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# A Closer Look at the New HMC v9

April 2018 | by [Jaqui Lynch](#)

Previous articles have focused on HMC v8 upgrades that still maintain access to classic mode which meant staying at v8.8.6. Last week I got my hands on one of the new 7063-cr1 HMCs and worked on my first v910 upgrade. The 7063-cr1 is the new POWER based HMC that runs v887 or v910 of the HMC software. V9 is required to support POWER9 so, although the HMC came with v887 installed, I decided to upgrade it to v910.

## HMC v9 Notes

When planning on upgrading to v910 there are a few important things to take note of. At v887 and higher the code splits into either x86 or ppc (power). This means the download directories also change slightly. The minimum HMC that can support the x86 code is a 7042-CR7 or 7042-OE1. The only POWER HMC is the 7063-cr1. After attending a session on the HMC it became apparent that the x86 code is most likely going away in 2019 so I decided to go with the new POWER based HMC, even though it meant giving up classic mode.

Another point to note is that HMC v9 only supports POWER7 and higher servers. It doesn't support POWER6 or POWER5. If you still have POWER6 or POWER5 servers then you could keep them on one of the older HMCs or this might be a good time to consider upgrading those servers or bringing in a new POWER based HMC for the more current servers.

IBM recommends that any VIO servers be upgraded to 2.2.6.21 prior to the HMC update, although earlier versions are supported. Additionally, any AIX, Linux or VIO server LPARs must be running RSCT (Reliable Scalable Cluster Technology) version 3.2.0.0 or later. AIX 6.1 tl9 sp5 and AIX 7.1 tl3 sp5 both provide RSCT 3.2.0.6.

## HMC v9 Features

The primary functionality provided by v9 of the HMC code is support for POWER9 processors. Significant enhancements have been made to system plans, remote restart/simplified remote restart operations and maintenance for user resource roles. The DHCP configuration has been updated to allow users to configure a custom IP address range. Support has also been added to SR-IOV for specifying the maximum capacity setting and to allow you to enable or disable an SR-IOV logical port when necessary. Device support was also added for some additional network adapters. More details on additional functionality can be found in the HMC v9 announcement and readme files.

The new POWER HMC is fast—with 6 POWER cores and 32GB of memory, it's noticeably faster than the previous HMCs. Although the enhanced GUI takes some getting used to there are now great resources available including a cheat guide and IBMer Nigel Griffith's video series.

[<https://www.youtube.com/watch?v=BLUIKnrYQ6c>]

## Installing and Upgrading the 7063-cr1

In order to upgrade to HMC v90 the HMC needs to be at a minimum of HMC v886 SP1 or v887 with either MH01706 (v886) or MH01707 (v887) applied. If you are at lower levels, then you will need to upgrade to these minimums prior to upgrading your HMC to v910.

I also noted that the ports at the back are not well labeled so I have provided a link that shows that eth0 is the bottom left port and eth1 is the bottom right. This is important when connecting to the private and public networks.

The POWER based HMC came installed at v887 MH01707 so the upgrade to v910 was fairly simple. As of this writing, v910 has one patch MH01736 so the upgrade process is a two-step process. The first step is to upgrade to the v910 base (MH01735) and then to install the patch. Each upgrade requires a reboot that takes about 20 minutes. The upgrades take about 30 minutes. The backups to USB take between 30 and 45 minutes. If you're using redundant HMCs, both will need to be updated the same day to avoid issues.

The upgrade process is:

Check your current level

Backup the server profiles

Get an HMC Scanner report and fully document your HMC including networking, userids, groups, etc.

Backup the HMC

```

Clear out old upgrades and traces to ensure enough space
Upgrade to v910 MH01735
Reboot the HMC
Upgrade to MH01736
Reboot the HMC
Backup the HMC

```

## Preparation

Since this was a new POWER based HMC I didn't have to check whether the hardware supported v910. However, if you're upgrading a current HMC, you need to check that it's at least a CR7. You also need to check that no POWER6 or earlier servers are connected to the HMCs being upgraded.

To determine the level you are currently running, use the `lshmc -V` command. SSH to the HMC:

```

lshmc -V
"version= Version: 8
  Release: 8.7.0
  Service Pack: 0
HMC Build level 1709051347
MH01707 - Required fix for HMC V8R8.7.0 (Base) [ppc64le]
", "base_version=V8R8.7.0
"

```

The above system is at 8.8.7.0 SP0 with MH01707 applied.

Make sure to read the description file for the upgrade which you will find at Fix Central. This is where you will find the list of any prerequisites and warnings for the upgrade.

Lastly, verify the server firmware compatibility with the HMC level using the online compatibility list. This is a critical step and helps ensure that you don't upgrade to a level of the HMC that is not supported for the firmware your servers are currently running.

## Backups Prior to Upgrading

Step one is to back up the system profiles to disk and then the HMC to a USB stick.

System Profiles

```

lssyscfg -r sys - gets managed system names
  bkprofdata -m systemname -f backup1-apr2318

```

This backs up the system profile data to a file called backup1-apr2318 to the `/var/hsc/profiles` directory on the HMC. It will create a subdirectory for each managed system you decide to backup. You should backup each managed system.

The next step is to save upgrade data to disk

```
saveupgdata -r disk
```

And then finally you can backup to the USB stick. Remember to format the USB stick prior to backup. It should be formatted as FAT32.

```
bkconsdata -r usb
```

Now, check that you have enough memory and disk space for the upgrade. The pre-upgrade checks are detailed in my [previous article](#) on upgrading to 8.8.6.0 sp2.

