Solaris 10 X86/64 conversion to VMware - Howto
Posted by robhall - 2012/04/17 13:11

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I recently had to migrate several Solaris 10 X86/64 systems from Xen Server to VMware.
This same procedure should work for doing either a P2V or V2V.

Unlike Windows or Linux, which have a greater level of support for migrating, I struggled to get
a successful procedure that worked consistently.

After much research I then decided upon this following method, and have found it to be very reliable
and successful.

Obtain a version of "Coldclone" from VMware, it is a bootable ISO image that will do the heavy lifting
when it comes to migrating the source system.

After Coldclone converted, I found I had to do a LOT of manual steps to get the Solaris 10 X86/64
environment
to successfully recognize it's new environment and run cleanly. The majority of this document
details the steps I found necessary in order to properly get the Solaris 10 systems to run correctly under
VMware.

I did search the web, and found several entries that were Extremely helpful, but incomplete.

Get the "coldclone.iso" which is aptly named: VMware vCenter Converter BootCD. I found it in
a zip file named "VMware-convertercd-4.1.1-206170.zip" which is a individual item/part of
"VMware vCenter Server 4 Update 2"

At the time of this writing, it was located in
https://my.vmware.com/web/vmware/details/vc40u2/ZHcqYmRoZXRiZHR3ZA==

This was a chore all in it's own, but well worth the quest to find. Now that you hopefully have
the image, you need to burn a copy, or use the iso as a file in the hypervisor to be able to boot
the Solaris system with it.

Get started:

1. Gracefully shutdown Solaris 10 on the system you are sourcing the conversion to VMware.
Plan on it being down for a while. Size of the original system will determine how long it will take.

2. Boot the system from the ISO/CD/DVD that has the "coldclone" package on it.

3. start the networking and make sure you have a network path to the VMware
server that will host the new guest Solaris image.

4. Start a new task to import, select the drives you want copied over
most likely all of them. There may be an error message that pops up,
about not finding the source system, that is okay. Make sure it finds the drive(s)
after clicking Ok.

5. Answer the rest of the task's questions, remember you'll need the credentials

of the VMware host server to be able to add it to the guests on that system.
I chose not to have the machine boot automatically. There are some pre-start steps to be taken.

6. Start the task and wait for the conversion to take place.

7. Once 100% complete with the conversion, log on to the VMware server with the Vi-Client and notice the new machine name you just created from the cold clone process.

8. Edit the virtual machine properties, and go to the options tab on the top of the panel.
Choose "other" and then sub-select Oracle Solaris 10 - 64 or 32 bit depending on source system's installation type.   The Solaris boot up banner will tell you if it's 64 or 32 bit. This is critical
to get right.

9. Under Hardware properties: If you selected 64 bit Solaris, change the Bus Logic SCSI controller to be LSI Parallel,
Bus Logic is not supported in 64 bit mode.

10. Adjust your network adapters as appropriate for the networks the system is
attached to. By default, ours came up inside Solaris as a type of "pcn". If delete them,
we had the option to add them as "e1000". Depends on what hardware you actually have
and what VMware offers. You need to adjust accordingly inside Solaris to address
the right hardware.

Now the hard work starts and the following steps are crucial to have a properly booted and
running system.

11. Start the guest and select to boot to failsafe mode.

It will start up, and give you a message similar to the following:

Solaris 10 * X86 was found on /dev/dsk/cXtXdXsX
Do you wish to have it mounted read-write on /a?

Choose "y" for yes.

Take note of where the system identified "/a" as being mounted on, this is important information for later.

