

Readme File for Provisioning Bare Metal Servers from IBM® Cloud with IBM Spectrum Symphony

Readme file for: IBM Spectrum Symphony

Product/Component Release: 7.2.0.2

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When your cluster is enabled for cloud bursting through host factory in IBM Spectrum Symphony 7.2.0.2, you can enable provisioning of bare metal servers from IBM Cloud (previously SoftLayer®). With this solution, you can install a provider library and configure host factory to provision bare metal computing instances from IBM Cloud, much the same way you would configure provisioning of virtual machines.

NOTE: At a time, IBM Spectrum Symphony can provision either virtual machines or bare metal servers. You cannot provision both simultaneously.

For provisioning of bare metal servers, this solution introduces the following new parameters in the `softlayerprov_templates.json` **template:** `isBareMetalFlag`, `bmPresetKey`, and `bmOSReferenceCode`.

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1. Scope

Before you install this enhancement in your cluster, note the following requirements:

Applicability	
Operating system	<ul style="list-style-type: none"> RHEL 6 or 7, 64-bit Windows 2008 or 2012
Product version	IBM Spectrum Symphony 7.2.0.2

2. Installation

Follow the instructions in this section to download and install this enhancement in your cluster.

Prerequisites

- IBM Platform Symphony 7.2.0.2 must be installed on hosts in your cluster. See [“Installing or upgrading to IBM Spectrum Symphony 7.2.0.2”](#) in the online IBM Knowledge Center.
- Host factory must be configured to IBM Cloud as the cloud service provider. See [“Configuring the IBM Cloud provider plug-in”](#) in the online IBM Knowledge Center.

Packages

Name	Description
<code>sym-7.2.0.2_x86_64-build477380.tar.gz</code>	Package for Linux management hosts.
<code>egocore-3.6.0.2-build477380.msp</code>	Package for Windows management hosts.

Installing on Linux management hosts

- Log on to the master host as the cluster administrator and stop the HostFactory service:

```
$ egosh service stop HostFactory
```

- On each management host, back up the following provider files for IBM Cloud:

```
$EGO_TOP/3.6/hostfactory/providers/softlayer/lib/SoftlayerTool.jar
```

```
$EGO_TOP/eservice/hostfactory/conf/providers/softlayer/conf/softlayerprov_templates.json
```

If your cluster is configured for high availability, you only need to back up the `softlayerprov_templates.json` file at

```
$EGO_CONFDIR/../../eservice/hostfactory/conf/providers/softlayer/conf/once.
```

- On each management host, copy the package for this enhancement to the `$EGO_TOP` directory and decompress the package as follows:

Provisioning bare metal servers from IBM Cloud

```
$ tar xzof sym-7.2.0.2_x86_64-build477380.tar.gz -C $EGO_TOP
```

If your cluster is configured for high availability, copy `softlayerprov_templates.json` to your shared configuration location.

- d. Configure the IBM Cloud template (`softlayerprov_templates.json`), as described in ["Configuration and usage"](#).

- e. Start the HostFactory service:

```
$ egosh service start HostFactory
```

Installing on Windows management hosts

- a. Log on to the master host as the cluster administrator and stop the HostFactory service:

```
$ egosh service stop HostFactory
```

- b. On each management host, back up the following provider files for IBM Cloud:

```
%Installation_top%\3.6\hostfactory\providers\softlayer\lib\SoftlayerTool.jar
```

```
%Installation_top%\eservice\hostfactory\conf\providers\softlayer\conf\softlayerprov_templates.json
```

If your cluster is configured for high availability, you only need to back up the `softlayerprov_templates.json` file at

```
%EGO_CONFDIR%\..\..\eservice\hostfactory\conf\providers\softlayer\conf\once.
```

- c. On each management host, install this enhancement as follows:

- For an interactive installation, copy the `egocore-3.6.0.2-build477380.msp` package to each management host, double-click the `.msp` package, and follow the prompts.
- For a silent installation, copy the `egocore-3.6.0.2-build477380.msp` to each management host and install the `.msp` package using the following command:

```
C:\>msiexec /update C:\egocore-3.6.0.2-build477380.msp /l*v  
updateSymCore.log /norestart /quiet REINSTALLMODE=omus
```

The command syntax is as follows:

```
> msiexec /update <sym_package_name_path> /l*v <sym_install_log> /no  
restart /quiet REINSTALLMODE=omus
```

where:

- `<sym_package_name_path>` is the fully qualified file name of the `.msp` package for this enhancement.
- `<sym_install_log>` is the log file for the upgrade.

If your cluster is configured for high availability, copy `softlayerprov_templates.json` to your shared configuration location.

- d. Configure the IBM Cloud template (`softlayerprov_templates.json`), as described in ["Configuration and usage"](#).

- e. Start the HostFactory service:

```
$ egosh service start HostFactory
```

3. Configuration and usage

To provision bare metal servers from IBM Cloud, you must configure the following bare metal parameters in your `softlayerprov_templates.json` host template: `isBareMetalFlag`, `bmPresetKey`, and `bmOSReferenceCode`. Follow these steps to manually edit the `softlayerprov_templates.json` file for these parameters.

