Sun Cluster 2.2 7/00 Data Services Update: Tivoli 3.6

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CHAPTER 1

Sun Cluster 2.2 7/00 Data Services Update: Tivoli 3.6

Tivoli 3.6 is now supported with HA-Tivoli and Sun Cluster 2.2, in the Solaris 2.6 operating environment. Tivoli 3.6 is not supported with Solaris 7.

This document describes the administrative procedures associated with Tivoli 3.6 in the Sun Cluster 2.2 environment.

Administration of HA-Tivoli With Tivoli 3.6

The Sun Cluster HA for Tivoli (HA-Tivoli) product consists of a Tivoli Management Environment (TME) server, Tivoli managed nodes, Tivoli probe, and other components that become highly available when run in the Sun Cluster environment. HA-Tivoli is used to start the Tivoli managed nodes and the Tivoli probe, after the Tivoli data service has been registered and configured.

You can place Tivoli components inside or outside the Sun cluster; any components you place inside the cluster will be protected by failover. For example, if a Tivoli object dispatcher configured in the cluster fails, it will be restarted automatically or will fail over to another host.

For those Tivoli servers and managed nodes that you place inside the cluster, you must place each one on a separate logical host.

Installing the Tivoli Server and Managed Nodes

After you have installed and configured the Sun Cluster product, install the Tivoli server and managed nodes. You can use either the Tivoli desktop utility or shell commands to install the Tivoli product. See your Tivoli documentation for detailed Tivoli installation procedures.

Note – The Tivoli probe derives the name of the logical host (on which will run the TME server or managed node) from the name of the Tivoli database, by checking an environment variable. If the Tivoli database is not named after the logical host, the probe fails to detect that the Tivoli server or managed node is running correctly, and will invoke a failover of the logical host. Therefore, make sure the name of the Tivoli database and logical host are the same.

Note – Install all Tivoli binaries onto the shared (multihost) disk, for ease of administration and future updates.

How to Install the Tivoli Server and Managed Nodes

Before starting this procedure, you should have already installed and configured Sun Cluster and set up file systems and logical hosts.

1. **Start Sun Cluster and make sure the logical host is mastered by the physical host on which you will install Tivoli.**

   Throughout this procedure, the physical hosts are phys-hahost1 and phys-hahost2, and the logical hosts are hahost1 and hahost2.

   ```
   phys-hahost1# haswitch phys-hahost1 hahost1
   ```

2. **From the installation directory, run the Tivoli preinstallation script `wpreinst.sh`.**

   The `wpreinst.sh` script is located on the Tivoli media. The script creates links from the current directory to the Tivoli media.

3. **Install the Tivoli server and specify directory locations on the logical host for Tivoli components.**

   Install the Tivoli server on the multihost disk associated with the logical host.

Note – You can use the Tivoli GUI or Tivoli commands to install the Tivoli server and managed nodes. If you use the Tivoli command line, you must set the environment variable: `DOGUI=no`. If you use the GUI, do NOT select the "start at boot time" option.

The following example specifies directory locations on the logical host for the TME binaries and libraries, TME server database, man pages, message catalogs, and X11 resource files.

```
phys-hahost1# ./wserver -c cdrom_path -a $WLOCALHOST -p \
/hahost1/d1/Tivoli! BIN=/hahost1/d1/Tivoli/bin! \
LIB=/hahost1/d1/Tivoli/lib! ALIDB=/hahost1/d1/Tivoli! \
MAN=/hahost1/d1/Tivoli/man! \
APPD=/hahost1/d1/Tivoli/X11/app-defaults! \
CAT=/hahost1/d1/Tivoli/msg_cat! CreatePaths=1
```

4. **Install Tivoli patches.**

   See your Tivoli documentation or service provider for applicable patches, and install them using instructions in your Tivoli documentation.

