

Transitioning to POWER8

Migration Paths for AIX Systems to POWER8

This paper is intended as a quick-reference guide in transitioning an existing AIX system from prior POWER architectures to a POWER8 system. The focus is on AIX itself, not the application stack.

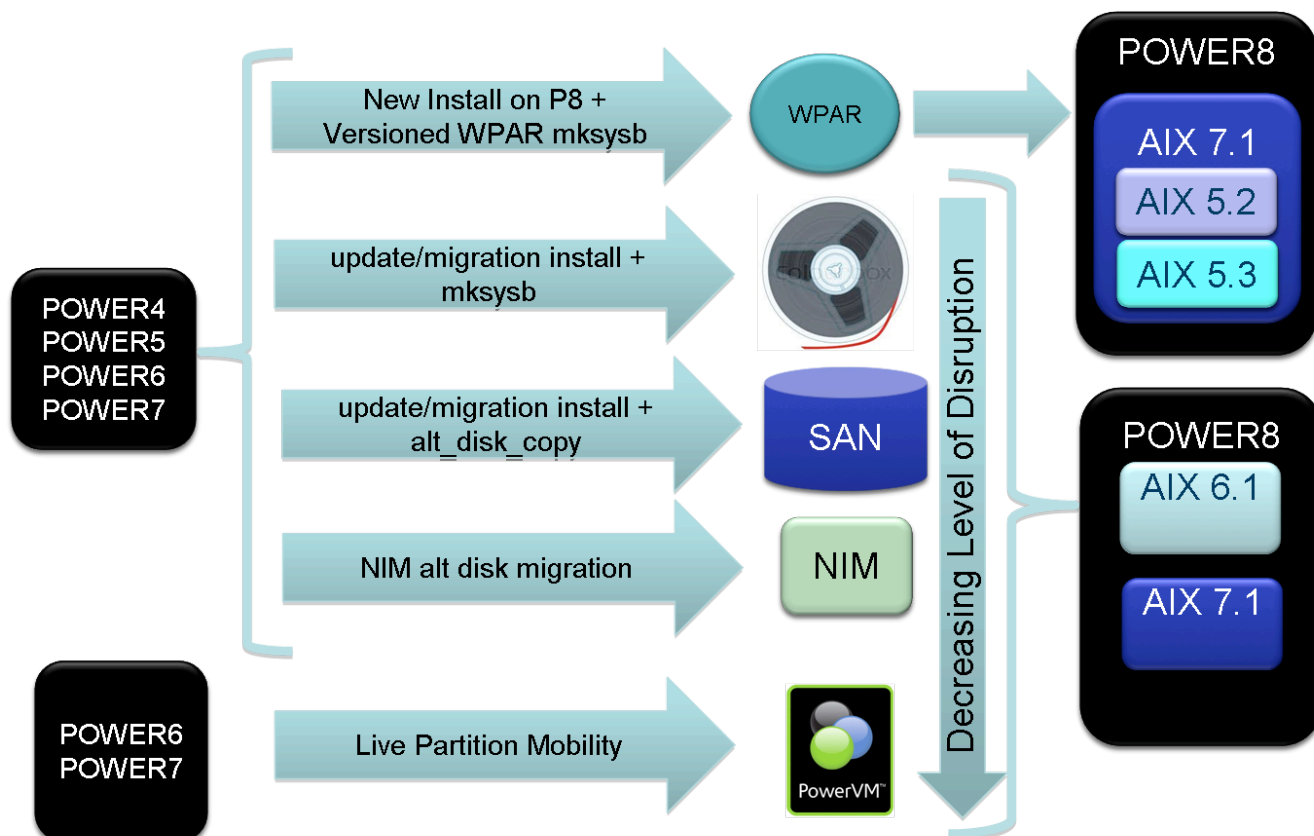
What's my target?

The [System to AIX Maps](#) document will tell you which AIX levels support POWER8, and the [FLRT tool](#) will indicate the current recommended level. To exploit POWER8-specific features, you'll want to move up to at least AIX 7.1 TL3 SP3.

How do I get there?

The current AIX level and POWER processor family can help determine which path to follow. This figure shows all the options, with descriptions following.

AIX Migration to POWER8 Scenarios



Which options are available to me?

For AIX 5.3 and earlier

You'll need to *migrate* to a POWER8-supported level,. The brief article [Upgrading AIX from 5.3 to 7.1](#) can guide the migration. Referring to the figure above, there are fundamentally 3 options in this case:

1. NIM alt disk migration
2. Migrate in-place, then either `mksysb`, `alt_disk_copy`, or Live Partition Mobility (if going from POWER6 or POWER7 system).
3. Create `mksysb` of 5.2 or 5.3 system, install supported 7.1 on POWER8 system, and create AIX 5.2 or 5.3 Versioned WPAR from the `mksysb`.

