



Using Intel® on Demand



Note: Before using this information, read the general information in [“Notices”](#) on page lii.

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Chapter 1. Introduction

Almost any IT infrastructure investment that you make includes capabilities that are well beyond those capabilities that you initially need. In some cases, your environment might grow to need those other capabilities in subsequent months or years while in other cases, you might never need them.

Intel® On Demand

Starting from the 4th Gen Intel Xeon Scalable processors introduce new embedded accelerators to add even more processing capability: Basic capabilities are available at the initial processor installation, while others remain inactivated. As development environment and tasks evolve, computing demands may accelerate and require leverage of the previously inactivated processor capabilities. In such cases, user can select desired processor capabilities and activate them through Intel On Demand feature—a feature that allows user to customize processor capabilities according to environment and tasks at hand. Currently the following features are available on different CPUs:

- **Intel Quick Assist Technology (Intel QAT)¹**

Intel® QAT which helps free up processor cores by offloading encryption, decryption, and compression so systems can serve a larger number of clients or use less power. With Intel QAT, 4th gen Intel Xeon Scalable processors are the highest performance CPUs that can compress and encrypt in a single data flow.

- **Intel Dynamic Load Balancer (Intel DLB)²**

Intel DLB is a hardware managed system of queues and arbiters connecting producers and consumers. It is a PCI device envisaged to live in the server CPU uncore and can interact with software running on cores, and potentially with other devices.

- **Intel Data Streaming Accelerator (Intel DSA)¹**

Intel DSA drives high performance for storage, networking, and data-intensive workloads by improving streaming data movement and transformation operations. Designed to offload the most common data movement tasks that cause overhead in data center-scale deployments, Intel DSA helps speed up data movement across the CPU, memory, caches, all attached memory, storage, and network devices.

- **Intel In Memory Accelerator (Intel IAA)¹**

Intel IAA helps run database and analytics workloads faster, with potentially greater power efficiency. This built-in accelerator increases query throughput and decreases the memory footprint for in-memory database and big data analytics workloads. Intel IAA is ideal for in-memory databases, and source databases.

- **Intel Software Guard Extensions (Intel SGX) 512 GB³**

Intel® SGX offers hardware-based memory encryption that isolates specific application code and data in memory. Intel SGX allows user-level code to allocate private regions of memory, called enclaves, which are designed to be protected from processes running at higher privilege levels.

References

- ¹*Achieve Performance Advantage with Intel oneAPI, AI Tools, and 4th Gen Intel® Xeon® Scalable Processors Featuring Built-in Accelerator Engines*, (n.d.). Intel. <https://www.intel.com/content/www/us/en/developer/articles/technical/performance-advantage-with-xeon-and-oneapi-tools.html>
- ²*Intel® Dynamic Load Balancer*, (2023, May 23) Intel. <https://www.intel.com/content/www/us/en/download/686372/intel-dynamic-load-balancer.html>
- ³*Intel® Software Guard Extensions (Intel® SGX)*, (n.d.) Intel. <https://www.intel.com/content/www/us/en/architecture-and-technology/software-guard-extensions.html>

Table 1. Intel On Demand Features

<ul style="list-style-type: none"> • Communications & Storage Suite 4 <ul style="list-style-type: none"> – Intel Quick Assist Technology (Intel QAT) – Intel Dynamic Load Balancer (Intel DLB) – Intel Data Streaming Accelerator (Intel DSA) 	<ul style="list-style-type: none"> • Analytics Suite 4 <ul style="list-style-type: none"> – Intel In Memory Accelerator (Intel IAA) – Intel Data Streaming Accelerator (Intel DSA)
<ul style="list-style-type: none"> • Communications & Storage Suite 2 <ul style="list-style-type: none"> – Intel Quick Assist Technology (Intel QAT) – Intel Dynamic Load Balancer (Intel DLB) 	<ul style="list-style-type: none"> • Analytics Suite 1 <ul style="list-style-type: none"> – Intel In Memory Accelerator (Intel IAA)
<ul style="list-style-type: none"> • SGX 512 <ul style="list-style-type: none"> – Intel Software Guard Extensions (Intel SGX) 512 GB 	

Note: Intel On Demand is only supported by Intel On Demand capable processors. For more information please identify your server model and refer to your Product Guide's Processor Option section on [Lenovo Press](#).

Note: All processors in a system must be installed with identical Intel On Demand feature.

Chapter 2. Installing Intel® On Demand

Various tools that are available to install and Intel On Demand activation keys

Overview of Intel® On Demand activation processes

Intel On Demand upgrades are orderable part numbers that are similar to any other option. To use the upgrades, they must be activated first for the specific processor on which they are used. The Intel On Demand upgrade is activated in one of the following ways:

- Automatically during manufacturing, if the Intel On Demand are ordered as part of a configure-to-order (CTO) or Special Bid configuration.

Note: If you configure an Intel On Demand as part of a factory order (eg configure-to-order), Lenovo manufacturing or the Lenovo Business Partner enables the feature as part of the configuration and testing of the Lenovo systems. You can begin using the feature as soon as you receive the order.

- Where the Intel On Demand are ordered separately, a manual process involving email delivery of authorization codes and the use of the FoD web site to create and download activation keys (if the FoD part numbers are ordered separately).

Here's an overview of the steps

1. Go to Features on Demand web site, also known as the Lenovo Key Management System or LKMS: <https://fod.lenovo.com/lkms> to input the Authorization Code in order to acquire the Activation Key
2. Follow the Request activation key process to obtain Activation Key, user will need to input Machine Type, Machine serial number and Intel PPIN. See "Intel PPIN" on page 5.
3. Install Intel On Demand suite with the Activation Key via XCC or LXCE OneCLI.
4. Power cycle the server.
5. Acquire and upload Intel On Demand status report.

Note: As of January 2017, Lenovo no longer delivers authorization codes via postal mail. Orders for Intel On Demand should include an email address so that the authorization codes can be delivered via email.

Installation Tool

Installation tool

Intel On Demand can be installed via Lenovo XClarity Controller (XCC) and Lenovo XClarity Essentials OneCLI (LXCE OneCLI). After confirming that your processor supports Intel On Demand, you also need to make sure the XCC and LXCE OneCLI installed in your system supports installing Intel On Demand.

1. Check if Lenovo XClarity Controller (XCC) supports installing Intel On Demand (two methods provided):

- **Via XCC WebGUI**

Go to **BMC Configuration** → **License**, if there is a section named **On Demand Capabilities for Intel CPU** in the page, it indicates that current XCC supports installing Intel On Demand, otherwise you need to update XCC firmware to the latest version to ensure it supports installing Intel On Demand.

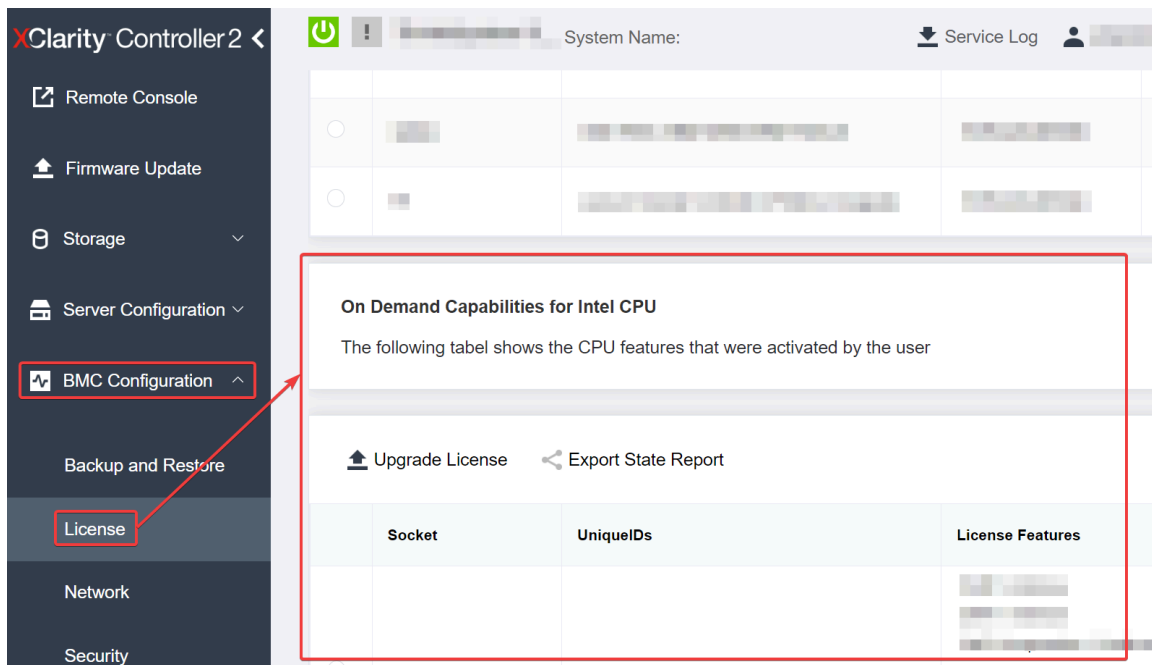


Figure 1. On Demand Capabilities for Intel CPU in XCC Web GUI

- **Via XCC REST API**

- Use the **GET** method with the following Request URL:
GET `https://bmc_ip/redfish/v1/LicenseService/Licenses/`
- In the response JSON object, the Members field includes the API such as `/redfish/v1/LicenseService/Licenses/CPUX_OnDemandCapability`, where X is the CPU numbering, it indicates that current XCC supports installing Intel On Demand, otherwise you need to update XCC firmware to the latest version to ensure it supports installing Intel On Demand.

For example:

```
"Members": [
  {
    "@odata.id": "/redfish/v1/LicenseService/Licenses/CPU1_OnDemandCapability"
  },
  {
    "@odata.id": "/redfish/v1/LicenseService/Licenses/CPU2_OnDemandCapability"
  }
]
```

- Check if LXCE OneCLI supports installing Intel On Demand

- LXCE OneCLI version must be at 4.2.0 or above.

Enabling Intel On Demand Features

- Select the Intel On Demand features that meets your workload needs, see [“Intel® On Demand” on page 1](#).
- After completing ordering the features, you will receive Authorization Code via e-mail.
- PPIN is a mandatory information for enabling the features. Read the PPIN of the processor that is to be installed with the features. See [“Intel® PPIN” on page 5](#).
- Go to <https://fod.lenovo.com/lkms> and input the Authorization Code to acquire the Activation Key.
- In the website, input Machine Type, Machine serial number, and PPIN.

6. The website will generate the Activation Key. Download the Activation Key.
7. Install the features to the processor with the Activation Key via XCC or LXCE OneCLI. See [“Activating Intel® On Demand” on page 7](#).

Note: If more than one Activation Keys are acquired, it is mandatory to install them in the sequential order they were acquired. For example, start with installing the first acquired key, and proceed with the second acquired key, and so on.

8. AC cycle the server.
9. (Optional) Upload Intel On Demand State Report. See [“Intel® On Demand Feedback” on page 8](#).

The State Report represents the current configuration state of the Intel On Demand capable processors. Lenovo accepts State Reports from customers to calibrate the current state of the Intel On Demand capable processors.

10. To see the features installed in a processor, see [“Checking the Intel On Demand features installed in a processor” on page 10](#).

Retrieving and activating Intel® On Demand

After replacing a processor, you may need to transfer the features from the defective processor to the new processor. Complete the following steps to transfer features to new processor.

