

Bare Metal Provisioning Guide

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Version: 1.1

This document provides detailed instructions and information which are necessary for the deployment of BM-MGMT package which integrates NOC-PS provisioning software to Odin Automation Platform.

Some information/content are adapted from:

- 1) NOC-PS: <http://noc-ps.com>
- 2) APS Standard: <http://apsstandard.org>
- 3) NOC-PS API Documentation: http://www.noc-ps.com/downloads/PXE_API.html

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PREPARING NOC-PS PLATFORM

Login to NOC-PS Portal

This portal is meant for administrator usage only. It provides full control of Bare Metal Servers (whether deployed or not) to administrators. You can access the portal via NOC-PS public IP address or the hostname that is set up along with NOC-PS. After accessing the page, login using your credentials.

NOTE: NOC-PS strongly suggests that SSL should be installed for encrypted connections and that a hostname to be used rather than using its IP address.

The screenshot shows a 'Login' window with the following details:

- Username:** administrator
- Password:** (empty field)
- Language:** English - United States
- Restrict this session to IP-address:** 132.147.98.217 (checkbox checked)
- Buttons:** Login, Close

Creating Pools

Pools are used to categorise the different type of Bare Metal Servers and its status. The suggested configuration is for 1 type of Bare Metal Servers to have 2 pools (1 for Unprovisioned, 1 for Provisioned). For example, Intel Xeon 4 Core Processor (8GB RAM, 256GB Disk Space) will have two pools (1. Intel Xeon 4 Core - Provisioned , 2. Intel Xeon 4 Core - Unprovisioned)

The screenshot shows a 'Pools' management window with the following details:

- Add:** Available
- Properties:** Available
- Delete:** Available
- Table Headers:** Name, Description
- Data:** Pool (highlighted)
- Add Pool Dialog:**
 - Name:** (empty field)
 - Description:** (empty field)
 - Buttons:** Add, Cancel
- Page Navigation:** Page 1 of 1
- Page Footer:** Displaying 1 - 7 of 7

To access the 'Pools' page, click on 'Start' then 'Pools'. To create a new pool, click on 'Add' and enter its name and description.

However, NOC-PS has some limitations as it does not display the 'Pool ID' which is necessary for other operations on Odin Automation platform. In order to retrieve the 'Pool ID', deploy 'get_pools_details.php' located in NOC-PS folder and the IDs will be displayed.

Managing Installation Profiles

Installation Profiles refer to Operating System (OS) software. NOC-PS, on itself, provides a wide range of OSes. These OSes installation are automated using the NOC-PS automation scripts. However, do note that some installation might face issues. For NOC-PS included OSes, please contact NOC-PS for assistance. On top of the provided OSes, you will be able to add new OS to the portal.

To access the ‘Installation Profiles’ page, click on ‘Start’ then ‘Installation Profiles’. To add a new installation Profile click on ‘Add’ and key in the required variables.

However, NOC-PS has some limitations as it does not display the ‘Profile ID’ which is necessary for other operations on Odin Automation platform. In order to retrieve the ‘Profile ID’, deploy ‘get_installation_profiles_details.php’ located in NOC-PS folder and the IDs will be displayed.

For older profiles, there is an option to archive them, so it will not be visible to customers.

Managing Servers

Before the Bare Metal Servers are ready to be used with NOC-PS, administrators will have to initialise them. There are multiple variable which the administrators have to input. In this guide, it will explain on a few of the key variables.

- 1) Main IP address: It refers to the IP address in which you would assign to the Bare Metal Server. It has to be an unused IP-address and it has to be in the subnet range.
- 2) Mac-address: It refers to the MAC address of the Bare Metal Server. If the Bare Metal Server has been restarted after physically connected to NOC-PS, NOC-PS would be able to retrieve its MAC Address. This variable will be the Unique Identifier of each Bare Metal Server.

- 3) Pool: In this variable, you will be able to see the various pools that you have created. Choose the relevant pool.

NOTE: Remember that for each type of server, there are 2 pools created. Ensure that the assigned option is ‘unprovisioned’ pool.