## Updating to 9.1.0

The upgrade to 9.1.0 is a major upgrade and we use the `getupgfiles` command to download the upgrade files. In order to do this, we open two SSH sessions to the HMC. On one I would be running the following script to monitor the upgrade:

```
while true ; do
```

```
date
ls -la /hmcdump
ls -la /hmcboot
sleep 60
done
```

The above monitors the /hmcdump filesystem where the files get downloaded to. It also monitors /hmcboot which is where the files get moved to after they are downloaded.

On the second session you perform the download:

```
getupgfiles -h public.dhe.ibm.com -u anonymous --passwd anonymous -d /software/server/hmc/network/v910/ppc
```

Note the directory change above. If you're using an x86 HMC, then change ppc to x86.

Typically, you'll see base.img, disk1.img, hmcnetworkfiles.sum, img2a and img3a being downloaded. The above downloads the actual upgrade files.

Once the software is downloaded the download session will return to the prompt and you will no longer see the files in /hmcdump and /hmcboot. You can now exit the monitoring script with ctrl-c and logoff that session. Then tell the HMC to perform the upgrade by issuing the following two commands:

```
chhmc -c altdiskboot -s enable --mode upgrade
```

The above tells it to set up to upgrade on boot

```
hmcshutdown -r -t now
```

Once the reboot is done SSH in and check that the level has been updated.

```
lshmc -V
"version= Version: 9
  Release: 1
  Service Pack: 910
HMC Build level 1803052221
", "base_version=V9R1
"
```

After this we now apply the patch MH01736

```
updhmc -t ftp -h public.dhe.ibm.com -u anonymous -passwd youreemail -f /software/server/hmc/fixes/MH01736_ppc.iso
```

Note the filename has either ppc or x86 in it and that you now have to specify a password in the command. For some reason, it failed without prompting when I left the password off.

You will get a message once it is downloaded saying the service was applied and reminding you to reboot.

The HMC is now at the latest level of v910.

```
lshmc -V should now show:
```

```
"version= Version: 9
  Release: 1
  Service Pack: 910
HMC Build level 1803291143
MH01736 - Required fix for HMC V9R1 M910 (Base) [ppc64le]
", "base_version=V9R1
```

At this point I recommend taking another backup to the USB stick. Run the saveupgdata and bkconsdata again to a new USB stick.

## Summary

I have been one of those resisting moving to enhanced mode of the HMC as I find classic mode so much more intuitive. Installing HMC v910 forced me into enhanced mode and I am finding the videos and cheat sheets to be very useful in figuring out how to do things. The actual upgrade was very easy and the new HMC performs really well. We actually had a second HMC and we upgraded that by using FTP to download the files in advance to an FTP server and upgraded from there. That local FTP was significantly faster than using getupgfiles to the remote server and I highly recommend upgrading that way.

If you're looking to upgrade to v910 of the HMC software then this is the time to consider replacing those older HMCs with the new POWER based HMC. The performance is far superior to the x86 HMCs and this HMC has a better future than the x86 based HMCs.

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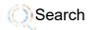
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Fix Central  
<https://www-945.ibm.com/support/fixcentral/>

Entitled Software  
<https://www.ibm.com/servers/eserver/ess/index.wss>

HMC v9 Announcement  
[http://www-01.ibm.com/common/ssi/ShowDoc.wss?docURL=/common/ssi/rep\\_ca/6/897/ENUS218-026/index.html&request\\_locale=en](http://www-01.ibm.com/common/ssi/ShowDoc.wss?docURL=/common/ssi/rep_ca/6/897/ENUS218-026/index.html&request_locale=en)

HMC Enhanced Mode Documentation and Cheat Sheet  
<http://www-01.ibm.com/support/docview.wss?uid=nas8N1022258>  
<http://www-01.ibm.com/support/docview.wss?uid=nas8N1022258&aid=1>

HMC v9 readme  
<https://delivery04.dhe.ibm.com/sar/CMA/HMA/07hbb/2/MH01735.readme.html>

7063-cr1 HMC announcement  
[http://www-01.ibm.com/common/ssi/ShowDoc.wss?docURL=/common/ssi/rep\\_sm/1/877/ENUS7063-h01/index.html&lang=en&request\\_locale=en](http://www-01.ibm.com/common/ssi/ShowDoc.wss?docURL=/common/ssi/rep_sm/1/877/ENUS7063-h01/index.html&lang=en&request_locale=en)

7063-cr1 ports  
[https://www.ibm.com/support/knowledgecenter/en/POWER8/p8hai/p8hai\\_cabling7063.htm](https://www.ibm.com/support/knowledgecenter/en/POWER8/p8hai/p8hai_cabling7063.htm)

Nigel Griffith's Youtube video series on HMC v9  
<https://www.youtube.com/watch?v=BLUIKnYQ6c>

Supported HMC and firmware combinations  
[https://www-945.ibm.com/support/fixcentral/main/transform?xml=https://download.boulder.ibm.com/ibmdl/pub/software/server/firmware/sfw\\_fixSupportedCombos.xml&title=Supported+Combinations](https://www-945.ibm.com/support/fixcentral/main/transform?xml=https://download.boulder.ibm.com/ibmdl/pub/software/server/firmware/sfw_fixSupportedCombos.xml&title=Supported+Combinations)

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