1. Before removing the defective processor from the system, read the PPIN of the defective processor. See [“Intel® PPIN” on page 5](#).
2. After installing the new processor, read the PPIN of the new processor. See [“Intel® PPIN” on page 5](#).
3. Go to <https://fod.lenovo.com/lkms> and input the PPIN of the defective processor. (Input PPIN in the UID section.)
4. Select the features to be transferred.
5. Input the PPIN of the new processor.
6. The website will generate the new Activation Key. Download the new Activation Key. See [“Activating Intel® On Demand” on page 7](#).
7. Install the features to the new processor with the new Activation Key via XCC or LXCE OneCLI.
8. AC cycle the server.
9. (Optional) Upload Intel On Demand State Report. See [“Intel® On Demand Feedback” on page 8](#).

The State Report represents the current configuration state of the Intel On Demand capable processors. Lenovo accepts State Reports from customers to calibrate the current state of the Intel On Demand capable processors.

10. To see the features installed in a processor, see [“Checking the Intel On Demand features installed in a processor” on page 10](#).

Intel® PPIN

Reading PPIN

Protected Processor Inventory Number, or PPIN, is a mandatory information for enabling Intel On Demand. PPIN can be read via XCC Web GUI, XCC REST API, and LXCE OneCLI. See the following for more information.

Reading PPIN via XCC Web GUI

Open XCC Web GUI, go to **Inventory page → CPU tab → Expand → PPIN**

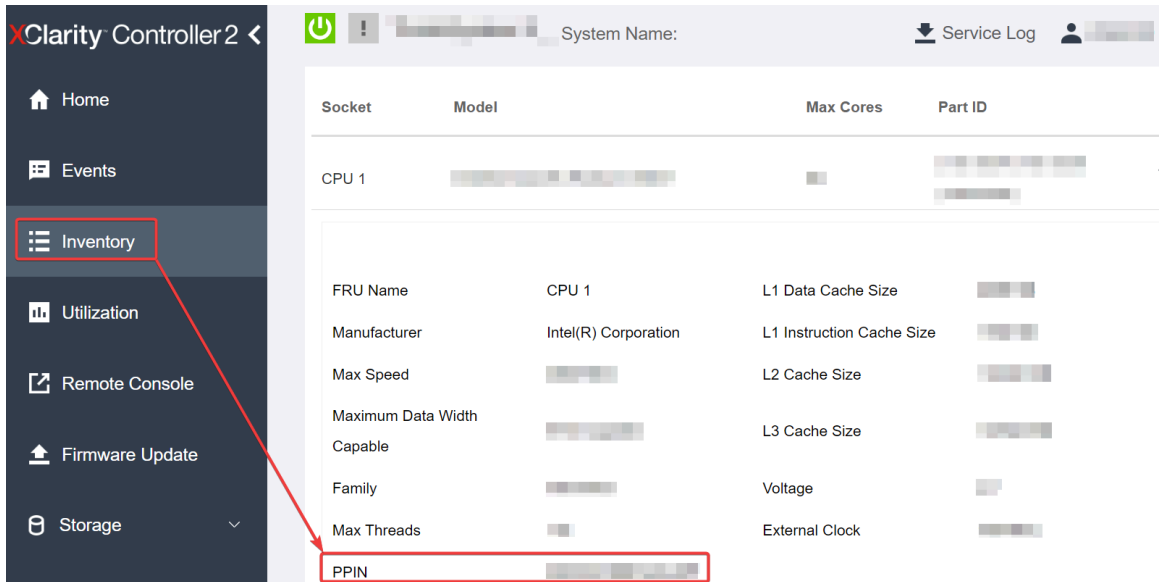


Figure 2. Reading PPIN via XCC Web GUI

Reading PPIN via XCC REST API

1. Use the **GET** method with the following Request URL:
 GET https://bmc_ip/redfish/v1/Systems/1/Processors
 For example:
 GET https://bmc_ip/redfish/v1/Systems/1/Processors
2. In the response JSON object, the Members field shows reference link to an element of processor resource.

For example:

```
"Members":[
{
@odata.id: "/redfish/v1/Systems/1/Processors/1"
},
{
@odata.id: "/redfish/v1/Systems/1/Processors/2"
}
],
```

3. Select the processor you need to read the PPIN from. Use the **GET** method with the following Request URL, where x is the CPU numbering:
 GET https://bmc_ip/redfish/v1/Systems/1/Processors/x
 For example, to read Processor 1 PPIN, see the following:
 GET https://bmc_ip/redfish/v1/Systems/1/Processors/1
4. In the response JSON object, the ProcessorId field shows the ProtectedIdentificationNumber field, which is the PPIN info of the requested CPU.

For example:

```
"ProcessorId":{
  "ProtectedIdentificationNumber":"1234567890xxxyyy"
},
```

Reading PPIN via LXCE OneCLI

Input the following command:
 OneCli.exe fod showppin -b XCC_USER:XCC_PASSWORD@XCC_HOST

The output shows PPIN information. For example:

Machine Type: 7D75

Serial Number: 7D75012345

FoD PPIN result:

```
=====
| Socket ID |          PPIN          |
| Processor 1 | 1234567890xxxyyy |
| Processor 2 | 9876543210zzzyyy |
=====
```

Activating Intel® On Demand

Installing Intel On Demand to processor

Install Intel On Demand features to the processor with the Activation Key downloaded from the <https://fod.lenovo.com/lkms> via XCC Web GUI, XCC REST API or LXCE OneCLI.

Use XCC Web GUI to install Intel On Demand

1. Open XCC Web GUI, go to **BMC Configuration → License → On Demand Capabilities for Intel CPU → Upgrade License → Browse → Import** to upload the Activation Key

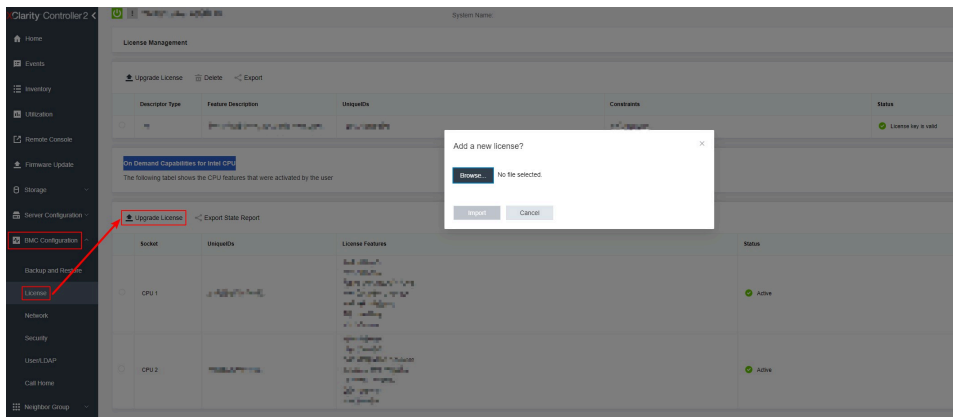


Figure 3. Uploading Activation Key via XCC Web GUI

2. If the installation is successful, the Web GUI will show a pop-up window with the message “License key upgraded successfully. The features will be activated on the processor after system power cycle”.

Otherwise, see “[Troubleshooting & FAQs](#)” on page 11.

Use XCC REST API to install Intel On Demand

1. Use the **POST** method with the following Request URL:
POST https://bmc_ip/redfish/v1/LicenseService/Licenses
2. Transfer Activation Key to base64 string at first and fill it into the LicenseString field as POST data.

```
{
  "LicenseString": ""
}
```
3. If the installation is successful, XCC REST API show the message “License key upgraded successfully. The features will be activated on the processor after system power cycle”.

Otherwise, see “[Troubleshooting & FAQs](#)” on page 11.

Use LXCE OneCLI to install Intel On Demand

Input the following command, where <key_file> specifies the Activation Key:
OneCli.exe fod install --keyfile <key_file>

If successfully installed, the response will show:
Successfully install key

Call Lenovo support if the response shows the following:
Failed to install key

Intel® On Demand Feedback

Acquiring and uploading Intel On Demand State Report

After completing enabling or transferring Intel On Demand, acquire and upload the State Report via XCC Web GUI, XCC REST API, and LXCE OneCLI. See the following for more information.

Use XCC Web GUI to upload State Report

1. Open XCC Web GUI, go to **BMC Configuration** → **License** → **On Demand Capabilities for Intel CPU** → **Choose CPU** → **Export State Report**

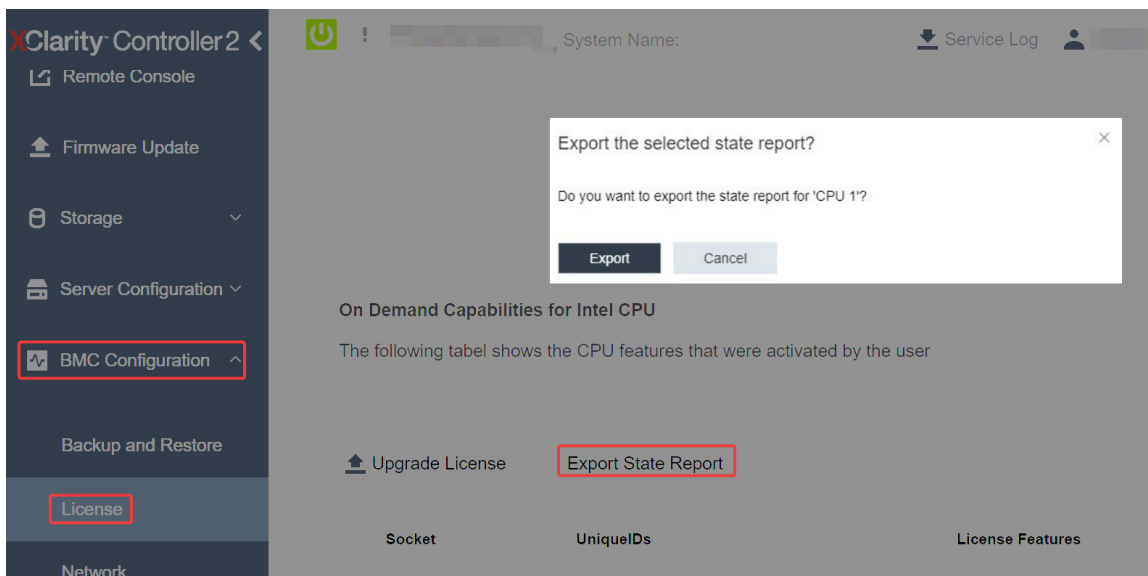


Figure 4. Export State Report via XCC Web GUI

2. Upload State Report via “On Demand Feedback” section in <https://fod.lenovo.com/lkms>.

Use XCC REST API to upload State Report

1. Use the **GET** method with the following Request URL to retrieve CPU State Report API, where X is the CPU numbering:
GET https://bmc_ip/redfish/v1/LicenseService/Licenses/CPUX_OnDemandCapability
For example, to retrieve CPU 1 State Report API, see the following:
GET https://bmc_ip/redfish/v1/LicenseService/Licenses/CPU1_OnDemandCapability
2. In the response JSON object, the response of the target field of the `LenovoLicense.ExportStateReport` field is the CPU State Report API, where X is the CPU numbering:

```
"Actions": {  
  "Oem": {  
    "#LenovoLicense.ExportStateReport": {
```

```

        "title": "ExportStateReport",
        "target": "/redfish/v1/LicenseService/Licenses/CPUX_OnDemandCapability/Actions/Oem/LenovoLicense.ExportStateReport"
    }
}
},

```

In the following example, the response of the target field is the CPU 1 State Report API. Copy the CPU 1 State Report API.

```

"Actions": {
  "Oem": {
    "#LenovoLicense.ExportStateReport": {
      "title": "ExportStateReport",
      "target": "/redfish/v1/LicenseService/Licenses/CPU1_OnDemandCapability/Actions/Oem/LenovoLicense.ExportStateReport"
    }
  }
},

```

3. Retrieve the State Report.

- a. Use the **POST** method with the following Request URL with CPU State Report API to retrieve the State Report, where X is the CPU numbering:

POST https://bmc_ip/redfish/v1/LicenseService/Licenses/CPUX_OnDemandCapability/Actions/Oem/LenovoLicense.ExportStateReport

For example, to retrieve CPU 1 State Report, see the following:

POST https://bmc_ip/redfish/v1/LicenseService/Licenses/CPU1_OnDemandCapability/Actions/Oem/LenovoLicense.ExportStateReport

- b. Use an empty JSON object as POST data. When using API tool such as Postman, fill an empty JSON object in **Body** → **Raw** → **JSON**, fill a NULL object '{}' in a JSON file.