- 4) IPMI IP-Address: It refers to the Bare Metal Server IPMI IP address. Please ensure that it is an internal IP address for security purposes.

NOTE: For IPMI username and password, please refrain from using the default password. And if the username/password is changed after it is initialised, please remember to update them on NOC-PS Platform.

To facilitate Odin Automation to access NOC-PS, after adding the server, we have to input the IPMI password into NOC-PS

The screenshot shows the 'Update a host' dialog box with the 'General' tab selected. The form contains the following data:

- MAC-address: [REDACTED]
- Last profile installed: CentOS 6 (latest)
- Subnet: [REDACTED]
- Main IP-address: [REDACTED]
- Additional IP-addresses: [REDACTED]
- Hostname: unused
- Pool: Type 1 Unused
- Description (optional):
- IPMI IP-address: [REDACTED]
- IPMI username: ADMIN
- IPMI password: [REDACTED] (Note: storing passwords is optional, and at your own risk)
- IPMI type: IPMI v1.5 (BMC)
- Permanent DHCP: Act as DHCP server for this host
- IPv6 subnet: None
- IPv6 address(es): [REDACTED]

At the bottom right are 'Update' and 'Cancel' buttons.

To access the properties page, Click on the Bare Metal Server, then on Properties. After which, it will show a form (on the left), key in the password and click update.

SETTING UP ODIN AUTOMATION

Putting PHP Scripts on an Endpoint

In order for the PHP scripts to run, they have to be placed on an Endpoint.

You can access the instructions on setting up an endpoint: <http://doc.apsstandard.org/2.2/pa/deployment/#manual-setup>

After setting up, create a folder in this directory (" /vars/www/html/") using the application name (i.e. bmcloud (/vars/www/html/bmcloud)). Put all provisioning PHP scripts in the folder and set up .htaccess file. Please refer to the above link to set up the file. An example is provided on the left.

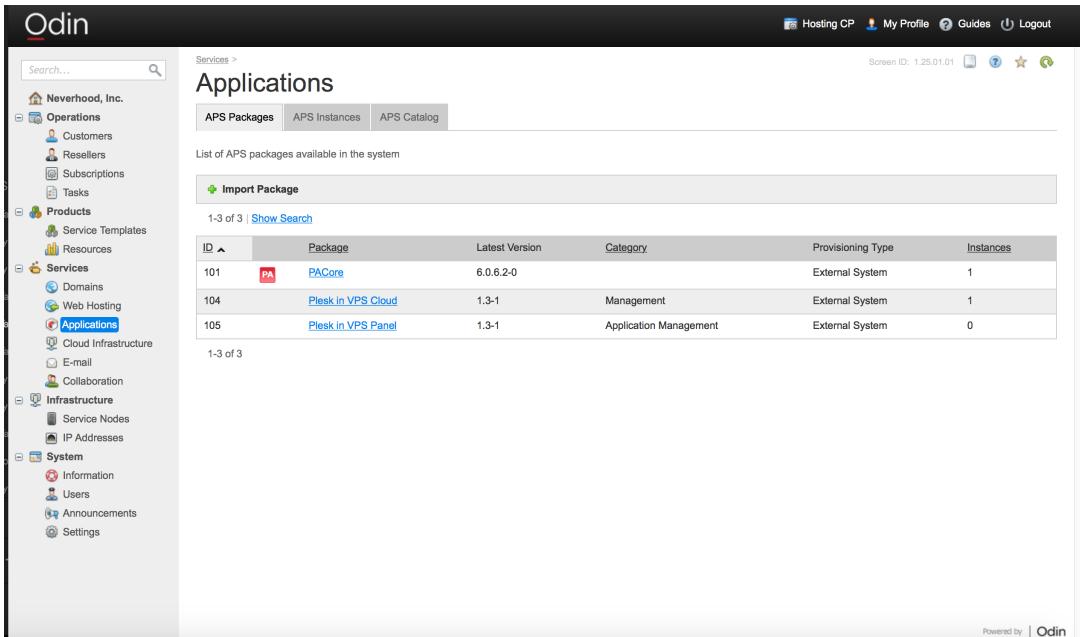
```
.htaccess
1 <IfModule mod_rewrite.c>
2   RewriteEngine on
3   RewriteBase /bmcloud
4   RewriteCond %{REQUEST_FILENAME} !-f
5   RewriteCond %{REQUEST_URI} !=/favicon.ico
6   RewriteRule ^bmclouds/(.*)?$ bmclouds.php?q=$1 [L, QSA]
7   RewriteRule ^contexts/(.*)?$ contexts.php?q=$1 [L, QSA]
8   RewriteRule ^bmses/(.*)?$ bmses.php?q=$1 [L, QSA]
9   RewriteRule ^offers/(.*)?$ offers.php?q=$1 [L, QSA]
10 </IfModule>
11
```