5. **Rename the Tivoli environment directory and copy the directory to all other possible masters of the logical host.**

   Rename the Tivoli environment directory to prevent it from being overwritten by another installation. Then copy the directory to all other possible masters of the logical host on which the Tivoli server is installed.

```
phys-hahost1# mv /etc/Tivoli /etc/Tivoli.hahost1
phys-hahost1# tar cvf /tmp/tiv.tar /etc/Tivoli.hahost1
phys-hahost1# rcp /tmp/tiv.tar phys-hahost2:/tmp
phys-hahost2# tar xvf /tmp/tiv.tar
```

6. **Set up paths and stop and restart the Tivoli daemon.**

   Use the `setup_env.sh` script to set up paths. The default port number is 94.

```
phys-hahost1# . /etc/Tivoli.hahost1/setup_env.sh
phys-hahost1# odadmin shutdown
phys-hahost1# oserv -p port_number -k $DBDIR
```

7. **Switch over the other logical host to the second physical host.**

   The Tivoli 3.6 oserv does not listen to requests on a specific configured IP address, but instead listens to any IP address (`INADDR_ANY`) configured on the system. The default port of the Tivoli server and managed node oserv is the same (94). Therefore, when the Tivoli server is already running, the managed node oserv process cannot come up. To prevent this problem, make sure the two logical hosts are mastered by different physical hosts.

```
phys-hahost1# haswitch phys-hahost2 hahost2
...
phys-hahost1# haget -f master -h hahost1
phys-hahost1
...
phys-hahost1# haget -f master -h hahost2
phys-hahost2
```

8. **(Optional) Install the Tivoli managed node instance on the second logical host.**

   For example:

```
phys-hahost1# wclient -c cdrom_path -I -p hahost1-region \
BIN=/hahost2/d1/Tivoli/bin! LIB=/hahost2/d1/Tivoli/lib! \
DB=/hahost2/d1/Tivoli! MAN=/hahost2/d1/Tivoli/man! \
APPD=/hahost2/d1/Tivoli/X11/app-defaults! \
CAT=/hahost2/d1/Tivoli/msg_cat! CreatePaths=1 hahost2
```

9. **Configure the managed node server to use the IP address of the logical host instead of the physical host for listening to requests.**

```
phys-hahost1# odadmin odlist
```

   Verify that the host of the managed node is the logical host. If not, use the following commands, in which "odadmin" is the Tivoli server's odadmin, to associate the logical host with the managed node object dispatcher and to disassociate the physical host. Determine the *dispatcher_id* from the `Disp` field in output from the command `odadmin odlist`.

```
phys-hahost1# odadmin odlist add_ip_alias dispatcher_id logical_hostname
phys-hahost1# odadmin odlist delete_ip_alias dispatcher_id \
physical_hostname
```

10. **Configure the Tivoli server and managed node to listen to requests on a specific IP address.**

    Use the following command, in which "odadmin" is the Tivoli server's odadmin. Both the Tivoli oserv and the managed node oserv must be running before you use this command.

```
phys-hahost1# odadmin set_force_bind TRUE all
```

11. **(Optional) Rename the Tivoli environment directory and copy the directory to all other possible masters.**

    Rename the Tivoli environment directory to prevent it from being overwritten by another installation. Then copy the directory to all other possible masters of the logical host on which the Tivoli server is installed.

```
phys-hahost2# mv /etc/Tivoli /etc/Tivoli.hahost2
phys-hahost2# tar cvf /tmp/tiv.tar /etc/Tivoli.hahost2
phys-hahost2# rcp /tmp/tiv.tar phys-hahost1:/tmp
phys-hahost1# tar xvf /tmp/tiv.tar
```

12. **Modify the `/etc/services` file.**

    Add the following entry to the `/etc/services` file on each physical host that is a possible master of a Tivoli instance. The default port number for Tivoli is 94.

```
objcall     port_number/tcp
```

13. **Verify the Tivoli installation.**

    Before configuring Sun Cluster HA for Tivoli, verify correct installation of the Tivoli server, Tivoli managed node instance, and Tivoli managed nodes used for probing.

```
phys-hahost1# . /etc/Tivoli.hahost1/setup_env.sh
phys-hahost1# odadmin odlist
phys-hahost1# wping hahost1
phys-hahost1# wping hahost2
```

Note – Execute the `setup_env.sh` file from only the first logical host. If you execute the `setup_env.sh` file from the second logical host, the `odadmin` and `wping` commands will fail.

---

14. **Create an administrative user and set permissions correctly on the Tivoli server.**

    Use the Tivoli user interface to create an administrator with user ID `root` and group ID `root`, and give it `user`, `admin`, `senior`, and `super` authorization. This will enable probing by running the `wping` command.

15. **Stop the Tivoli servers or server daemons.**

    The daemons will be restarted automatically by Sun Cluster when you start the cluster, or when the logical host is switched between masters. The first invocation of `odadmin` shuts down the Tivoli server. The second invocation shuts down the managed node.

```
phys-hahost1# odadmin shutdown
phys-hahost1# . /etc/Tivoli.hahost2/setup_env.sh
phys-hahost1# odadmin shutdown
```

Proceed to "Installing and Configuring Sun Cluster HA for Tivoli" on page 6" to register and install the Sun Cluster HA for Tivoli data service.