4. In the response, retrieve the State Report in the stateReports field.

```

{
  "stateReports": [
    {
      "syntaxVersion": "1.0",
      "timestamp": "",
      "objectId": "",
      "hardwareComponentData": [
        {
          "hardwareId": {
            "type": "PPIN",
            "value": ""
          },
          "stateCertificate": {
            "pendingCapabilityActivationPayloadCount": ,
            "value": ""
          },
          "hardwareType": "CPU"
        }
      ]
    }
  ]
}

```

5. Upload State Report via “On Demand Feedback” section in <https://fod.lenovo.com/lkms>.

Use LXCE OneCLI to upload State Report

1. Acquire State Report with the following command:
OneCli.exe fod exportreport -b XCC_USER:XCC_PASSWORD@XCC_HOST
 2. Upload State Report with the following command:
OneCli.exe fod uploadreport --file CPU1_xxxxxx_StateReport.json --kmsid KMS_USER:KMS_PASSWORD
- Where:

CPU1_xxxxxx_StateReport.json is the file name downloaded from the **fod exportreport** command in Step 1.

KMS_USER and KMS_PASSWORD are your ID and password on the <https://fod.lenovo.com/lkms>.

Checking the Intel On Demand features installed in a processor

You can check the Intel On Demand features installed in a processor via XCC Web GUI, XCC REST API, and LXCE OneCLI. See the following for more information.

Note: If the processor has not been installed with any license, it would not appear in the **On Demand Capabilities for Intel CPU** section in XCC Web GUI.

Use XCC Web GUI to check the Intel On Demand features installed in a processor

Go to **BMC Configuration** → **License** → **On Demand Capabilities for Intel CPU** → **Choose CPU** → **License Features**, where the installed features are listed.

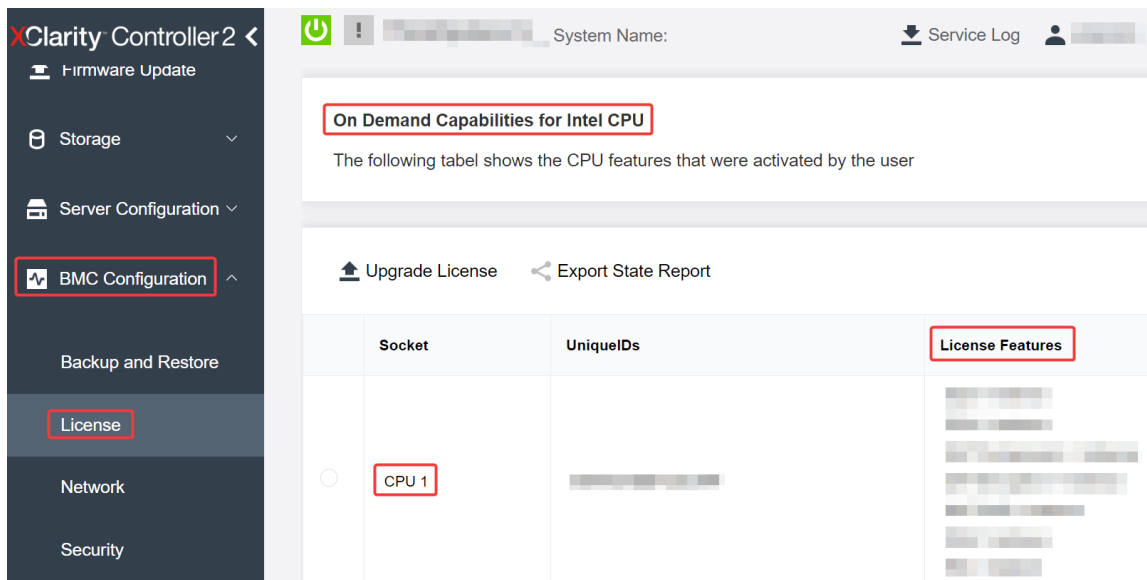


Figure 5. Checking the Intel On Demand features installed in a processor in XCC Web GUI

Use XCC REST API to check the Intel On Demand features installed in a processor

1. Use the **GET** method with the following Request URL to retrieve Intel On Demand features installed on CPU X, where X is the CPU numbering:
GET https://bmc_ip/redfish/v1/LicenseService/Licenses/CPUX_OnDemandCapability
For example, to retrieve Intel On Demand features installed on CPU 1, see the following:
GET https://bmc_ip/redfish/v1/LicenseService/Licenses/CPU1_OnDemandCapability
2. In the response JSON object, the FeatureList field contains the Intel On Demand features installed in this processor.

```
"Dem": {
  "Lenovo":{
    "FeatureList":[]
    "@odata.type":""
  }
},
```

Use LXCE OneCLI to check the Intel On Demand features installed in a processor

1. Check installed features with the following command:
`OneCli.exe fod report -b XCC_USER:XCC_PASSWORD@XCC_HOST`
2. The output shows all license, including Intel On Demand features. For example:

```

FoD Reports result:
=====
| Feature | Key | Status | Description | User | Expired |
| Type | ID | | Feature List | Reminding | Date |
=====
| N/A | CPU1_OnDemandCapability | StandbyOffline | DSA 4 instances, | N/A | N/A |
| | | | IAA 4 instances | | |
=====
| N/A | CPU2_OnDemandCapability | Enabled | DSA 4 instances, | N/A | N/A |
| | | | IAA 4 instances | | |
=====
| 004a | XCC2_Platinum | Enabled | Lenovo XClarity Controller 2 | N/A | N/A |
| | | | Platinum Upgrade | | |
=====
Succeed.

```

Troubleshooting & FAQs

Refers to the table below for Intel On Demand installation error messages and user actions.

Table 2. Intel On Demand installation messages and user actions

Message	User Action
License key upgraded successfully. The features will be activated on the processor after system power cycle.	You can activate Intel On Demand after performing one system power cycle.
The activation key format is invalid	Check if you have uploaded the correct Activation Key file. If the error persists, contact Lenovo support.
Invalid processor PPIN in Activation key	Check if you have uploaded the correct Activation Key file. If the error persists, contact Lenovo support.
The license was installed in the processor already	You have already installed this activation key. Check if the activation key you uploaded is correct.
Not enough NMRAM space in the processor	Contact Lenovo support.
Internal error	Contact Lenovo support.
Cold reset needed before next provisioning	If you want to continue installing an activation key, perform a system power cycle at first.
Unable to provision LAC due to FEH error	Contact Lenovo support.
Unable to import license in shutdown state, please try again after power on.	Power on the system before installing Intel On Demand.
Unable to import license due to On Demand Capabilities information is in progress. Please try again later.	If you want to continue installing an activation key, try again later.

Chapter 3. Using the FoD web site

This chapter describes all the functions of the Features on Demand web site, also known as the Lenovo Key Management System or LKMS: <https://fod.lenovo.com/lkms>.

The FoD website is the primary tool that is used to manage FoDs authorization codes and activation keys.

FoD support contacts

Please use the relevant email address listed below for any FoD or Electronic Software Distribution (ESD) questions you might have:

- USA and Canada: ESDNA@lenovo.com
- Asian Pacific countries: ESDAP@lenovo.com
- Europe, Middle East and Africa (EMEA): ESDEMEA@lenovo.com
- Latin American countries: ESDLA@lenovo.com
- China: ESDChina@lenovo.com

Note: The above email addresses replace fod@lenovo.com

Creating an FoD account

It is necessary to have or create a Lenovo FoD account before an authorization code can be used to obtain single or multiple activation keys.

Complete the following steps to set up eFoD on the FoD website:

1. Go to the FoD website, <https://fod.lenovo.com/lkms>.

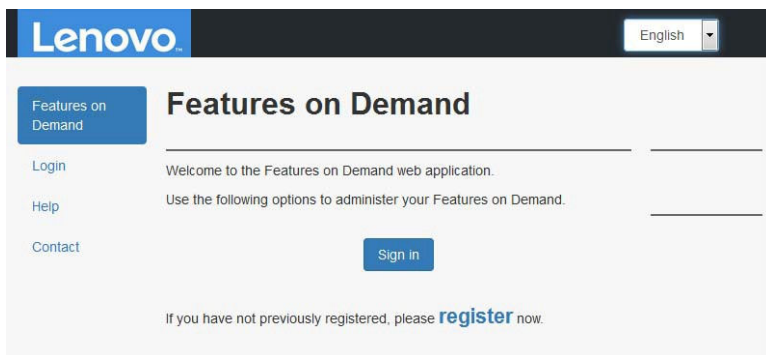


Figure 6. Lenovo FoD website login panel

2. Register for an account if you do not already have one by clicking the **register** link.
3. Log into the FoD web site as shown in [Figure 7 “Login panel” on page 14](#).

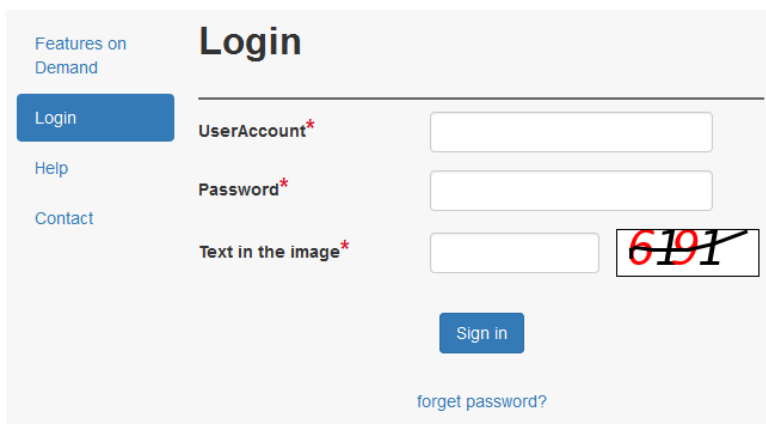


Figure 7. Login panel

- You will then be presented with the Welcome page as shown in [Figure 8 “Welcome page \(standard user\)” on page 14](#). Depending on the type of account you have, you may see additional menu items on the left side of the page, such as Profile Management and Inventory Management.

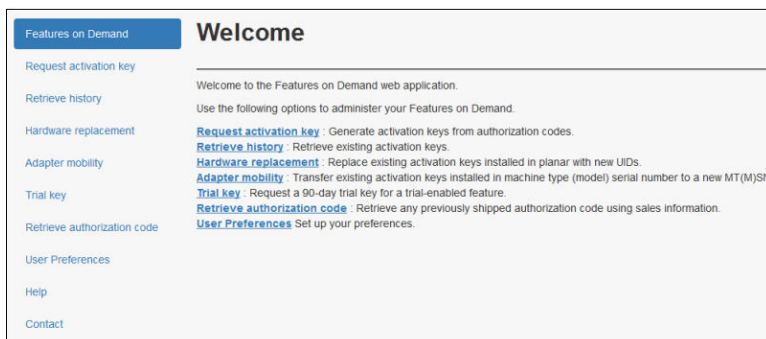


Figure 8. Welcome page (standard user)

An FoD user account can be an administrator of one or more customer numbers. To find out who the administrators are for your customer, use the Contact function described in [“Contact” on page 45](#). Methods on how you can become an administrator are described in [“Becoming an administrator” on page 14](#).

Becoming an administrator

By default, FoD accounts are regular accounts (in the FoD web site, you will see “EXTERNAL USER” on the right-hand side of the web page).