NOTE: .htaccess is a hidden file.

NOTE: Endpoint link is https://<hostname-of-server>/<app-name>

Importing Package

Ensure that the package file extension is correct. It should be .app.zip. Login in Odin Automation Platform. You can import the package by accessing the 'Applications' on the left sidebar.



The screenshot shows the Odin Automation Platform interface. The left sidebar contains navigation links for Neverhood, Inc., Operations, Resellers, Subscriptions, Tasks, Products, Service Templates, Resources, Services (Domains, Web Hosting, Applications, Cloud Infrastructure, E-mail, Collaboration), Infrastructure (Service Nodes, IP Addresses), and System (Information, Users, Announcements, Settings). The main content area is titled 'Applications' and shows three packages listed in a table:

ID	Package	Latest Version	Category	Provisioning Type	Instances
101	PACore	6.0.6.2-0		External System	1
104	Plesk in VPS Cloud	1.3-1	Management	External System	1
105	Plesk in VPS Panel	1.3-1	Application Management	External System	0

At the top of the main content area, there is a button labeled 'Import Package'. The status bar at the bottom right indicates 'Powered by | Odin'.

Click on Import Package.

Odin

Services > Applications > Import Package

Download package from:

- URL:
- local file: Choose File: no file selected
size of uploaded file must be less than 10.8MB

Enabled:

Submit Cancel

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Upload the package via the 'local file' option.

Odin

Services > Applications

APS Packages APS Instances APS Catalog

Package successfully scheduled for importing (id=16)

List of APS packages available in the system

Import Package

1-4 of 4 | Show Search

ID	Package	Latest Version	Category	Provisioning Type	Instances
101	PACore	6.0.6.2-0		External System	1
104	Plesk in VPS.Cloud	1.3-1	Management	External System	1
105	Plesk in VPS Panel	1.3-1	Application Management	External System	0
116	bm-mgmt				0

1-4 of 4

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Access the application by clicking on 'bm-mgmt'

The screenshot shows the Odin application management interface. On the left is a sidebar with navigation links for Operations, Products, Services, Infrastructure, and System. The main panel displays the 'bm-mgmt' application details under the 'Applications' section. The application has the following properties:

ID	116
Name	bm-mgmt
Categories	Samples
Description	This package integrates Odin Automation with NOC-PS for the management of Bare Metal Server
Provisioning Type	External System
Instances	0

A 'Delete Application' button is located at the bottom of the application details panel.

You can access the different components of the application here

Creating an Application Instance

By creating an instance, it forms a connection between Odin Automation platform and the endpoint that was created earlier.

Click on 'Instances' then click on 'Install'.

The screenshot shows the 'Instances' tab of the 'bm-mgmt' application configuration page. It prompts the user to specify application parameters. The fields shown are:

- Application API end-point URI: <https://endpoint.noc-ps.readyspace.a>
- Application Version: 1.0-1

At the bottom are 'Next >' and 'Cancel' buttons.

Enter the endpoint URL and click 'Next'.

Odin

Services > Applications > bm-mgmt

Please specify values for settings

Application service "BM Cloud Globals Setting"

BM Cloud Application Global Service AppHost

Endpoint URL: <https://endpoint.noc-ps.readyspace.a>

Endpoint Server Admin Username: root

Endpoint Server Admin Password: [REDACTED]

NOC-PS Deployment URL: [REDACTED]

NOC-PS Username: administrator

NOC-PS Password: [REDACTED]

<< Back Next > Cancel

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Input the values for the required variables.