For AIX 6.1 or 7.1

You have the option of doing an AIX *update* to a supported level instead of a migration, though if on AIX 6.1 you may still choose to migrate to 7.1 to get full POWER8 capabilities. Again referring to the figure above, there are fundamentally 3 options:

1. If at a level that supports POWER8 and if the system is LPM-capable, Live Partition Mobility can be used to move to the POWER8 system.
2. If at a level that supports POWER8, use `mksysb` or `alt_disk_copy` to move to the POWER8 system and AIX update on the POWER8 system only if desired.
3. Update in-place and either `mksysb`, `alt_disk_copy`, or Live Partition Mobility (if going from POWER6 or POWER7 system). Note that if `alt_disk_copy` is chosen, the update can be to the alternate disk rather than in-place.

How do I choose?

There are considerations with each of these methods.

1. **Migration using Versioned WPAR.** See reference on [Versioned WPARs](#).

Use the AIX 5.2 or 5.3 Versioned WPAR product to capture the 5.2 or 5.3 runtime environment via `mksysb` and then create a versioned WPAR on AIX 7.1 on the POWER8 system from the `mksysb`.

Considerations

- Provides an alternative for a software stack that for some reason cannot be moved up to a level of AIX that supports POWER8.
 - 5.2 and 5.3 WPARs are separately purchased products.
 - Mechanism available to later migrate from a 5.2 or 5.3 WPAR to a regular 7.1 WPAR that matches the underlying AIX level if desired. (*Migrated WPAR cannot run native in an LPAR*)
 - Supported levels:
 - AIX 5.2 TL10 SP8 or later
 - AIX 5.3 TL12 SP3 or later
2. **AIX Migration using `mksysb` tool.** See references on [migration](#) and [mksysb](#).

Use the standard AIX `mksysb` tool to capture your AIX system image, then install the image on the POWER8 system. If an AIX operating system migration is required when migrating to POWER8, it is recommended to first perform the OS migration (in-place) rather than using the

mksysb migration capability, then use a standard mksysb capture and install on the POWER8 system.

Considerations

- The level of AIX being migrated to must be supported on POWER8.
- There is an impact to the running system.
- No additional systems are required for the migration.

3. **AIX cloning/ movement to POWER8.** See references on [migration](#) and [alt_disk_copy](#).

Use the `alt_disk_copy` command to clone the running AIX system and then perform TL upgrade to a supported level. If cloning an AIX 5.3 system, you may use the cloned copy to perform any necessary steps to AIX migrate from 5.3 to a supported level of AIX prior to POWER8 migration. If minimal interruption is required, then consider using step 4 (below).

Considerations

- Technique can optionally include an update after copy (if needed).
- There is no impact to the running system.
- If performed using SAN storage, a mapping is required.

4. **Using NIM Alternate Disk Migration.** See reference on [nimadm](#).

Use the `nimadm` tool to migrate an existing AIX system from prior POWER architectures to a new POWER8 architecture. The Network install `alt_disk_install` migration creates a mksysb image of the system, restores it to another disk (physical or virtual) and upgrades 'on the side'.

Considerations

- This technique can be used in an environment where you have an existing AIX 5.3 or AIX 5.2 system running on an old POWER architecture that you would like to move to a new POWER8 system.
- Requires separate NIM master and 2nd disk on the system.
- No downtime for the system being upgraded
 - a reboot is required to complete the process.

5. **Live Partition Mobility (LPM).** See reference for [LPM](#).

Partition Mobility is an option for moving partitions dynamically from POWER6/POWER7 to POWER8 systems, provided that the partitions are LPM-capable. Partition Mobility can be performed on both HMC managed systems as well as on Integrated Virtualization manager (IVM) managed systems. The [FLRT](#) tool can be used to validate the source and target systems for LPM.

Two types of migration are available depending on the state of the logical partition:

- The migration is active if the mobile partition is in running state.
- The migration is inactive if the mobile partition is shutdown.

Considerations

- Power6 or Power7 system is required
- LPARs must be LPM capable

Additional References

- [AIX Version 7.1 Installation and Migration](#) (Knowledge Center)
- [Migrating to AIX 7.1 with nimadm](#) (developerWorks)
- [When nimadm Alone Won't Do, mkysyb Can Help](#) (IBM Systems Magazine)
- [AIX 5.3 within a Versioned WPAR – Just give it a go, it's easy!](#) (developerWorks)
- [AIX 4.3 to 5L Migration Guide](#) (IBM Redbook)
- [POWER7 Virtualization Best Practice Guide](#) (developerWorks)
- [AIX higher availability using SAN services](#) (developerWorks)