For customer numbers who want to use the Inventory Management (eFOD) features of the FoD web site, there is an administrator class of users that have access to the following additional functions:

- Profile Management
- Inventory Management

To become an administrator of your own customer number, there are two ways:

- Ask an existing administrator to make you an administrator as well. Find out who the administrators of your customer number are using the Contacts function described in 3.13, [“Contact” on page 45](#). An existing administrator can add you as an additional administrator as described in [“Manage your customer numbers” on page 25](#).

- Email Lenovo FoD support and request the access:
 1. Send an email to the FoD support team (see [“FoD support contacts” on page 13](#)) with the following information:
 - Request, for example “Please make me an administrator for my company’s FoD purchases”
 - Your email address
 - Your company name
 - Your customer number(s)
 - Your first name
 - Your last name
 2. Once the request has been processed you will be sent an email from lkms@lenovo.com. You must click the link in the email to confirm the activation before you will see the Profile management menu item.

Note: Only the first administrator will get the email which they will have to respond to. For all additional administrators, no confirmation email will be sent.
 3. Once you have admin access, your account type will change to “EXTERNAL ADMIN” and you can then grant other FoD user accounts admin access as described in [“Manage your customer numbers” on page 25](#).

Requesting an activation key

Use the **Request activation key** selection of the FoD web site to create an activation key from the authorization code that you received in the mail from Lenovo. The activation key is what you use to enable the feature upgrade on the system or option.

Before you begin, make sure that the following items are available:

- Authorization code for the FoD component you wish to install. The authorization code is at the top of the Features on Demand Activation Instructions document you received as a PDF attachment in an email when you placed the order. An example of such a document is shown in [Figure 9 “Activation Instructions document” on page 16](#).

IMPORTANT - Keep this document for future reference



Features on Demand Activation Instructions

FoD Option: ServeRAID M5100 Series RAID 6 Upgrade for System x
Option P/N or Product ID: 00D7083
Feature code: A357
Quantity ordered: 1
Plant order:
Sales order:

Authorization Code:

To activate your FoD option, complete the following steps:

1. Locate the authorization code at the top of this document
2. Make sure that you have access to the hardware that you want to activate.
3. Login at <https://fod.lenovo.com/lkms>
4. Select Request activation key from the left navigation pane.
5. Enter the authorization code and click Continue
6. Follow the instructions on the web page to activate the Features on Demand option, and verify that the request is successful.

The activation key file is sent to the email address that you provide during the activation process.

For more detailed information, including instructions for automating the activation and installation of the activation key by using Lenovo Tools Center or similar tools, see the Features on Demand User's Guide at <https://fod.lenovo.com/lkms> under the Help section.

If you require additional assistance, contact your Lenovo sales representative, reseller, or FoD@lenovo.com

For Manufacturing Use Only

Plant Order:  Sales order:  Qty: 1 
(S) Part Number: 00D7083 + (Q) Qty: 1 +  (LP) Part Number: 00D7083

Printed in CHINA

Figure 9. Activation Instructions document

- Access to the hardware or software that you want to activate so that you can determine the UID that is required to identify the component that you want to upgrade. Complete the following steps to activate a Features on-Demand feature by using an authorization code:
 1. In the Welcome page, [Figure 8 “Welcome page \(standard user\)” on page 14](#), select **Request activation key** from the left navigation pane. [Figure 10 “Request activation key function” on page 17](#) appears.
 2. Enter the authorization code that was provided to you in the Activation Instructions document and click **Continue**.

Request activation key

Step 1: Authorization code

To request an activation key you will need an authorization code and the UID of the device on which you'd like to activate your Features on Demand feature. For example machine type serial or Emulex ASIC S/N.

The authorization code was supplied to you by email and/or on hardcopy as part of the ordering process.

Please enter your authorization code

Authorization code* ?

Figure 10. Request activation key function

- You will see the details of the FoD component associated with the Authorization Code you entered, as shown in [Figure 11 “Enter the machine type and serial number of the server you are upgrading” on page 17](#) our example, we are applying the IMM Advanced Upgrade key.

Select the machine type and type in the serial number of the server you want to apply to FoD upgrade to. You will only need to enter the model for certain machine types; for all others, the model field will be greyed out. Click **Generate key**.

Request activation key

Step 2: Machine details

Your authorization code is displayed below.

Select your machine type and model if available and enter your 7 character machine serial number. (Your machine serial number can be found on the front panel or in one of the system administration tools).

Feature code	<input type="text" value="A1ML"/>
Feature description	<input type="text" value="Integrated Management Module Advanced Upgra"/>
Part number / PID	<input type="text" value="90Y3901"/>
Remaining keys	<input type="text" value="1"/>

Machine Type*	<input type="text" value="5462 - Lenovo System x3650 M5"/> ?
Model	<input type="text" value=""/> ?
Machine serial number*	<input type="text" value="06BNFZL"/> ?

Figure 11. Enter the machine type and serial number of the server you are upgrading

Depending on the FoD upgrade you're activating, you may be asked to provide additional data. For example, the Emulex VFA5 FCoE/iSCSI SW for PCIe Adapter for System x (FoD), you are asked to provide the "11S Serial Number" for the adapter as shown in [Figure 12 “Request activation key for Emulex VFA5 FCoE/iSCSI SW for PCIe Adapter” on page 18](#). This field is asking for the UID of the adapter that the FoD upgrade is for.

Request activation key

Step 2: Machine details

Your authorization code is displayed below.

Select your machine type and model if available and enter your 7 character machine serial number. (Your machine serial number can be found on the front panel or in one of the system administration tools).

Feature code	A5UV
Feature description	FoD for PCIe 3.0 2-port 10GbE SFP+ Adapter
Part number / PID	00JY824
Remaining keys	5
Machine Type*	Please select a machine type ...
Model*	Please select a model...
Machine serial number*	
11S Serial Number*	

Figure 12. Request activation key for Emulex VFA5 FCoE/iSCSI SW for PCIe Adapter

Note: In Figure 12 “Request activation key for Emulex VFA5 FCoE/iSCSI SW for PCIe Adapter” on page 18, the 11S Serial Number field is where you would enter the adapter UID (unique identifier).

- You may receive a warning message that either the server serial number or the UID are not in the Lenovo KMS system, as shown in Figure 13 “Warning message” on page 18. Verify the details you entered are correct and click **Generate key** to continue.

The entered machine does NOT exist in lenovo records. If the information you entered is wrong the key WILL NOT WORK

Figure 13. Warning message

- You are then prompted to confirm all details before continuing, similar to Figure 14 “Confirm the details” on page 19. Ensure that the information is correct and then, click **Confirm**.

Request activation key

Step 3: Machine details confirm

Before request key generation , please confirm the below detail information for key generation.

Authorization code	DT0KEAAAAAAAA8572078339
Feature code	A1ML
Feature description	Integrated Management Module Advanced Upgra
Part number / PID	90Y3901
UID type	MTSN
Machine Type	5462
Model	
Machine serial number	06BNFZL

Figure 14. Confirm the details

- Download and save the activation key by clicking the **Download** link as shown in [Figure 15 “Key delivery options” on page 19](#). In addition, you may choose to also enter one or more email addresses and click **Submit**. Separate the email addresses with a semicolon. Recipients will receive the key file as an attachment.

Request activation key

Step 4: Download

Activation key was generated successfully

Please [Download](#) here!

Other recipients(cc):

Figure 15. Key delivery options

Retrieve history

In the Retrieve history page, you can use the authorization code or the UID to search for the activation key history. By using the retrieve history page, you can also retrieve again an activation key that might be lost because of a hardware replacement.

The results from a search by using the authorization code list all activation keys that are generated for the authorization code. The results from a search by using the UID list all activation keys that are generated for the UID.

To retrieve the history, complete the following steps:

1. In the Welcome page, [Figure 8 “Welcome page \(standard user\)” on page 14](#), select Retrieve history from the left navigation pane. [Figure 16 “Retrieving activation key history” on page 20](#) appears.

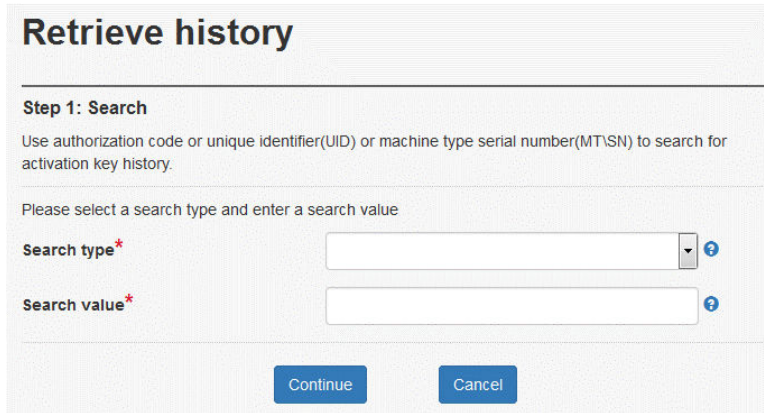


Figure 16. Retrieving activation key history

2. Select a search type. The choices are:
 - Search history via authorization code
 - Search history via UID
 - Search history via machine type serial number
3. Enter a value to search on and click **Continue**.

The results that are displayed provide the following information, depending on what search type is performed:

- A search of an authorization code shows the total number of keys this authorization code is valid for, and the number that are unused (ie the number as yet unconverted to activation keys). The keys already created are listed with the ability to download those keys. See [Figure 17 “Retrieve history using an authorization code” on page 21](#) for an example.

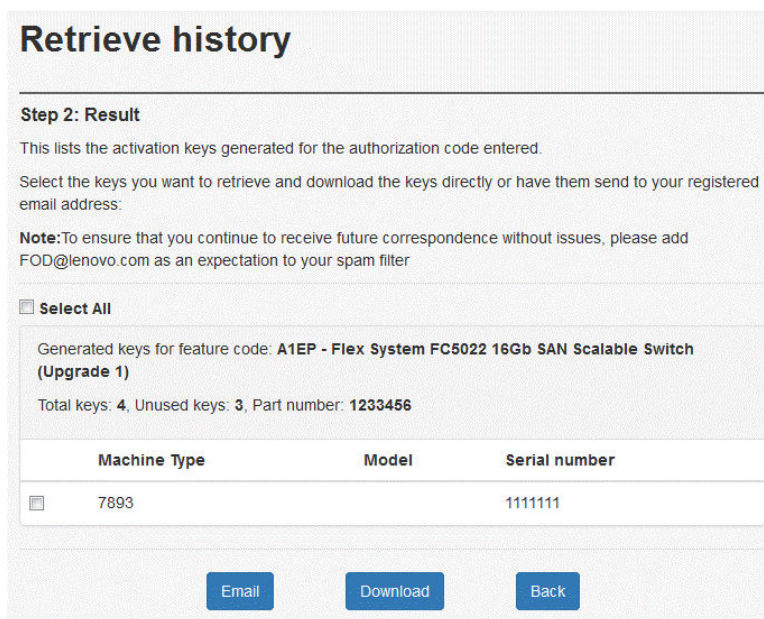


Figure 17. Retrieve history using an authorization code

- A search of a UID shows the keys that were generated for the system or the keys that were installed in the factory for that system. An example is shown in [Figure 18 “ ” on page 21](#).



Figure 18.

- A search of a machine type serial number shows the keys that were generated for the system or the keys that were installed in the factory for that system. The generated keys are listed with the ability to download those keys, as shown in [Figure 19 “Retrieve history using a machine type & serial number” on page 22](#).