BM Cloud Application Global Service Apphost: Endpoint URL

Endpoint Server Admin Username/Password: the username/password of the root user

NOC-PS Deployment URL: NOC-PS Public IP Address

NOC-PS Username/Password: the username/password of user

Odin

Services > Applications > bm-mgmt

List of bm-mgmt installations

Install

1-1 of 1 Show Search

ID	Application	Owner	Subscription	Domains	Resource Type	Hardware Host	Version	Status	Updates	Trial	Entry Point
14	bm-mgmt	Neverhood, Inc.	0			mn.noc-ps.readyspace.apsdemo.org	1.0-1	Ready			

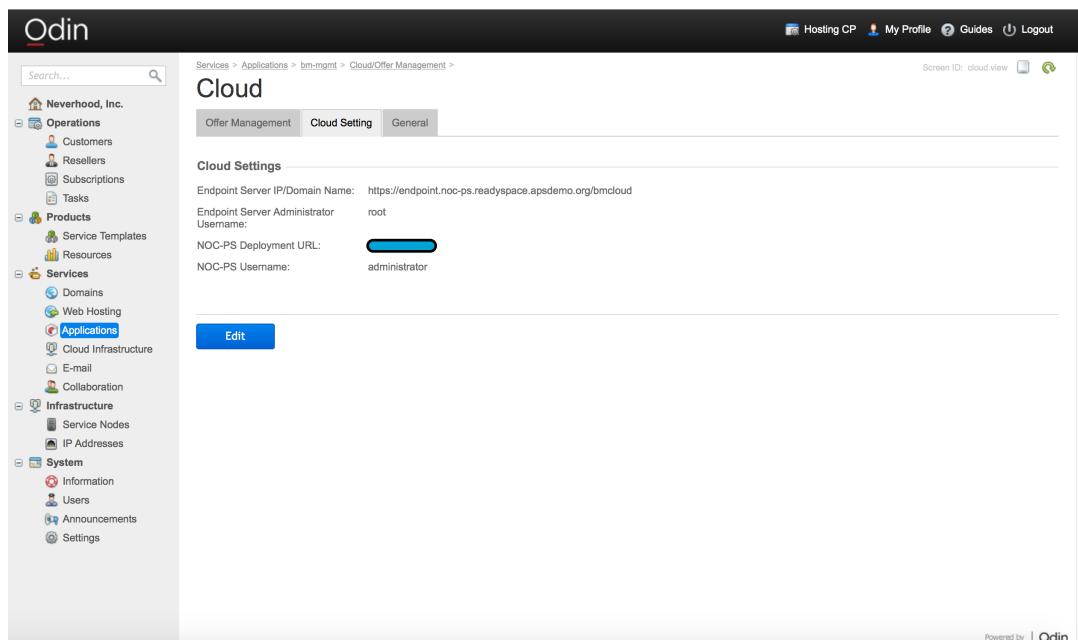
1-1 of 1

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If the instance is installed successful, this screen will be showed.

Editing Instances and NOC-PS variables

In the event where the credentials change, click on the ‘bm-mgmt’ instance and access ‘Cloud Settings’.



The screenshot shows the Odin interface for managing applications. The left sidebar lists categories like Operations, Products, Services, Infrastructure, and System. Under Applications, 'bm-mgmt' is selected. The main content area is titled 'Cloud' and shows 'Cloud Settings'. It displays the following configuration:

Setting	Value
Endpoint Server IP/Domain Name:	https://endpoint.noc-ps.readyspace.apsdemo.org/bmcloud
Endpoint Server Administrator Username:	root
NOC-PS Deployment URL:	[REDACTED]
NOC-PS Username:	administrator

A blue 'Edit' button is located at the bottom left of the settings section. The top right of the screen shows navigation links: Hosting CP, My Profile, Guides, and Logout. A 'Screen ID: cloud.view' is also visible.

Click on ‘Edit’ to change the values.