Installing and Configuring Sun Cluster HA for Tivoli

This section describes the steps to install, configure, register, and start Sun Cluster HA for Tivoli. You must install and set up Sun Cluster and the Tivoli product before configuring Sun Cluster HA for Tivoli.

You will configure Sun Cluster HA for Tivoli by using the `hadsconfig(1M)` command. See the `hadsconfig(1M)` man page for details.

How to Install and Configure Sun Cluster HA for Tivoli

1. **On each Sun Cluster server, install the Tivoli package, `SUNWsctiv`, in the default location, if it is not installed already.**

   If the Tivoli package is not installed already, use the `scinstall(1M)` command to install it on each Sun Cluster server that is a potential master of the logical host on which Tivoli is installed.

2. **Run the `hadsconfig(1M)` command on one node to configure Sun Cluster HA for Tivoli for both the server and managed node.**

   Use the `hadsconfig(1M)` command to create, edit, and delete instances of the Sun Cluster HA for Tivoli data service for both the server and managed node. Refer to "Configuration Parameters for Sun Cluster HA for Tivoli" on page 7 for information on input to supply to `hadsconfig(1M)`. Run the command on one node only.

```
phys-hahost1# hadsconfig
```

Note – Only the Tivoli server and Tivoli managed node should be configured as instances under the control of Sun Cluster. The Tivoli managed nodes used for probing need not be controlled by Sun Cluster.

---

3. **Register the Sun Cluster HA for Tivoli data service by running the `hareg(1M)` command.**

   Run the command on only one node.

```
phys-hahost1# hareg -s -r tivoli
```

4. **Use the `hareg(1M)` command to enable Sun Cluster HA for Tivoli and perform a cluster reconfiguration.**

   Run the command on only one node.

```
phys-hahost1# hareg -y tivoli
```

   The configuration is complete.

Configuration Parameters for Sun Cluster HA for Tivoli

This section describes the information you supply to the `hadsconfig(1M)` command to create configuration files for Sun Cluster HA for Tivoli. The `hadsconfig(1M)` command uses templates to create these configuration files. The templates contain some default, some hard coded, and some unspecified parameters. You must provide values for those parameters that are unspecified.

The fault probe parameters, in particular, can affect the performance of Sun Cluster HA for Tivoli. Tuning the probe interval value too low (increasing the frequency of fault probes) might encumber system performance, and also might result in false takeovers or attempted restarts when the system is simply slow.

Configure Sun Cluster HA for Tivoli by supplying the `hadsconfig(1M)` command with parameters listed in the following table.

Parameter	Description
Name of the instance	Nametag used as an identifier for the instance. The log messages generated by Sun Cluster HA for Tivoli refer to this nametag. The `hadsconfig(1M)` command prefixes the package name to the value you supply here. For example, if you specify "`tivoli`," the `hadsconfig(1M)` command produces "`SUNWsctiv_tivoli`."
Logical host	Name of the logical host that provides service for this instance of Sun Cluster HA for Tivoli.
Port number	Unique port for Sun Cluster HA for Tivoli. The default port number is 94.
Configuration directory	The directory of the database, that is, the full path of the `$DBDIR`. For example, `/hahost1/d1/Tivoli/<database>.db`
Local probe flag	Specifies whether the local probe is started automatically at cluster reconfiguration or when the Tivoli service is activated. Possible values are `y` or `n`.
Probe interval	Time in seconds between successive fault probes. The default is 60 seconds.
Probe timeout	Time out value in seconds for the probe. If the probe has not completed within this amount of time, Sun Cluster HA for Tivoli considers it to have failed. The default is 60 seconds.
Takeover flag	Specifies whether a failure of this instance will cause a takeover or failover of the logical host associated with the Tivoli instance. Possible values are `y` or `n`.
`TIV_OSERV_TYPE`	This is the `TME` type. Possible values are server or client.
`TIV_BIN`	The path to the TME binaries specified during installation of the instance. This is equivalent to `$BINDIR` without the "Solaris2" suffix. For example, `/hahost1/d1/Tivoli/bin`
`TIV_LIB`	The path to the TME libraries specified during installation of the instance. For example, `/hahost1/di/Tivoli/lib`. This is equivalent to `$LIBDIR` without the "Solaris2" suffix.