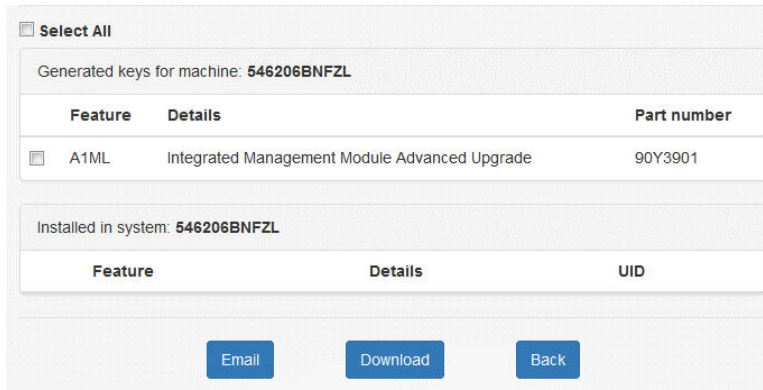


Figure 19. Retrieve history using a machine type & serial number

4. To download a key, select it and click **Download**. You will be prompted to save the key file to your local file system. Alternatively, click **Email** and you will be sent an email with the key file as an attachment.

License Replacement

If there is a hardware failure on a server, such as a processor, network adapter or network switch in a Flex chassis, we must update the unique identifier for the replacement part on the FoD website.

For more information about this website function, see [“License replacement by using the FoD website” on page 46](#).

Retrieve an authorization code

In the Retrieve Authorization Code page, you can request to have the authorization codes of a particular order number and part number emailed to you.

To retrieve an authorization code, complete the following steps:

1. In the Welcome page, [Figure 8 “Welcome page \(standard user\)” on page 14](#), select **Retrieve Authorization Code** from the left navigation pane. [Figure 20 “Retrieving an authorization code” on page 23](#) appears.

Retrieve authorization code

Retrieve authorization code

For authorization code retrieval complete the below mandatory fields (*) and submit the request.

The application will provide the authorization code by emailing a PDF file if a matching record is found.

The fields indicated with an asterisk (*) are required to complete this transaction. If you do not want to provide the information use the Cancel button on your browser to return to the previous page, or close the window or browser session that is displaying this page.

Note: To ensure that you continue to receive future correspondence without issues, please add FOD@lenovo.com as an exception to your spam filter.

Identification

Customer number* ?

Order number* ?

Option P/N or Product ID* ?

Your email address

Other recipients(cc:)

Note: By clicking **Submit** you agree that Lenovo may process and retain your data for the purposes listed above in accordance with Lenovo's data privacy policy.

Figure 20. Retrieving an authorization code

2. Enter the customer number, order number and either the option part number or Product ID. These numbers are on the packing list that is included with your order. Hover over the Help icon ? next to each field to see what format each number can be.
3. Click **Submit**. An email is sent to you within a minute or two. The Activation Instructions documents will be attached as PDFs. The authorization codes will be sent to your email address. You can optionally enter additional email addresses to also receive the information. Separate them with a semicolon.

Profile management

Profile management is most useful for business partners and distributors who sell Lenovo Features on Demand upgrades to customers.

Note: The **Profile management** menu item is only available to Administrators. See [“Becoming an administrator” on page 14](#) for information.

From here, you can manage the customer numbers you are an administrator for, including adding or removing users, and you can manage those users. You can also change from receiving authorization codes by electronically by email or via the Inventory Management functions (eFoD).

From the Welcome page, [Figure 8 “Welcome page \(standard user\)” on page 14](#), select **Profile management** from the left navigation pane. [Figure 21 “Profile management” on page 24](#) appears.

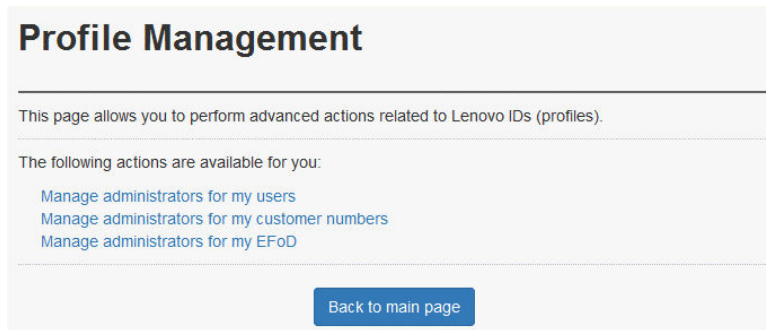


Figure 21. Profile management

The three actions in the Profile management menu choice are described in the following subsections:

- [“Manage your users” on page 24](#)
- [“Manage your customer numbers” on page 25](#)
- [“Manage your eFoD delivery” on page 27](#)

Manage your users

This selection allows you to view who the other administrators are for you customer numbers, other than yourself.

Note: Read only: This user information can only be viewed in this function, not modified. To promote another FoD user to be an administrator of one of your customer numbers, use the function described in [“Manage your customer numbers” on page 25](#).

1. Clicking the link **Manage administrators for my users** displays the window shown in [Figure 22 “Profile management - user management” on page 24](#).

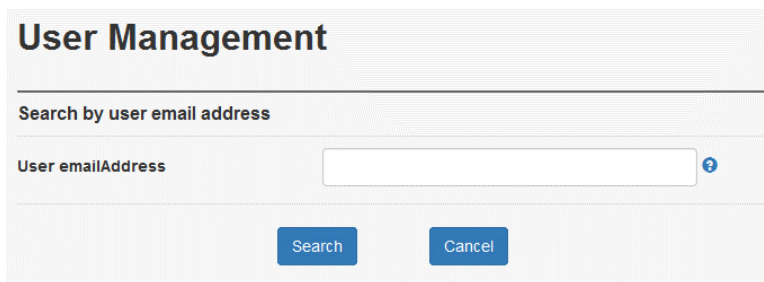


Figure 22. Profile management - user management

2. Click Search to display all email addresses associated with the customer numbers you are an administrator for. An example of the sort of output you’ll see is shown in [Figure 23 “User management search results” on page 25](#).

Alternatively, you can enter an email address (or part thereof) and click **Search** to display the details about that user (provided that user is associated with the customer numbers you are an administrator for).

Note: You won’t be able to search on your own email address.

User Management

Search by user email address

User emailAddress

Search Result (1)

FirstName	LastName	Email	CellNumber	CustomerName
Ilya	Krutov	ikrutov@lenovo.com		

< >

Figure 23. User management search results

Manage your customer numbers

To manage the customer number, click **Manage administrators for my customer numbers** from the Profile Management window as shown in [Figure 21 “Profile management” on page 24](#). You will then see [Figure 24 “Manage customer number main page” on page 25](#).

Customer Management

Customer Info

Figure 24. Manage customer number main page

Leave the Customer Info field blank and click **Search** to display all customer numbers you are authorized to view. Alternatively, enter a customer name or number (or part thereof) into the field and click **Search**. A window similar to [Figure 25 “Customer management - search results” on page 26](#) appears.

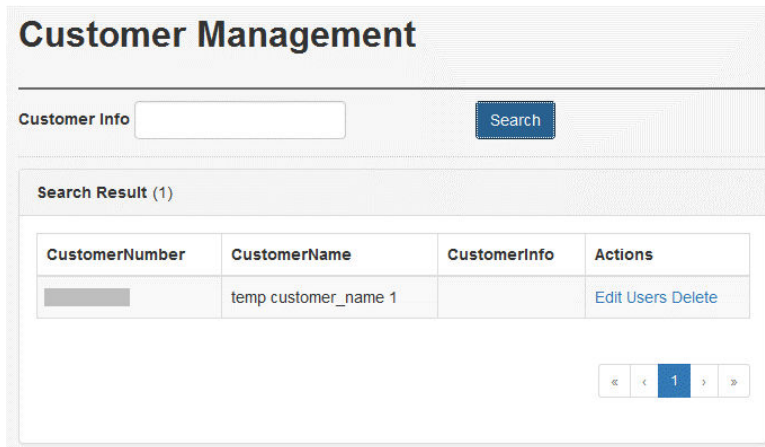


Figure 25. Customer management - search results

The three actions available to you, as shown in [Figure 25 “Customer management - search results” on page 26](#), are as follows:

- **Edit**

Here you can change the name associated with your customer number, as shown in [Figure 26 “Customer management - edit” on page 26](#).

The customer info field is for other information that might be useful to other administrators, such as the primary contact for FoD management in your organization. The information is displayed in [Figure 25 “Customer management - search results” on page 26](#) but it is not used anywhere else.

Edit Customer

CustomerNumber*

CustomerName

CustomerInfo

Figure 26. Customer management - edit

- **Users**

Here you can add additional users as administrators for the selected customer number. You can also remove existing administrators.

To add an administrator to your customer number, do the following:

1. a. Confirm that the user is already registered on the FoD web site as described in [“Creating an FoD account” on page 13](#). The user must be registered before they can become an administrator.
2. b. Click **Users**. [Figure 27 “Customer management - adding or removing admins” on page 27](#) appears.

Assign/Remove User For:

Assign new users*

Remove users*

Figure 27. Customer management - adding or removing admins

3. c. Type in their email address in the **Assign new users** field and click **Confirm**.
4. d. The user should now see **Profile management** and **Inventory management** options on the left side of the page.

Note: No new menu items? If the user does not see Profile management and Inventory management menu items, verify you added the correct email address. If you are still having problems, contact Lenovo via the email addresses listed in [“FoD support contacts” on page 13](#) for assistance.

In a similar fashion, you can remove administrator privileges from a user by clicking Users and the entering their email address from the **Remove users** field, then click **Confirm**.

- **Delete**

This function can be used to delete certain types of customer numbers and should only be used under the advice of Lenovo support personnel. If a customer number is deleted, the associated administrators will no longer receive emails about the account nor will they be able to reactivate the account, however, associated Authorization Codes and Activation Keys will not be deleted.

Manage your eFoD delivery

The eFoD page allows you to enroll in electronic delivery of FoD authorization codes.

To manage the eFoD enrollment, click **Manage administrators for my eFoD** from the Profile Management window as shown in [Figure 21 “Profile management” on page 24](#). You will then see [Figure 28 “Electronic FoD \(eFoD\) management” on page 27](#).

Figure 28. Electronic FoD (eFoD) management

Type in your customer number and click the **Search** button. You can see your customer numbers as described in [“Manage your customer numbers” on page 25](#).

Notes:

- Unlike the other Profile Management functions, you cannot simply leave the customer number field empty and click Search.

- Older 6-digit customer numbers cannot be used here. Go to Customer management as described in [“Manage your customer numbers” on page 25](#) to obtain your customer number to use here.

You will then see the option to select either electronic delivery (eFOD) or standard electronic delivery as shown in [Figure 29 “eFoD management - selecting eFod or standard electronic delivery” on page 28](#).

Figure 29. eFoD management - selecting eFod or standard electronic delivery

You can select either **Electronic delivery (eFod)** or **Standard electronic delivery**.

Note: Paper delivery: As of January 2017, there is no longer an option to receive authorization codes in paper form by postal mail.

- Standard electronic delivery (default)

With this selection, all future orders of FoD part numbers will result in an email being sent to the email address associated with the order. The email will include a PDF attachment which is the Features on Demand Activation Instructions document such as the one shown in [Figure 9 “Activation Instructions document” on page 16](#).

- Electronic delivery (eFoD) with Inventory management

With this option, authorization codes will be emailed as PDF attachments to all FoD administrators associated with the customer number. You will be able to distribute and manage your inventory of authorization codes via the FoD web site as described in [“Inventory management” on page 33](#).

Note: Recipient: The emails are sent to administrators and not the email address associated with the individual order(s).