- a. For bare metal servers to be provisioned from IBM Cloud, you must configure the `softlayerprov_templates.json` file before starting the HostFactory service. If the HostFactory service is running, stop the service:

```
$ egosh service stop HostFactory
```

- b. Open the `softlayerprov_templates.json` file at:

- Linux: `$EGO_TOP/eservice/hostfactory/conf/providers/softlayer/conf/`
- Windows: `%Installation_top%/eservice/hostfactory/conf/providers/softlayer/conf/`

- c. Configure the following parameters for bare metal server provisioning:

- `isBareMetalFlag`: Specifies whether only bare metal servers must be provisioned from IBM Cloud. Valid values are `true` or `false`. By default, this parameter is set to `false`.

When `isBareMetalFlag` is `true`, the `imageId`, `creationDate`, `dedicatedAccountHostOnlyFlag`, and `localDiskFlag` parameters in the template are ignored. When `isBareMetalFlag` is `false`, only virtual machines are provisioned from IBM Cloud; the `bmPresetKey` and `bmOSReferenceCode` parameters that are specific to bare metal provisioning are ignored.

- `bmPresetKey`: Specifies the preset key that defines your IBM Cloud server type. You must know the server type that can be provisioned for your account.

When provisioning fails, you can find a list of possible values in the provider log, similar to the following list; note that not all hardware presets are available on a specific datacenter:

Preset keyname	Description
S1270_32GB_1X1TBSATA_NORAIID	Single Xeon 1270, 32GB Ram, 1x1TB SATA disks, Non-RAID
D2620_64GB_2X1TBSATA_NORAIID	Dual Xeon 2620, 64GB Ram, 2x1TB SATA disks, Non-RAID
S1270_32GB_2X960GBSSD_NORAIID	Single Xeon 1270, 32GB Ram, 2x960GB SSD disks, Non-RAID
D2620V4_64GB_1X1TBSATA_NORAIID	Dual Xeon 2620v4, 64GB Ram, 1x1TB SATA disks, Non-RAID
D2620V4_64GB_2X1TB_SATA_RAID_1	Dual Xeon 2620v4, 64GB Ram, 2x1TB SATA disks, RAID1
D2650_128GB_1X1TBSATA_NORAIID	Dual Xeon 2650, 128GB Ram, 1x1TB SATA disks, Non-RAID
D2690_128GB_2X600GBSAS_RAID1_2	Dual Xeon 2690, 128GB Ram, 2x600GB SAS disks, RAID1

D2690V4_128GB_2X600GB_SAS_RAID_1	Dual Xeon 2690v4, 128GB Ram, 2x600GB SAS disks, RAID1
D2690_64GB_4X960GBSSD_RAID10	Dual Xeon 2690, 64GB Ram, 4x960GB SSD disks, RAID10
D2690_256GB_4X600GBSAS_RAID10_RAID_10	Dual Xeon 2690, 256GB Ram, 4x600GB SAS disks, RAID10
D2690V4_256GB_4X600GB_SAS_RAID_10	Dual Xeon 2690v4, 256GB Ram, 4x600GB SAS disks, RAID 10
D2620_128GB_2X1TB_SATA_RAID_1_M60_GPU1	Dual Xeon 2620, 128GB Ram, 2X1TB SATA disks, RAID 1 1xM60 GPU
D2690V4_128GB_2X4TB_SATA_RAID_1_K2_GPU2	D2690v4 128GB 2x4TB SATA RAID 1 K2 GPU(2)
D2620V4_128GB_2X800GB_SSD_RAID_1_K80_GPU2	Dual Xeon 2620v4, 128GB Ram, 2x800GB SSD disks, RAID1
D2620V4_128GB_2X800GB_SSD_RAID_1_P100_GPU2	Dual Xeon 2620v4, 128GB Ram, 2x800GB SSD disks, RAID 1
D2690_256GB_2X4TB_SATA_RAID1_2XM60_GPU_RAID_1	Dual Xeon 2690, 256GB Ram, 2X4TB SATA disk, RAID 1

- `bmOSReferenceCode`: Specifies the operating system of the bare metal server.

When provisioning fails, you can find a list of possible values in the provider log, similar to the following list:

OS code			
CENTOS_7_64	ESXI_5.5_64	UBUNTU_12_64	WIN_2008-DC-SP2_64
CENTOS_6_64	ESXI_5.1_64	UBUNTU_12_32	WIN_2008-DC-SP2_32
CENTOS_6_32	FREEBSD_10_64	UBUNTU_10_64	WIN_2008-DC-R2-SP1_64
CENTOS_5_64	FREEBSD_10_32	UBUNTU_10_32	WIN_2003-STD-SP2-5_64
CENTOS_5_32	FREEBSD_9_64	VYATTACE_6.6R1_64	WIN_2003-STD-SP2-5_32
CLOUDLINUX_6_64	FREEBSD_9_32	VYATTACE_6.5R1_64	WIN_2003-ENT-SP2-5_64
CLOUDLINUX_6_32	FREEBSD_8_64	VYATTASE_6.6R2_64	WIN_2003-ENT-SP2-5_32
CLOUDLINUX_5_64	FREEBSD_8_32	WIN_2012-STD-R2_64	WIN_2003-DC-SP2-