Creating Offers

Each offers should be assigned to one type of Bare Metal Servers. In this, you will be able to input the key variables of a Servers such as Pool IDs and Bare Metal Server Specifications. To access the page, click on the ‘bm-mgmt’ instance and click on “New”.

Key in the values accordingly. Pool ID (Origin) refers to the pool ID of ‘unprovisioned’ type for a particular server type and Pool ID (Destination) refers to the pool ID of ‘provisioned’ type for the same server.

Repeat this until all the offers are created.

Creating Resources

Go back to ‘Applications’ and click on ‘Resource Types’ > ‘Create’.

There are 3 types of Resource Classes. In this package, we will only create 2 types which are Application Service Reference and Application Service. **Application Service Reference:** BM Cloud Globals Setting, Offers (Depends on the number of offers created). Application Service: BM Management, Bare Metal Server.

Odin

Search...

Neverhood, Inc.

- Operations
 - Customers
 - Resellers
 - Subscriptions
 - Tasks
- Products
 - Service Templates
 - Resources
- Services
 - Domains
 - Web Hosting
 - Applications**
 - Cloud Infrastructure
 - E-mail
 - Collaboration
- Infrastructure
 - Service Nodes
 - IP Addresses
- System
 - Information
 - Users
 - Announcements
 - Settings

Services > Applications > bm-mgmt > Add New Resource Type

Enter general parameters for new resource type based on resource class "Application Service Reference"

Name *****

Description

*Required fields

Next >> **Cancel**

Screen ID: 0.00.00.00

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Key in the Resource Name.

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Search...

Neverhood, Inc.

- Operations
 - Customers
 - Resellers
 - Subscriptions
 - Tasks
- Products
 - Service Templates
 - Resources
- Services
 - Domains
 - Web Hosting
 - Applications**
 - Cloud Infrastructure
 - E-mail
 - Collaboration
- Infrastructure
 - Service Nodes
 - IP Addresses
- System
 - Information
 - Users
 - Announcements
 - Settings

Services > Applications > bm-mgmt > Add New Resource Type

Select APS Type

1-2 of 2

APS Type	Type version	Instances	Description
BMS Offer	1.0	2	Bare Metal Server Offer
BM Cloud Globals Setting	1.0	1	BM Cloud Application Global Service

<< Back **Cancel**

Screen ID: 1.23.05.10

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Select the relevant APS Type.

Select the resource and finish the whole process. Repeat this for other resources.

NOTE: Individual Resource is needed for each offer. The type of resource should be Application Service Reference. Remember to add the 2 Application Service resources, BM Management and Bare Metal Server.

NOTE: When creating BM Management Application Service, please tick ‘Automatically provision service’.

Creating Service Templates

A service template is an object that links all the resources together. It allows to set the limit for each resources. A service template must be created before creating a service plan. A separate service template must be created for each offer. To access ‘Service Templates’ page, click on ‘Service Templates’ on the left sidebar.

Click on ‘Add New Service Template’.

Products > Service Templates > Add New Service Template

Enter service template general parameters

Name * BMS Gold Service Template

Description

Autoprovisioning

Account-Wide Services

Type Custom

*Required fields

Next >> Cancel

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Key in the 'Name' and remember to tick 'Autoprovisioning' and untick 'Account-wide Services'.

Products > Service Templates > Add New Service Template

Select resources to be included into the service template

Resource Subscription

Search Reset Results

1-63 of 63 | Hide Search

Resource	Subscription
<input type="checkbox"/> Additional database users	1 - License key
<input checked="" type="checkbox"/> BMS Cloud - Application	1 - License key
<input checked="" type="checkbox"/> BMS Cloud - Bare Metal Server	1 - License key
<input checked="" type="checkbox"/> BMS Cloud - BM Management	1 - License key
<input checked="" type="checkbox"/> BMS Cloud - Gold Offer	1 - License key
<input type="checkbox"/> BMS Cloud - Silver Offer	1 - License key
<input type="checkbox"/> Branding access points	1 - License key
<input type="checkbox"/> CI backup space usage	1 - License key
<input type="checkbox"/> CI bandwidth limit running	1 - License key
<input type="checkbox"/> CI bandwidth limit stopped	1 - License key
<input type="checkbox"/> CI Cloud Hosting	1 - License key
<input type="checkbox"/> CI Commercial Linux VE	1 - License key
<input type="checkbox"/> CI Container CPU Usage running	1 - License key
<input type="checkbox"/> CI Container CPU Usage stopped	1 - License key
<input type="checkbox"/> CI daily backup	1 - License key
<input type="checkbox"/> CI external incoming traffic	1 - License key

Select the relevant resources and remember only select 1x offer resource.

