- Account ID Updated
- Expected Behavior after Failed Login Attempts
- Issue with the Entitlement Order Service
- Improved Performance with Capability-Response Generation and Device Queries
- "accountTypeList" Filter Now Working Properly
- XML Schema Change

## "getFulfillmentsQuery" Omitting Fulfillments Associated with Inactive Line Items

The results of the SOAP Web Services query getFulfillmentsQuery now omits any fulfillment associated with an inactive line item (even if the fulfillment itself is still active) and consequently shows only those fulfillments with active line items. (Previously, an error occurred if the function encountered any fulfillment with an inactive line item.)

This fix is applied to the **getFulfillmentsQuery** method only, not to the corresponding FlexNet Operations Web UI functionality. In the UI, a search for active fulfillments from the **List Fulfillments** page returns all such fulfillments regardless of the state of their associated line items.

# "getFulfillmentsQuery" No Longer Timing Out

The **LicenseService.getFulfillmentPropertiesRequest** SOAP Web Service method no longer times out when queries are run against accounts.

# Account ID Updated

Previously, the Account ID was not getting updated through the **updateAccountRequest** SOAP Web Services method if the request contained only the Account ID. However, if the Account Name is also included in the request, the Account ID is updated.

# Expected Behavior after Failed Login Attempts

The **FlexNetAuthentication** SOAP Web Service previously failed to lock access to the UI and Web Services after failed login attempts. This lock is now in place after three failed attempts.

# Issue with the Entitlement Order Service

The intermittent failure of the **getEntitlementQuery** method in the **EntitlementOrderService** SOAP Web Service is now resolved.

# Improved Performance with Capability-Response Generation and Device Queries

Previously, the generation of capability responses (**generateCapabilityResponse**) or the execution of device-related SOAP Web Service methods (**searchDevices**, **getDevicesQuery**, and such) had slow response times when processing a large number of entitlements associated with the license servers. The response times for these services have been significantly reduced.

# "accountTypeList" Filter Now Working Properly

The **accountTypeList** filter now works properly for the v3 version of the **UserAcctHierarchyService.getAccountsQueryRequest** SOAP Web Service method.

# XML Schema Change

An issue exists with the channelPartner tag in the XML schema in v3 version of the **ManageDeviceService** SOAP Web Service. The schema asks for an *account name* to identify the account unit, but an *account ID* is expected.

To resolve this, the XML schema for the `accountUnit` field in the `channelPartner` tag is changed in the **ManageDeviceService** code as follows:

**Current schema**

```
...
<channelPartners>
    <channelPartner>
        …
        <accountUnit>
            <primaryKeys>
                <name>xyz</name>
            </primaryKeys>
        </accountUnit>
    </channelPartner>
</channelPartners>
...
```

**Changed schema**

```
...
<channelPartners>
    <channelPartner>
        …
        <accountUnit>
            <primaryKeys>
                <id>xyz</id>
            </primaryKeys>
        </accountUnit>
    </channelPartner>
</channelPartners>
...
```

# FlexNet Usage Management Issues Resolved

This release resolves the following FlexNet Usage Management issues:

- Usage Model Properly Transferring from UAT to Production
- Resolved Issue in Usage Search

## Usage Model Properly Transferring from UAT to Production

Customers can export product details from one environment with a Usage Model and import it to another environment, with the Usage Model properly retained.

## Resolved Issue in Usage Search

The Usage Search now pulls only the statement periods of the date provided as search parameter.

# General Issues Resolved

The following general issues have been resolved:

- Security Issues

- More Language Options Available

- Enhanced Password Acceptance Criteria

## Security Issues

The following Whitehat-detected security issues have been addressed:

- Cross-site scripting vulnerability (ID 52373457)

- Insufficient session expiration (ID 52269950)

## More Language Options Available

Previously, the list of languages available for selection on the user profile did not always include the language required by an individual user. In this release, the list of languages available to users has been extended to include all languages available for the producer's account.

## Enhanced Password Acceptance Criteria

A robust password blacklist has been implemented to identify weak passwords during the setup of user accounts in FlexNet Operations. This implementation is based on https://github.com/danielmiessler/SecLists/blob/master/Passwords/Common-Credentials/10-million-password-list-top-100000.txt. Choosing a password that has a match to a blacklist word will result in an error message to choose a stronger password.

# Known Issues

The following are known issues in FlexNet Operations.

### Custom attribute search limitations

Currently, you cannot search custom attributes that were created with either of these properties:

- **Long text** value for the **Type** field

- **Multi-valued text** value for the **Text type** field

### Reporting Tab not available after Super User log-in

The **Reporting** tab is not displayed when a user with the Super User role logs into FlexNet Operations.

**Workaround:** After logging in as a Super User, click the **Home** tab. This action causes the **Reporting** tab to display.

### CreateContextCSV error during FlexNet Operations deployment

During the deployment of FlexNet Operations (after FlexNet Operations Setup is completed), you might see the following error in the logs:

```
ERROR flexnet.operations.reporting.talend.CreateContextCSV - /root/FlexNet-Operations/
components/wildfly/standalone/configuration/context.csv
```

This error is "benign" and will not affect the operation of FlexNet Operations in any way.