Once you get a command prompt, I like to do the following to help with getting
the system usable for editing.

```
# stty rows 24 cols 80
# exec /bin/ksh -o emacs    ## optional choice - handles backspace well. personal preference
# TERM=ansi                 # Acceptable emulation for console in vmware. Not perfect.
# export TERM               # So "vi" editor can see the variable.
```


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# cd /a/etc
# cp path_to_inst path_to_inst.save
# cp /etc/path_to_inst path_to_inst  # Roughly an empty file, it gets rebuilt later from scratch.
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cd /a/boot/solaris
cp bootenv.rc bootenv.rc.save

Using the value noted on where "/a" is mounted do:

ls -l /dev/dsk/cXtXdXsX | cut -c89-

This should yield a value similar to /pci@0,0/pci15ad,1976@10/sd@0,0:a

Next Store the string on the bottom of the bootenv.rc file so we can have it handy to use inside the vi editor.

ls -l /dev/dsk/cXtXdXsX | cut -c89- >> bootenv.rc # Remember append mode with '>>'

This will put the text you need at the bottom of the file. Use 'vi' to edit the /a/boot/solaris/bootenv.rc file and
fix the "setprop bootpath '{your value goes here}' line.   Goal here is to remove the old device path, and put in the current correct one.

Save the file and you may want to do a diff on the two files just to ensure only that one line has changed.

This is most critical to be able to boot the system with the appropriate kernel.

Next you'll need to fix the vfstab file to reflect current and correct cXtXdXsX devices. The individual slices
should be the same as before.   Please keep in mind, that once Solaris knows of a controller, it doesn't want
to let go of it. This may result in your controller being labeled as "c1" now instead of "c0". Remember we changed
it in the properties field of VMware earlier.

Also, depending on system was first built, you may have to introduce a target component to each device name.

Every line in vfstab that references /dev/dsk and /dev/rdsk (usually two places each line) will need to be modified
to reference the correct device name in the new operating environment.

"c0d0s0" will most likely be "c1t0d0s0" now. Please note the two core changes in the previous names. It most likely
will be "c1" and need a target component, most likely "t0".

Solaris doesn't give up known contollers very well, it increments the controller number. Part of the persistent
binding built into the system. Be careful here, if it's not right, you'll need to reboot the system to failsafe mode
to fix it.   Sorry for the complexity here, no easy way to state it otherwise.

Save off the file, and again do a "diff" command on it to verify the changes you made.

Next fix up the networking files:

Rename your /a/etc/hostname.* files to reflect the proper network device. PCN* was on the device type on our systems.
cd /a/etc/
mv hostname.rstl0 hostname.pcn0 # Your device types may vary - but do for all interfaces connected to your system.

Next, clean up old entries so they can be regenerated properly:

rm /a/etc/devices/*

rm /a/dev/rdsk/c*

rm /a/dev/dsk/c*

rm /a/dev/cfg/c*

The next two lines will regenerate the entries we previously generated and update the boot archive appropriately.

devfsadm -v -r /a

reboot /w -arvs

If everything went well, the system should come up cleanly and you should be back in business. Verify your network assignments
to make sure everything is connected properly, and you should be in a good workable state.

Hope this help! - RSH

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Re:Solaris 10 X86/64 conversion to VMware - Howto
Posted by xti55 - 2012/05/15 10:49

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Thank you for the excellent post and detailed instructions. You saved me many hours of frustration. The only difference I saw was that my vfstab didn't have the /dev/dsk or /dev/rdsk references. I had to reboot once and let it run fsck before that file was updated. But once it was, I made all the modifications to the controller name and everything came up fine on the next reboot.

Once again, thanks for the great post.

Matt

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Re:Solaris 10 X86/64 conversion to VMware - Howto
Posted by robhall - 2012/05/15 15:31

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You're very welcome! I'm glad it helped out....

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Re:Solaris 10 X86/64 conversion to VMware - Howto
Posted by liam - 2013/04/04 13:37

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Hi,

This is an old post I know, but I was wondering if anyone has done this with vCenter 5.0? And if so,
where is the converter boot iso? Will the 4.1 converter work on a physical host if vCenter is 5.0?

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Re:Solaris 10 X86/64 conversion to VMware - Howto
Posted by robhall - 2013/04/04 16:15

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I can't think of any reason why it would not work just fine. If you can get past the initial connection
cleanly, and it can attach
to vCenter - it should start pushing the virtual image just fine.

I have not tried this, but would believe it should work just fine.

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