Resource	Provisioning attributes	Subscription ID	Subscription	Unlimited	Limit	Unit	Home Visibility
BMS Cloud - Application		1	License key	<input type="checkbox"/>	1		<input type="checkbox"/>
BMS Cloud - BM Management		1	License key	<input type="checkbox"/>	1		<input type="checkbox"/>
BMS Cloud - Bare Metal Server		1	License key	<input checked="" type="checkbox"/>			<input type="checkbox"/>
BMS Cloud - Gold Offer		1	License key	<input type="checkbox"/>	1		<input type="checkbox"/>

Set the limits for Application, BM Management and the Offer to 1. Remember to uncheck the unlimited for those resources. Leave the Care Metal Server checked for Unlimited checkbox. Click 'Next' and finish the process.

Repeat for each offer you have.

After which, create the service plans using the service template.

CUSTOMER CONTROL PANEL INTERFACE

The following steps are for customers. It will guide them through the provisioning, reprovisioning ,power control processes.

Provisioning

This would help customers to provision their Bare Metal Server after subscribing to the service. After logging into the Odin Portal, they will be presented with the view below.

The screenshot shows the Odin Customer Control Panel. At the top, there is a navigation bar with links for Home, Hosted Domains, Users, BMS Management, Account, and Help & Support. The Account link is highlighted. On the right side of the header, it shows 'Subscriber Bryan Lian (Account ID: 4)', 'Subscription BMS Gold Service Template:7', and a Logout button. Below the header, a green banner displays the message: 'Your new subscription "BMS Gold Service Template" is now available for use.' The main content area is divided into several sections: 'Service Information' (Subscription: BMS Gold Service Template (ID:7), Resource Usage →), 'Bare Metal Server Management' (Icon: server with three monitors, Description: This package integrates Odin Automation with NOC-PS for the management of Bare Metal Server, Link: BM Management), 'Account' (Icon: person in tuxedo, Description: Manage account and account administrators, Sub-links: Admins, Hosting Subscriptions, More →), 'Users' (Icon: two people, Description: Create and manage users. Assign services to created users, Sub-links: Users), and 'Domains' (Icon: pencil writing on a globe, Description: Manage your domains and domain names, Sub-links: Hosted Domains). At the bottom of the page, there is a footer bar with the text '© 2016 Ingram Micro Inc. All rights reserved.' and 'Powered by | Odin'.

Click on 'BM Management' to manage servers.

The screenshot shows the Odin BMS Management interface. At the top, there's a navigation bar with links for Home, Hosted Domains, Users, BMS Management (which is currently selected), Account, and Help & Support. The top right corner displays the subscriber information: Bryan Lian (Account ID: 4), Subscription: BMS Gold Service Template:7, and Logout link. Below the navigation, a breadcrumb trail shows 'Odin Panel > Servers'. The main content area is titled 'Servers' and contains a search bar with fields for Name, RAM, and Disk, along with 'Search' and 'Reset Search' buttons. A message 'No item(s) found' is displayed below the search bar. At the bottom right of the page, there's a note 'Powered by | Odin' and a copyright notice '© 2016 Ingram Micro Inc. All rights reserved.'

Click 'New' to create Bare Metal Server.