You are also given an additional option, **Do not split my eFoD orders into multiples of quantity 1**. By default, the option not checked. This selection is important when you order multiple copies of the same FoD option part number on the same order. Splitting and not splitting orders are as follows:

- Do not split orders: If you order an FoD part number, quantity 50 for example, you will receive one authorization code which can be used 50 times to create activation keys. This selection is best for customers wishing to do a rollout of an FoD feature upgrade across multiple servers.
- Split orders (default): With this selection, when an order of an FoD is received, instead of getting one authorization code that has activations for the quantity ordered, you get as many authorization codes that

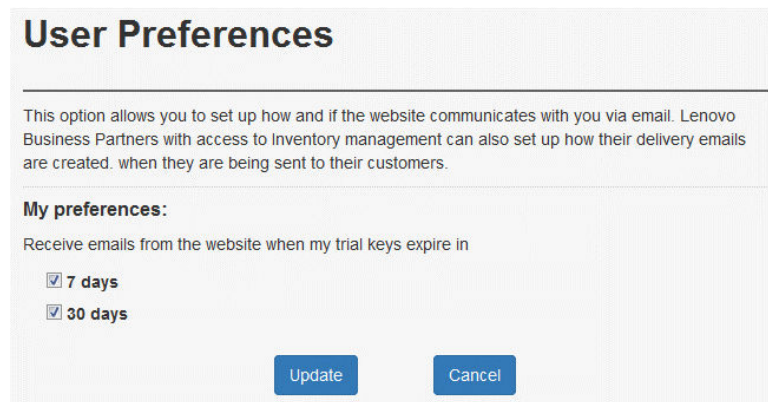
you ordered. So if you ordered 50 FoD part numbers, you will get 50 authorization codes. This selection is best for distributors or business partners who wish to buy FoD authorization codes in advance and then install them on different customer systems as the orders come in.

Note: Affects future orders only: Note that changes to the delivery selection only affects future orders.

User preferences

The user preferences page of the FoD web site is where you can control what emails you get from the FoD system and what those emails contain.

From the Welcome page, [Figure 8 “Welcome page \(standard user\)” on page 14](#), select **User preferences** from the left navigation pane. For standard users, you will see a panel similar to [Figure 30 “User preferences - standard user” on page 29](#).



User Preferences

This option allows you to set up how and if the website communicates with you via email. Lenovo Business Partners with access to Inventory management can also set up how their delivery emails are created. when they are being sent to their customers.

My preferences:

Receive emails from the website when my trial keys expire in

7 days

30 days

Figure 30. User preferences - standard user

An administrator for a customer number will see a page similar to [Figure 31 “User preferences - Administrator” on page 30](#).

User Preferences

This option allows you to set up how and if the website communicates with you via email. Lenovo Business Partners with access to Inventory management can also set up how their delivery emails are created. when they are being sent to their customers.

My preferences:

Receive emails from the website when my trial keys expire in

7 days
 30 days

Receive emails from the website when orders are shipped

Yes
 No

Include .pdf of the authorization code(s) as attachment(s) in the emails

Yes
 No

Inventory management advanced settings:

When getting notification emails from Lenovo about eFoD emails

Include Lenovo Sales Order number in email subject line

When sending eFoD emails to my customers

Include Lenovo Sales Order & Work Order & Local Order number in email subject line
 Include entered Comments inside the email body
 Merge selected authorization codes before email them
 Separate efod email by sales order

Figure 31. User preferences - Administrator

The purpose of the Inventory management advanced settings checkboxes are as follows:

- **Include Lenovo Sales Order number in email subject line** (checked by default)

If you enable eFOD in Profile Management for delivery of your FoD orders, then with this option checked, the emails you receive from Lenovo will include the sales order number in the subject line. You might want to uncheck this selection if you didn't want your own customers to see this order number.

- **Include Lenovo Sales Order & Work Order & Local Order number in email subject line** (checked by default)

By default, this is checked. If this option is checked, then when you use the Inventory Management function to ship authorization codes to one of your own customers, the following fields are added to the subject line of the emails, as entered in the Shipment dialog shown in [Figure 39 "Enter the details for to Ship an authorization code to your customer" on page 39](#) :

- Lenovo sales order numbers
- Local order
- Purchase order (referred to as "work order" in this checkbox)

For example, the text highlighted in bold below is added to the subject line of the email:

Subject: Electronic Features on Demand order: **(Order(1234567890) Purchase Order(LenovoPress1) Local Order(LenovoPress1))**

- **Include entered Comments inside the email body** (checked by default)

By default, this is checked. If this option is checked, then when you use the Inventory Management function to ship authorization codes to one of your own customers, the Additional comments field as entered in [Figure 39 “Enter the details for to Ship an authorization code to your customer” on page 39](#) is included in the body of the email.

- **Merge selected authorization codes before email them** (unchecked by default)

By default, this is not checked.

- **Separate efod email by sales order** (Checked by default)

As of January 2017, the default for this field is checked. If this option is checked and the selections you made in the Inventory Management function contain multiple Lenovo sales order numbers, then multiple emails will be sent out. For example, if some of the selected items are for sales order number 123 and the rest are for sales order number 456, then two emails will be generated when you click the **Ship** button, one for each sales order number.

Generate a report

Note: The **Generate a report** menu item is only available to Administrators. To check who the administrators are for your customer number, use the Contact function described in [“Contact” on page 45](#)

In the Generate report page, you can create several report types that are based on the following criteria:

- Machine type and serial number

A report is generated that shows activation keys that were generated for a specific system. This report shows activations, such as Intel, IMM2, and ServeRAID features, but not activations, such as Emulex VFA III.

- Other UID

You can use this option to generate a report that shows activation keys that are generated for an FoD identifier number other than machine type and serial number. An example is the FoD identifier for an Emulex VFA III adapter.

- Authorization code

A report is generated that shows activation keys that were generated for a specific authorization code.

- Order number

A report is generated that shows the authorization code types that shipped under the entered order number. It also shows all the activation keys that are linked to the found authorization codes.

Reports are generated in CSV format and are sent via email.

Complete the following steps to generate a report:

1. From the Welcome page, [Figure 8 “Welcome page \(standard user\)” on page 14](#), select **Generate report** from the left navigation pane. [Figure 32 “Generate a report” on page 32](#) appears.

Generate report

Report generation

The data in the report will be extracted your Features on Demand profile.

Please select a report type and a report "search by" filter.

The report will be generated and sent to your email address:

To ensure that you continue to receive future correspondence without issues, please add FOD@lenovo.com as an exception to your spam filter.

Report type* ⓘ

Report input*

Customer number filter ⓘ

Figure 32. Generate a report

2. Select a report type from the Report type drop-down menu. The choices are:
 - **FoD Key Generation Report - search by MT-SN:** Generate a report that lists all FoD features activated and installed in the specified machine type and serial number.
 - **Key Generation Report - search by other UID:** Generate a report that lists all FoD features activated for the specified Unique ID such as an Emulex ASIC ID or switch serial number
 - **FoD Key Generation Report - search by Auth code:** Generate a report that lists all FoD features activated by redeeming the specified authorization code.
 - **FoD Authorization Report - search by order number:** Generate a report that lists all FoD features activated under the specified plant order number.
3. Based on the selected report type, enter an applicable value in the Report input field.

Note: Do not use a dash or space when you are entering the machine type and serial number in the Report Input field.

4. Optionally, you can refine the result by selecting a customer number for which you are an administrator. Select the customer number in the Customer number filter field.
5. Click **Submit**. A confirmation window opens and you receive an email with the report attached as a PDF.

Note: Receiving FoD emails: FoD reports are sent from the email address lkms@lenovo.com (not fod@lenovo.com as indicated in [Figure 32 “Generate a report” on page 32](#)). Ensure that this address is added as an exception to your email spam filters so that the report is not blocked.

An example of the report you’ll receive is shown in [Figure 33 “Sample report \(MT-SN report\)” on page 32](#).

Generate report								
System Description Data	Machine	Model	Serial	Legacy Customer Number	Feature Code	Feature Description	Description	Creation Timestamp
7914KQ0B09KJ	7914		KQ0B09K		A1ML	Integrated Management Module Advanced Upgrade	9KQ	Jun 6, 2012 11:33:50 PM

Figure 33. Sample report (MT-SN report)

Inventory management

Note: The **Inventory management** menu item is only available to FoD Administrators. To check who the administrators are for your customer number, use the Contact function described in [“Contact” on page 45](#). For more information, see [“Becoming an administrator” on page 14](#).

Inventory management is most useful for business partners and distributors who sell Lenovo Features on Demand upgrades to customers. The Inventory management page allows you to keep track of the FoD purchases you’ve made and which authorization codes you have allocated to your customers.

The inventory management page is shown in [Figure 34 “Inventory management window” on page 34](#). The page has two primary functions:

- The top half of the page allows you to manage the allocation of FoD authorization codes to your customers. See [“Allocating your FoD inventory to your customers” on page 34](#).
- The bottom half of the page provides advanced one-off functions you may need under special circumstances:
 - Allows you to convert FoD authorization codes you previously received in paper form from the Lenovo (or IBM) factory into electronic form so that they can then be managed by this Inventory management system. See [“Converting a paper authorization code to electronic” on page 43](#).
 - Allows you to take an authorization code that has greater than one entitlement associated with it, and split it into multiple authorization codes, each with only 1 entitlement. Performing this action is useful if you plan on allocating those authorization codes to multiple customers. See [“Split an authorization code” on page 44](#).

Inventory management

If you are a reseller or distributor submitting end user customer contact information, you agree that:

(i) you comply with all applicable data protection requirements including notification to the customer that their data is being transferred to a third party for purposes connected with software activation and that their data may be processed globally and;

(ii) that you will ensure that any reseller who has provided such information to you complies with all applicable data protection requirements including customer notification.

Step 1: Option selection

This for-distributor-only section allows you to access your inventory and perform advanced actions for it.

The following actions are available:

Search via sales order number: ? ➔

Search via Part number(s): ? ➔

Search via customer number(entered): ? ➔

Search via customer number(selected): ? ➔

This section also allows you to convert a paper-delivered FoD order into an electronic form-only format.

NOTE: This action is not reversible and the original authorization code(s) will not be usable anymore!

Convert paper FoD into electronic FoD:

Enter sales order number: ? ➔

Split authorization code :


Enter authorization code: ? ➔

Figure 34. Inventory management window

Allocating your FoD inventory to your customers

Here you can keep track of the FoD purchases you've made and which authorization codes you have allocated to your customers.

The steps to manage your inventory of FoD authorization codes is as follows:

1. From the navigation menu (see [Figure 8 "Welcome page \(standard user\)" on page 14](#)) select **Inventory management**. [Figure 34 "Inventory management window" on page 34](#) appears.
2. Choose one of the four search methods to search for an FoD part number, then click the blue arrow icon  adjacent that field:
 - Enter a sales order number.

If you get the error message **No data found!**, that means either the sales order number is invalid, or is contain no electronic FoD parts in it. Sales orders of paper-based FoD authorization codes must first be converted to electronic (see ["Converting a paper authorization code to electronic" on page 43](#)) before they can be used here.

- Enter the part number.

Using this method will only return authorization code inventory that hasn't already been redeemed for activation keys. You can enter multiple part numbers here, separated by a semicolon.

If you get the error message **No data found!**, that means you do not have any unredeemed authorization codes available.

- Enter a valid customer number.

It is possible to enter a customer number that you are not an administrator for, however, you will only have a Limited view of this data. This means that you will be able to view the information but not perform any actions on the data. The view type is visible in [Figure 35 “Inventory management of one sales order” on page 36](#).

- Select a customer number from the pulldown.

For our example, we entered a sales order number and clicked the adjacent blue arrow icon .

3. If you chose to use one of the customer number searches, you are next prompted to select one or more sales orders.

Note: Searching with a customer number: If you search using a customer number, you will be presented with all sales orders for that customer number, and you will be able to then select more than one sales order. This allows you to perform inventory actions across multiple orders and part numbers at the same time, thereby saving you time and effort. **Scroll bars:** If you do select multiple sales orders, a vertical scroll bar will allow you to see all entries. Depending on the width of your browser window, there may also be a horizontal scroll bar to display all columns of data, however you won't see the horizontal scroll bar until you scroll to the very bottom of the list.