			1_64
CLOUDLINUX_5_32	REDHAT_7_64	WIN_2012-STD_64	WIN_2003-DC-SP2-1_32
CUSTOS_1_64	REDHAT_6_64	WIN_2012-DC_64	XENSERVER_7.0_64
DEBIAN_8_64	REDHAT_6_32	WIN_2008-STD-SP2_64	XENSERVER_6.5_64
DEBIAN_7_64	REDHAT_5_64	WIN_2008-STD-SP2_32	XENSERVER_6.2_64
DEBIAN_7_32	REDHAT_5_32	WIN_2008-STD-R2-SP1_64	XENSERVER_6.1_64
DEBIAN_6_64	UBUNTU_16_64	WIN_2008-ENT-SP2_64	XENSERVER_6.0_64
DEBIAN_6_32	UBUNTU_14_64	WIN_2008-ENT-SP2_32	XENSERVER_5.6_64
ESX_4_64	UBUNTU_14_32	WIN_2008-ENT-R2-SP1_64	XENSERVER_5.5_64

- `datacenter`: Specifies the ID of your IBM Cloud datacenter which is closest to your on-premises cluster.
- `useHourlyPricing`: Specifies whether the bare metal server must be billed hourly. Valid values are `true` (indicating hourly billing) and `false` (indicating monthly billing).

For example, your `softlayerprov_templates.json` could be as follows:

```
{
  "templates": [
    {
      "templateId": "Template-VM-SYMA",
      "maxNumber": 1,
      "attributes": {
        "type": ["String", "X86_64"],
        "ncpus": ["Numeric", "4"],
        "ncores": ["Numeric", "1"],
        "nram": ["Numeric", "32768"]
      },
      "isBareMetalFlag": true,
      "bmPresetKey": "S1270_32GB_1X1TBSATA_NORAIID",
      "bmOSReferenceCode": "CENTOS_LATEST_64",
      "datacenter": "AMS01",
      "vlanNumber": "890",
      "networkSpeed": "100",
      "useHourlyPricing": true,
      "privateNetworkOnlyFlag": true,
      "postProvisionURL":
        "https://10.166.171.217:8443/hfprovisionscripts/fresh_install.sh"
    }
  ]
}
```

- d. Start the HostFactory service (see ["Starting host factory for cloud bursting"](#)):
`$ egosh service start HostFactory`
- e. Submit workload for cloud-enabled applications (see ["Submitting workload"](#)).

- f. From the IBM Cloud portal, check if bare metal appears in your device list.
- g. Check if the resource is added to your cluster:

```
$ egosh resource list -l
```

4. Uninstallation

If required, follow these instructions to uninstall this enhancement in your cluster:

Uninstalling on Linux management hosts

- a. Log on to the master host as the cluster administrator and stop the HostFactory service:

```
$ egosh service stop HostFactory
```
- b. On each management host, restore the following files from your backup:

```
$EGO_TOP/3.6/hostfactory/providers/softlayer/lib/SoftlayerTool.jar  
$EGO_TOP/eservice/hostfactory/conf/providers/softlayer/conf/softlayerprov_templates.json
```
- c. Start the HostFactory service:

```
$ egosh service start HostFactory
```

Uninstalling on Windows management hosts

- a. Log on to the master host as the cluster administrator and stop the HostFactory service:

```
$ egosh service stop HostFactory
```
- b. Uninstall the enhancement:
 - To roll back from the Windows Control Panel, go to **Control Panel > Programs and Features > View installed updates**, click Update for Symphony 7.2.0.2 (build "477380") and click **Uninstall**.
 - To roll back from the IBM Spectrum Symphony command prompt, enter the following command:

```
C:\> msiexec /uninstall {3401FC09-FAF0-45CA-B0A5-800DF2981D02}  
/package {90B5C3E7-18A8-473C-929B-F9101A58E256} /norestart /quiet  
/l*v sym_rollbackcore.log
```

The command syntax is as follows:

```
> msiexec /uninstall <interim_fix_code> /package <product_code>  
/norestart /quiet /l*v <rollback_log>
```

where:

 - *<interim_fix_code>* is the identifier of the .msp package for this enhancement.
 - *<product_code>* is the identifier of the .msi file in the product installation package.
 - *<rollback_log>* is the name of the log file to capture details of the rollback.
- c. On each management host, restore the following files from your backup:

```
%Installation_top%\3.6\hostfactory\providers\softlayer\lib\SoftlayerTool.jar  
%Installation_top%\eservice\hostfactory\conf\providers\softlayer\conf\softlayerprov_templates.json
```

d. Start the HostFactory service:

```
$ egosh service start HostFactory
```

5. Copyright and trademark information

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