### NullPointerException error generated for missing role in the updateDomainUsersRole method

The SOAP Web Service **UserAcctHierarchyService** method **updateDomainUsers**, when supplied with an **email** and **organization** value, must also have a **roles** parameter defined. Failure to add this parameter results in a "NullPointerException" error, rather than a clearly worded error.

The following shows the parameter that must be included in the XML request format to avoid this error:

```
        </urn:primaryKeys>
      </urn:domainUser>
      <!--Optional:-->
      <urn:email>fchirayath@flexera.com</urn:email>
      <!--Optional:-->
      <urn:organization>MYORG</urn:organization>
      <urn:roles>Portal User role</urn:roles>

      <urn:optIn>false</urn:optIn>
      <urn:status>Active</urn:status>

    </urn:user>
  </urn:updateDomainUserRequest>
```

# Special Notes

This section contains special information pertaining to FlexNet Operations:

- No Support for Cloud Licensing Services

- No Support for Electronic Software Delivery

- Support for SQL Server Database Only

# No Support for Cloud Licensing Services

This version of FlexNet Operations On Premises does not support Cloud Licensing Services (CLS). This support will be included in a future version.

---

*Important •* *If your current version of FlexNet Operations uses CLS, do not upgrade to this version of FlexNet Operations.*

# No Support for Electronic Software Delivery

This version of FlexNet Operations On Premises does not support Electronic Software Delivery (ESD). This support will be included in a future version.

# Support for SQL Server Database Only

This version of FlexNet Operations On Premises supports the SQL Server database only. It does not support the Oracle database. See System Requirements.

# Security Notes

A vulnerability has been discovered which affects certain Apache Tomcat versions (see https://cve.mitre.org/cgi-bin/cvename.cgi?name=CVE-2020-9484).

Flexnet Setup uses Apache Tomcat version 8.5.50, which is not vulnerable. There are no plans to upgrade FlexNet Setup to a different Tomcat version.

# System Requirements

Detailed system requirements for FlexNet Operations 2020 R1 On Premises include the following.

| Requirement | Description |
|---|---|
| **Supported Operating Systems** | ● Microsoft Windows Server 2012 (64-bit)<br>● Microsoft Windows Server 2012 R2 (64-bit)<br>● Microsoft Windows Server 2016<br>● Red Hat Enterprise Linux 6 (64-bit)<br>● Red Hat Enterprise Linux 7 (64-bit) (xsf)<br><br>*Important • All Linux platforms must be Linux Standard Base (LSB) compliant.* |
| **Supported databases** | ● SQL Server 2017<br>● SQL Sever 2016 SP2<br>● SQL Server 2014 SP3 |
| **Servers** | *Note • For best performance, availability, and reliability, install each FlexNet Operations On Premises component on a separate host.*<br><br>**For Windows servers (each)**<br>● Dual core<br>● 8 GB of RAM for each component (FlexNet Operations, Cloud Licensing Service, Usage Analytics Service)<br>● Minimum of 10 GB free disk space |

| Requirement | Description |
|---|---|
| | **For Linux servers (each)**<br>● Dual core<br>● 8 GB of RAM for each component (FlexNet Operations, Cloud Licensing Service, Usage Analytics Service)<br>● Minimum of 10 GB free disk space<br>● Current directory (.) must be in the path of the user who starts the FlexNet Operations On Premises server |
| **Application server** | WildFly version 8.2.0, with default configured heap space minimum of 4 GB and maximum of 8 GB |
| **Message broker software** | RabbitMQ version 3.1.0 (with Erlang version R16B) |
| **Supported Java development kits** | ● Oracle JDK 1.8<br>● OpenJDK 1.8 |
| **Supported web browsers** | ● Microsoft Edge<br>● Mozilla Firefox 75.0<br>● Google Chrome 80.0 |
| **Supported FlexNet licensing modules** | ● Updates and Insights Toolkits .Net 32-bit, .Net 64-bit, C XT-64, C SDK-64<br>● FlexNet Publisher Toolkit 11.12.0 or later<br>● FlexNet Embedded Toolkit 2015 R2 or later<br><br>*Note* • *FlexNet Operations On Premises supports these FlexNet Embedded host ID types:* Ethernet, FlexID 9, FlexID 10, String, VM_UUID, User, Extended, PUBLISHER_DEFINED, Internet, *and* Internet6. |
| **Supported vendor certificate generators** | The current versions of the VCG kit are 12.11.0 and 16.2.2.0.<br><br>These VCGs were tested with the following compilers:<br>● Windows—Visual Studio 2010 Professional Edition<br>● Linux—gcc 4.8.5 (RHEL 7.0)<br>● Linux—gcc 4.1.2 (RHEL 5.0)<br><br>*Note* • *The 12.11.0 VCG is built with FlexNet Publisher 11.11.1 and shares the same minimum C compiler requirements on each supported platform. (See the FlexNet Publisher 11.11.1 release notes for C/C++ compiler support.)* |

| Requirement | Description |
|---|---|
| **Supported upgrade paths** | You can upgrade the following previous FlexNet Operations versions to the current version:<br><br>• 2017 R4<br><br>• 2018 R1<br><br>• 2018 R1 SP1 |
| **Supported LDAP directory servers** | Windows 2012 Active Directory |

# Legal Information

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