4. You are then shown the available inventories. The columns displayed depend on the search you performed in step 2.

- If you searched on a sales order or customer number, you will see the inventory similar to [Figure 35 “Inventory management of one sales order” on page 36](#).

Note that the view type highlighted in [Figure 35 “Inventory management of one sales order” on page 36](#) is FULL. The view type can be one of the following:

- View type FULL: This is data associated with a customer number that you are an administrator for. You can view and manage this data.
- View type LIMITED: This is data associated with a customer number that you are not an administrator for. You can only view this data. The **Ship, Update** and **Integrate** buttons will not be available with the view type is LIMITED.

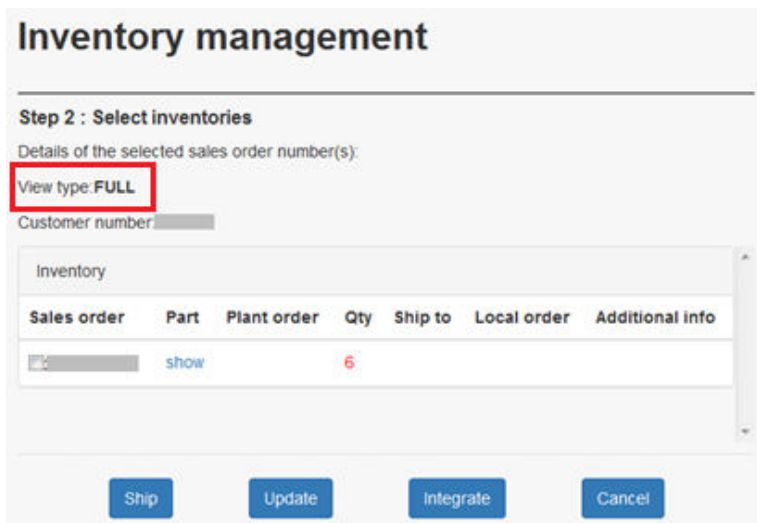


Figure 35. Inventory management of one sales order

- If you searched on a part number, you will see the inventory similar to [Figure 36 “Inventory management on one part number” on page 36](#).

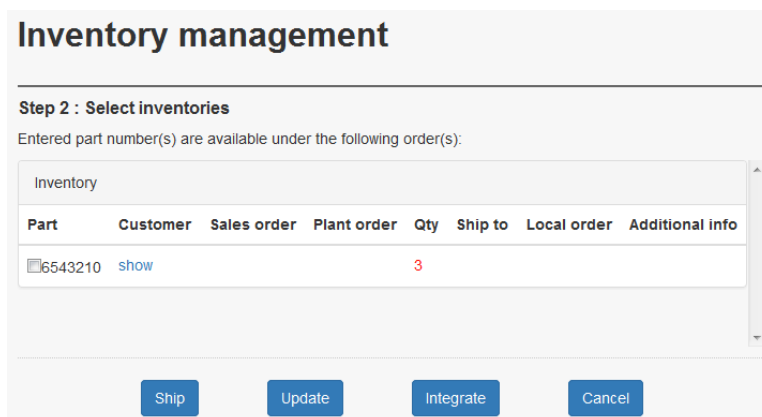


Figure 36. Inventory management on one part number

5. If you wish to perform actions on this entire order or your entire inventory of a part number, you can skip this step, however if you wish to only perform inventory actions on a portion of the order, click the show link to expand the sales order to show the part numbers as shown in [Figure 37 “Inventory management - showing the FoD part numbers of an order” on page 37](#).

Note: When you click a **show** link in the table, additional rows are displayed and the **show** link changes to a **hide** link.

Inventory management

Step 2 : Select inventories

Details of the selected sales order number(s):

View type: **FULL**

Customer number:

Sales order	Part	Plant order	Qty	Ship to	Local order	Additional info
<input type="checkbox"/>	<input type="text"/> hide		6			
	<input type="checkbox"/> 90Y3901	show	3			
	<input type="checkbox"/> 00AE930	show	3			

Figure 37. Inventory management - showing the FoD part numbers of an order

- Again, since we want to only manage a single instance of a part number on our order, we further expand the order clicking **show** next to that part number. Additional data rows appear, as shown in [Figure 38](#) "Inventory management - expanding to show individual" on page 38.

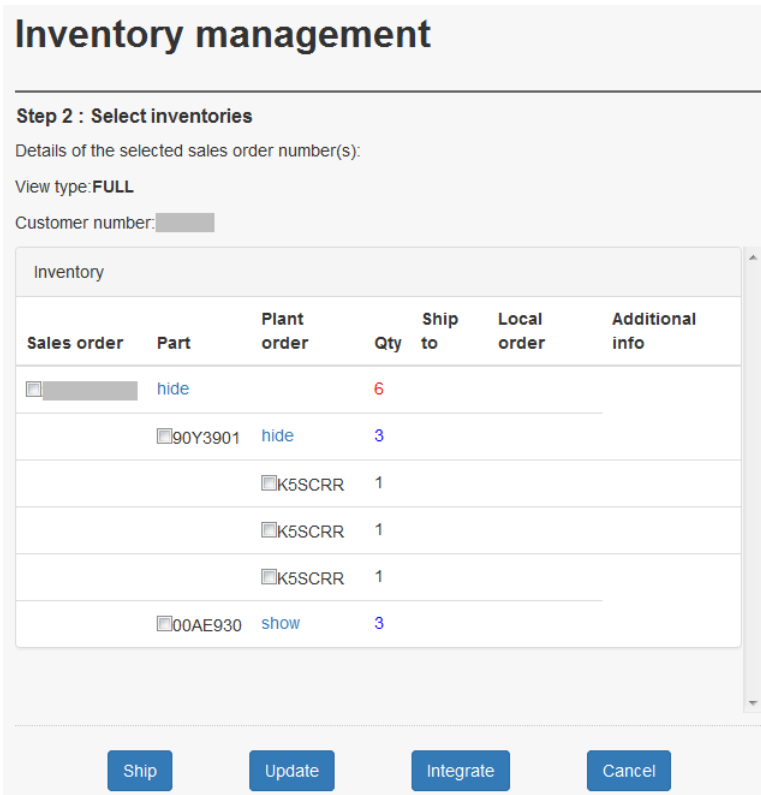


Figure 38. Inventory management - expanding to show individual

- The instance rows (the rows with plant orders in [Figure 38 “Inventory management - expanding to show individual” on page 38](#)) correspond to individual authorization codes you have in your inventory (available codes as well as codes you have already redeemed for activation keys).

Select the rows you want to manage, then click one of three available action buttons:

- **Ship:** Deliver these select FoD authorization codes to your customer via email. See [“Ship” on page 38](#) below.
- **Update:** Add additional information to authorization codes you have already shipped. See [“Update” on page 40](#).
- **Integrate:** Redeem the selected FoD authorization codes for activation keys. See [“Integrate” on page 41](#).

Note: No buttons? If you don't see the Ship, Update and Integrate buttons, it is likely that you are looking at data for a customer number that you are not an administrator for. Check the view type at the top of the window -- a LIMITED view type means you can only view the data shown.

Ship

If you click **Ship** in [step 7](#), continue as follows:

- You are prompted to enter the details of your own customer's order, [Figure 39 “Enter the details for to Ship an authorization code to your customer” on page 39](#).

Inventory management

Step 3 : Shipment

Sales order number(s):

Local order:

Purchase order:

Additional comments:

SHIP TO email address: *

CC email address(es):

Figure 39. Enter the details for to Ship an authorization code to your customer

2. Enter any details you wish to record regarding this order, such as your own order number or your customer’s purchase order. Considering entering the customer name in the Additional comments field and adding your own email address to the CC field.

By default, the following fields will be included in the subject line of the email:

- Sales order number(s)
- Local order
- Purchase order

By default, the following fields will be included in the body of the email:

- Additional comments

By default, this action will generate one email. If you prefer, you can change it so that separate emails will be sent for sales order number in the selected authorization codes.

Note: Change the defaults: You can change these defaults in the User Preferences function, described in [“User preferences” on page 29](#).

The email address to deliver the Features on Demand Activation Instructions PDF to must be specified but other fields are optional.

3. Click **Continue** when ready to send the email.
4. You will then receive a confirmation message, [Figure 40 “Ship confirmation” on page 40](#).

Inventory management

Step 5 : Shipment completed

Confirmation: Documents sent successfully.
 Your selected Fod items were sent to below recipients.
 Additional comments and values were saved with the order for future lookup

Figure 40. Ship confirmation

- The recipients will then receive an email with a ZIP containing PDFs of all the authorization codes you allocated to them. The email will contain the authorization codes. The email also lists the Additional comments field, however the PDFs do not.

Example 3–1 Email received

Inventory Authorization Code as below :

Auth Code	Sales order	Part	Plant order	QTY
XXXXXXXXXXXXXXXXXXXX	3901	K5SCRR	1	

Additional comments
 David Watts

- The Select inventories page is then updated to indicate that those authorization codes have now been allocated to one of your customers as shown in [Figure 41 “Inventory now shows the authorization code allocated to a customer” on page 40](#). The Additional information field is also displayed.

Sales order	Part	Plant order	Qty	Ship to	Local order	Additional info
<input type="checkbox"/> 2077480410	hide		6			
<input type="checkbox"/> 90Y3901	hide		3			
<input type="checkbox"/> K5SCRR		1		dwatts@lenovo.com	LenovoPress1	David Watts
<input type="checkbox"/> K5SCRR		1				
<input type="checkbox"/> K5SCRR		1				
<input type="checkbox"/> 00AE930	show		3			

Figure 41. Inventory now shows the authorization code allocated to a customer

Note: Reshipping: The Inventory Management system allows you to ship the same items to different email addresses. Each time, the information displayed in the Ship to and other columns is updated. Be aware of this, and don't ship the same authorization codes to different customers!

Update

If you click **Update** in [step 7](#), continue as follows:

- You are shown the Inventory update page shown in [Figure 42 “Updating an inventory entry” on page 41](#).

Inventory management

Step 3 : Update

Sales order number(s):

Local order:

Purchase order

Additional comments:

SHIP TO email address:*

CC email address(es):

Figure 42. Updating an inventory entry

2. Here you enter new data for this FoD order. You must enter all data again as all fields will be replaced by the data here, including blank fields. You must enter the ship-to email address again, however, an email is not resent to the customer.
3. Click **Continue** to execute the update. You will then see a confirmation message, [Figure 43 “Update completed” on page 41](#).

Inventory management

Step 4 : Update completed

Additional comments and values were saved with the order for future lookup

Figure 43. Update completed

Integrate

If you click **Integrate** in [step 7](#), continue as follows:

1. You are prompted to specify the unique ID (serial number or UID) that the authorization codes are going to be applied to, as shown in [Figure 44 “Activating an authorization code out of inventory” on page 42](#). For some FoD upgrades, the model field will be greyed out once you select the machine type. Click **Confirm** when ready.

Integrate activation key

Feature code	<input type="text" value="A5H5"/>
Feature description	<input type="text" value="ServeRAID M1x00/M5x00 Series Zero Ca"/>
Part number / PID	<input type="text" value="00AE930"/>
Remaining keys	<input type="text" value="1"/>
Machine Type*	<input type="text" value="5462 - Lenovo System x3650 M5"/>
Model	<input type="text"/>
Machine serial number*	<input type="text" value="06BNFZL"/>

Figure 44. Activating an authorization code out of inventory

2. Provided the authorization code hasn't already been redeemed for an activation key, you will then see the following message as shown in [Figure 45 "Integration successful" on page 42](#).