The screenshot shows the 'New BMS' creation wizard. The top navigation bar and subscriber info are identical to the previous screenshot. The breadcrumb trail shows 'Odin Panel > Servers > New BMS'. The main title is 'New BMS'. The process is divided into two steps: 'BMS Properties' (step 1) and 'Review' (step 2). Step 1 is currently active. It includes fields for Server Name (gold1), Root Password (*****), Admin Username (Optional), Admin Password (Optional), Description, Offers (set to Gold), OS (CentOS 7 (latest)), and Server Specifications (Intel Xeon-1230V5 Processor). Below these fields are CPU Cores (4), Disk Space (150), and RAM (8). At the bottom are 'Next' and 'Cancel' buttons. The footer includes the copyright notice '© 2016 Ingram Micro Inc. All rights reserved.' and the 'Powered by | Odin' logo.

Key in the required inputs. Customer will have an option to use the OS they prefer. After clicking 'Next', customer would be able to review the information that they have and confirm the provisioning.

Odin

Home Hosted Domains Users BMS Management Account Help & Support

Odin Panel > Servers

New Reprovision Power Traffic

Name RAM Disk

Search Reset Search

1 item(s) total Number of entries per page: 10 25 100 All

Name	Server Specifications	Number of Cores	RAM	Disk Space	State	Provisioning Status	OS	IP Address	Mac Address
gold1	Intel Xeon-1230V5 Processor	4	8	150	Started	Waiting for you to (re)boot this server	CentOS 7 (latest)		

1 item(s) total Number of entries per page: 10 25 100 All

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After provisioning the server, customers will be able to monitor the different variables of the Bare Metal Server such as the Bare Metal Server Specifications, Server State, Provisioning Status, OS, IP & MAC addresses.

Reprovisioning

After provisioning the server, customers are still able to change their Bare Metal Server's OS, however, the data will be erased.

Odin

Home Hosted Domains Users BMS Management Account Help & Support

Odin Panel > Servers

New Reprovision Power Traffic

Name RAM Disk

Search Reset Search

1 item(s) total Number of entries per page: 10 25 100 All

Name	Server Specifications	Number of Cores	RAM	Disk Space	State	Provisioning Status	OS	IP Address	Mac Address
gold1	Intel Xeon-1230V5 Processor	4	8	150	Started	Retrieved file /Packages/cracklib-2.9.0-11.el7.x86_64.rpm	CentOS 7 (latest)		

1 item(s) total Number of entries per page: 10 25 100 All

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Select the Bare Metal Server then click on 'Reprovision'.

The screenshot shows the 'Reprovision BMS' configuration page. It includes fields for Server Name (gold1), Root Password (redacted), Admin Username (Optional) (redacted), Admin Password (Optional) (redacted), Description (redacted), and OS (CentOS 7 (latest)). There are also 'Very Strong' and 'Very Weak' password strength indicators. At the bottom are 'Submit' and 'Cancel' buttons.

Key in the required inputs. Customer will be able to choose another OS. After which, click ‘Submit’ and the customer will be redirected to the main page where they can monitor the status.

Power Control

Customer will be able to do power control operations on the Bare Metal Server such as **Start, Stop, Reset**.

The screenshot shows the 'Servers' list page. A single server, 'gold1', is selected and highlighted with a yellow background. The table columns include Name, Server Specifications, Number of Cores, RAM, Disk Space, State, Provisioning Status, OS, IP Address, and Mac Address. The 'gold1' row shows Intel Xeon-1230V5 Processor, 4 cores, 8GB RAM, 150GB disk space, Started state, Retrievied file /Packages/cracklib-2.9.0-11.el7.x86_64.rpm provisioning status, CentOS 7 (latest) OS, and a redacted IP address.

Select the Bare Metal Server then click on ‘Power’.

Odin

Home Hosted Domains Users BMS Management Account Help & Support

Subscriber Bryan Lian (Account ID: 4)
Subscription BMS Gold Service Template:7 Logout

Odin Panel > Servers >

Power Control

Back Start Stop Reset Refresh

Name RAM Disk

Search Reset Search

1 item(s) total Number of entries per page: 10 25 100 All

Name	Server Specifications	Number of Cores	RAM	Disk Space	State	OS	IP Address	Mac Address
gold1	Intel Xeon-1230V5 Processor	4	8	150	Stopped	CentOS 7 (latest)		

1 item(s) total Number of entries per page: 10 25 100 All

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Select the Bare Metal Server then click on the power option which the customer would like to do.

- End of Guide -