Integrate finished successfully

If the authorization code has already been redeemed, you will see the following message:

No remained keys for this authorization code

Integrate activation key

Feature code	<input type="text" value="A5H5"/>
Feature description	<input type="text" value="ServeRAID M1x00/M5x00 Series Zero Ca"/>
Part number / PID	<input type="text" value="00AE930"/>
Remaining keys	<input type="text" value="1"/>
Machine Type*	<input type="text" value="5462 - Lenovo System x3650 M5"/>
Model	<input type="text"/>
Machine serial number*	<input type="text" value="06BNFZL"/>

Figure 45. Integration successful

Hints and tips

The following tips are useful when you are using eFoD inventory management:

- It is better to use Inventory Management to email authorization codes to your clients, rather than using the function described in [“Retrieve an authorization code” on page 22](#).
- You can use your own PO orders and comments to help with customer management.
- Copy yourself or anyone else to ensure that emails are received by anyone who needs them.
- When you are building custom solutions at your local integration center, pre-activate the upgrades via Inventory Management on the system. Clients can then download the key for their systems after their solution is delivered.
- Create your own stock in advance to have immediate access for client needs.


There is no need to place orders each time a new customer requests an FoD key. Instead, use Inventory Management to generate a customer order from stock inventory after your local invoicing is complete.

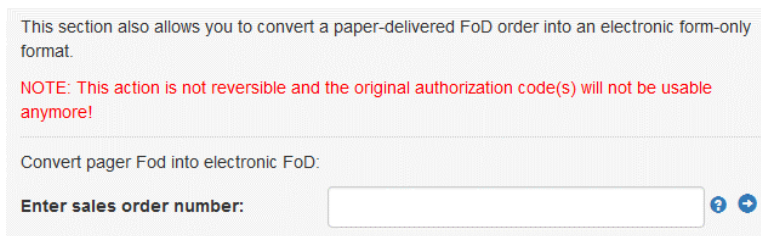
- You can customize what information is included in the emails sent to your customers, as described in [“User preferences” on page 29](#).

Converting a paper authorization code to electronic

The Inventory Management page provides a function to convert FoD authorization codes you previously received in paper form from the Lenovo factory into electronic form so that they can then be managed by this Inventory management system.

The steps are as follows:

1. From the navigation menu (see [Figure 8 “Welcome page \(standard user\)” on page 14](#)) select Inventory management.
2. Scroll to the bottom of the page and enter the sales order number in the field show in [Figure 46 “Converting an FoD fulfilled as a piece of paper into an electronic FoD” on page 43](#) and click the blue arrow icon  adjacent that field.



This section also allows you to convert a paper-delivered FoD order into an electronic form-only format.

NOTE: This action is not reversible and the original authorization code(s) will not be usable anymore!

Convert paper Fod into electronic FoD:


Enter sales order number: 

Figure 46. Converting an FoD fulfilled as a piece of paper into an electronic FoD

If clicking the arrow icon returns you back to the same page, scroll to the top of the page to see if there are any error messages. For example, if the sales order number you entered is already for electronic FoD authorization codes, you will see the following message:

Sales Order is electronic FoD already.

3. If the sales order is a valid paper FoD order, you are then shown the part numbers associated with the sales order as shown in [Figure 47 “Confirmation page” on page 44](#). Click Convert to convert the authorization code to electronic.

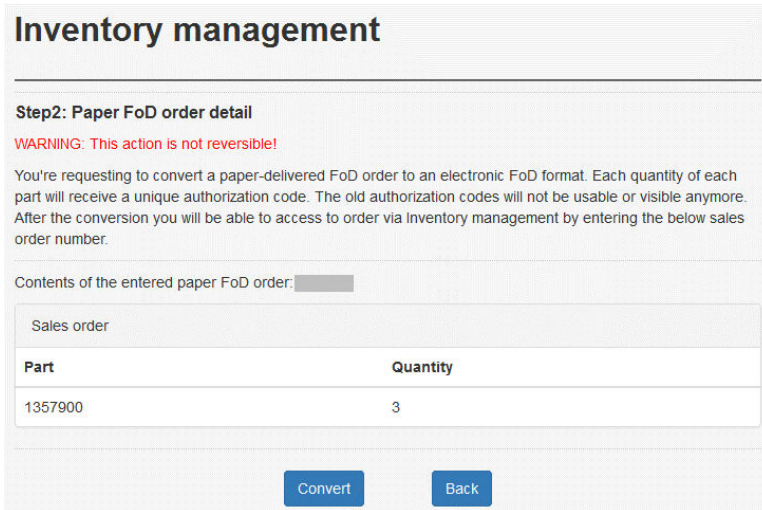


Figure 47. Confirmation page

4. If the process is successful, you will see the following message:

Sales Order Number converted Successfully

You can now manage the inventory of this sales order number as described in [“Allocating your FoD inventory to your customers” on page 34.](#)

Split an authorization code

The Inventory Management page also provides a function to take an authorization code that has greater than one entitlement associated with it, and split it into multiple authorization codes, each with only 1 entitlement. Performing this action is useful if you plan on allocating those authorization codes to multiple customers.

The steps are as follows:


1. From the navigation menu (see [Figure 8 “Welcome page \(standard user\)” on page 14](#)) select **Inventory management**.
2. Scroll to the bottom of the page and enter the authorization code with multiple entitlements in the field show in [Figure 48 “Inventory management - split an authorization code” on page 44](#) and click the blue arrow icon  adjacent that field.



Figure 48. Inventory management - split an authorization code

3. You will then be asked to confirm the split, as shown in [Figure 49 “Confirming the request to split an authorization code” on page 45.](#) Click **Confirm**.



Split authorization code



Figure 49. Confirming the request to split an authorization code

4. You will then be presented with the new authorization codes that each have only one entitlement, similar to [Figure 49 “Confirming the request to split an authorization code” on page 45](#).

Inventory management

Step2: Split authorization code detail

WARNING: This action is not reversible!

Split authorization code

Authorization code	Quantity
RMN2QK1N5HR245BE3EDA0C	1
BDET6M5A9Q4ACMR613HMR0	1
VGL9BCAV6HCALQHH9FO90S	1

[Email](#) [Back](#)

Figure 50. Split confirmation

5. Optionally, you can have the new authorization codes emailed to you by clicking the **Email** button. The message is sent to your own email address.

Note: There is no confirmation message that the email was sent. Check your inbox.

You can then use provide these authorization codes to separate customers as needed. The original authorization code is no longer valid.

Contact

The Contact menu selection lets you identify who the FoD administrators are for your customer number. This action is available to all FoD users.

1. From the navigation menu (see [Figure 8 “Welcome page \(standard user\)” on page 14](#)) select **Contact**. [Figure 51 “Searching for administrators for a given customer number” on page 46](#) appears.

Contact

If you want to relative customer number to your account, please input customer number to find who you can contact to.
If you have any question or issue, you can contact FOD@lenovo.com.

Customer number:

Figure 51. Searching for administrators for a given customer number

2. Enter your customer number and click the Search button. The results will be displayed similar to Figure 52 “Administrators for a given customer number” on page 46.

Contact

If you want to relative customer number to your account, please input customer number to find who you can contact to.
If you have any question or issue, you can contact FOD@lenovo.com.

Customer number:

You can find the person in below account(s):

Account	First name	Last name	Region
dwatts@lenovo.com	David	Watts	default
ikrutov@lenovo.com	Ilya	Krutov	default

Figure 52. Administrators for a given customer number

Existing administrators can promote other FoD user accounts to also be administrators. This procedure is described in “[Manage your customer numbers](#)” on page 25.

License replacement by using the FoD website

If there is a hardware failure on a server, such as a processor, network adapter or network switch in a Flex chassis, we must update the unique identifier for the replacement part on the FoD website.

The unique identifier is normally referred to as the FoD ID and PPIN. The Hardware replacement menu is not needed for keys that are tied to the machine type and serial number (MTSN), such as the IMM Advanced Upgrade or ServeRAID adapters.

Complete the following steps:

1. Log into the FoD web site, <https://fod.lenovo.com/lkms>.
2. To access the hardware replacement menu, select Hardware replacement from the left navigation pane, [Figure 53 “Hardware replacement option” on page 47](#) appears.

Hardware replacement

Step 1: Machine details

Select your machine type and model if available and enter your 7 character machine serial number. (Your machine serial number can be found on the back panel or in one of the system administration tools).

Machine type* ?

Model* ?

Machine serial number* ?

OR

If you do not know the MTSN of your server or chassis or your activations are not tracked using those values (some OEM do not). Enter the UID of the device below.

NOTE: If you enter the UID value, your MTSN selection will be ignored and only the below UID used to find your FOD upgrades to replace.

UID* ?

Figure 53. Hardware replacement option

- In the drop-down menu, select your machine type from the list. Then, enter the machine type serial number, and click **Continue**. The available keys for that system are shown in the next window, as shown in [Figure 54 “Installed keys” on page 47](#).

Hardware replacement

Step 2: Activation keys selection

This lists the activation keys installed in the machine type serial number inputted.

Select the keys you want to replace its UID.

Select all

Installed in system: **38371234567**

UID	Feature	Detail
<input type="checkbox"/> 01234567890123456789012345678922	A2TE	Virtual Fabric Advanced Software Upgrade (LOM)

Figure 54. Installed keys

In this example, we have a server with an Emulex VFA FCoE upgrade. When the system board replacement is made, we must enter the new server’s UID into the FoD web site so that the FoD upgrade is still functioning after the replacement.

- Select all components and click **Continue**.
- Enter new UID in the appropriate field(s), one for each component, as shown in [Figure 55 “Enter new UIDs” on page 48](#) and then click **Continue**.

Hardware replacement

Step3: Enter new UIDs

Here is the list of the activation keys you want to replace.
Please enter new UIDs for each keys.

Installed in system: **38371234567**

UID type	Feature	Detail
Emulex ASIC S/N	A2TE	Virtual Fabric Advanced Software Upgrade (LOM)
Old UID	<input type="text" value="01234567890123456789012345678922"/>	
New UID	<input type="text"/>	

Figure 55. Enter new UIDs

- Review your selections in the next window, as shown in [Figure 56 “Confirm selections”](#) on page 48, then click **Confirm**.

Hardware replacement

Step4: Replacement confirm

Once confirmed, this action cannot be reversed. Please ensure the data displayed corresponds to the key you wish to replace.

Installed in system: **38371234567**

UID type	Feature	Detail
Emulex ASIC S/N	A2TE	Virtual Fabric Advanced Software Upgrade (LOM)
Old UID	<input type="text" value="01234567890123456789012345678922"/>	
New UID	<input type="text" value="01234567890123456789012345678933"/>	

Figure 56. Confirm selections

- A successful key transfer is shown in [Figure 57 “Successful hardware replacement”](#) on page 48.

Hardware replacement

Step5: Download

New activation keys were generated successfully, please click on the uid for download the key.

[01234567890123456789012345678933](#)

Figure 57. Successful hardware replacement

8. You can now download the new activation key by clicking the link provided in [Figure 57 “Successful hardware replacement”](#) on page 48.
9. You can also use the Retrieve history function of the FoD web site to get the activation key emailed to you. Specify the new UID as shown in [Figure 58 “Downloading the key via Retrieve History”](#) on page 49. For more information on the Retrieve history function, see [“Retrieve history”](#) on page 19.

Retrieve history

Step 1: Search

Use authorization code or unique identifier(UID) or machine type serial number(MT\SN) to search for activation key history.

Please select a search type and enter a search value

Search type* ⓘ

Search value* ⓘ

Figure 58. Downloading the key via Retrieve History

Note: Responsibility: It is ultimately the client’s responsibility to reinstall their FoD keys. However, be advised that in most service scenarios in which a client needs a part replaced, the client often is not aware that they have FoD keys that are applied or might not know how to reapply the keys. In these cases, Remote Support works with the client and Field Technician to reapply the keys.

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