

StorageWorks Command Console Agent in a TruCluster Environment

COMPAQ
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Application Note
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Introduction

The following is an example of how to set up the SWCC Agent on Tru64 UNIX V4.0F running TruCluster V1.6. It is meant to act as a guide for setting up the Agent for High Availability. The StorageWorks Command Console (SWCC) Agent can be set up many different ways and this needs to be taken into consideration when reviewing this application note.

1. Important Considerations

- What is the hardware configuration?
- Are the correct software/firmware versions installed?
- Does the SWCC Agent need to have failover capability?
- Is it desirable to have the Agent running on multiple nodes concurrently?

Hardware Considerations

What model StorageWorks RAID arrays make up the system? Are they all HSG80s or is there a mix of StorageWorks models?

Software Versions

Are the software versions correct? This application note deals with Tru64 UNIX V4.0F with TruCluster V1.6 software. Insure that the HS* controllers are running the latest firmware. For more information go to www.compaq.com/support and follow the links to open vendor storage.

Failover Capability

Does the Agent need to have High Availability? The best way to accomplish this is by creating an ASE service to accomplish a failover, if one is required.

Agent Running on Multiple Nodes Concurrently

Is it desirable to have the Agent running on multiple nodes concurrently? If the user is running HSG80s with ACS firmware V8.5 or higher EXCLUSIVELY, it is possible to run more than one agent concurrently in a cluster. This is due to a new locking feature built into the V2.2 Agent and the ACS V8.5 firmware.

2. Running the SWCC Agent on a cluster.

- Agent Installation in a Cluster environment

Agent Installation in a cluster environment consists of installing the Agent on all nodes that make up the cluster. If the cluster contains four nodes, install the SWCC Agent on each of the four nodes.

Important Note:

When installing the SWCC Agent in a cluster environment make sure that all RAID arrays have the same name on all nodes where the kit is installed. This will avoid problems with multiple Clients not being able to find certain arrays because they are named differently on different nodes.

Insure that the Agent runs on only one node in the cluster. The exception to this, as previously stated, is where the cluster environment contains HSG80s and NOT a mix of HSGs and HSZs. To run the Agent on one member of a multi-node cluster, do the following.

- Run the “swcc_config” utility. Type in /usr/opt/SWCC220/scripts/swcc_config on each node where the SWCC Agent is installed. Do not run the utility on the one node that you want to run the Agent. Select Option 7 and answer “yes” to the question: “Do you want to kill and disable the agent NOW?”
- Quit the swcc_config utility.

Please realize that, in general, the procedure above is run for each node that you do NOT want running the Agent.

3. Running the SWCC Agent under ASE Services.

- Short ASE Service overview
- Creating Start/Stop scripts
- Creating the ASE Service by running “asemgr” utility
- Checking for proper behavior

In a TruCluster environment, use ASE Services to monitor the state of an application. ASE Services can be used to automatically failover an application in the event that the node running the application fails. Create this “Service” by running the “asemgr” utility and answering the appropriate questions.

There are two major steps to creating an ASE Service. The two steps are:

- 1) create the “start”/”stop” scripts; and
- 2) create the service.

You can accomplish both the steps by running the “asemgr” and creating the start/stop scripts inline. However, it is probably more practical to create the start/stop scripts first and then run the asemgr to finish creating the service.

NOTE: When the ASE Director is started (for example during boot up) ASE Services run the STOP scripts for all defined services by default. It then runs the Start scripts for all defined services. When writing Start/Stop scripts, one thing that should be apparent is scripts that toggle a program’s run state will exhibit strange behavior.

To create Start/Stop scripts outside of the “asemgr” utility use your favorite editor. The start script should do what is necessary to start the program. The example illustrated below is included in the Solutions CD. It can be found in /usr/opt/SWCC220/scripts after the Agent is installed.

/usr/opt/SWCC220/scripts/steamstart

```
#!/bin/sh
#
# Simple start script for steamd.
#
PATH=./etc:/bin:/usr/bin:/usr/ucb:/sbin
export PATH

SD="/usr/opt/SWCC220/bin/steamd"

grep -qsw steam /etc/inittab
if [ $? -ne 0 ]
then
    echo "steam:3:respawn:$SD sF" >> /etc/inittab
    init q
else
    exit 0
fi
```

In the above example, the script checks for the existence of the key word “steam” in the /etc/inittab file. If not found the steam start line is added. The init daemon is then sent the “q” option that tells it to reload the inittab file and make any changes to the daemons operation.

Below is the example of the “Stop” script which is also located in the /usr/opt/SWCC220/scripts directory. Once again the keyword “steam” is searched for and if found the stream editor “sed” is invoked to remove it. The init daemon is then sent the “q” option to reload the inittab file. Since the “steam” line has been removed, initd will kill the steamd program.

/usr/opt/SWCC220/scripts/steamstop

```
#!/bin/sh
#
# Simple stop script for steamd.
```

```
#
PATH=./etc:/bin:/usr/bin:/usr/ucb:/sbin
export PATH

SD="/usr/opt/SWCC220/bin/steamd"

grep -qsw steam /etc/inittab
if [ $? -eq 0 ]
then
    sed '/steamd/d' /etc/inittab > /etc/inittab.tmp
    mv /etc/inittab.tmp /etc/inittab
    init q
else
    exit 0
fi
```

With the Start/Stop scripts created and tested, complete the process by using the “asemgr” utility to create the service. Below is a sample session with comments italicized.

```
tincp4>asemgr

      TruCluster Production Server (ASE)

      ASE Main Menu

a)  Managing the ASE          -->
m)  Managing ASE Services    -->
s)  Obtaining ASE Status     -->

x)  Exit                      ?)  Help

Enter your choice: m
/ Select “m” to create a new service. /

      Managing ASE Services

c)  Service Configuration    -->
r)  Relocate a service
on) Set a service on line
off) Set a service off line
res) Restart a service
s)  Display the status of a service
a)  Advanced Utilities       -->

q)  Quit (back to the Main Menu)
x)  Exit                      ?)  Help

Enter your choice [q]: c
/ Select “c” for a new service. /

      Service Configuration

a)  Add a new service
m)  Modify a service
o)  Modify a service without interrupting its
availability
d)  Delete a service
s)  Display the status of a service
c)  Display the configuration of a service
```



```
Enter the full pathname of your start action script or
"default"
for the default script (x to exit):
/usr/opt/SWCC220/scripts/steamstart
/This is the absolute path to the script illustrated previously. /
```

Modifying the start action script for 'steam':

- f) Replace the start action script
- e) Edit the start action script
- g) Modify the start action script arguments [steam]
- t) Modify the start action script timeout [60]
- r) Remove the start action script
- x) Exit - done with changes

Enter your choice [x]:

Modifying user-defined scripts for 'steam':

- 1) Start action
- 2) Stop action
- 3) Add action
- 4) Delete action
- 5) Check action
- x) Exit - done with changes

Enter your choice [x]: 2

/As a minimum this is needed. /

Modifying the stop action script for 'steam':

- f) Replace the stop action script
- e) Edit the stop action script
- g) Modify the stop action script arguments [steam]
- t) Modify the stop action script timeout [60]
- r) Remove the stop action script
- x) Exit - done with changes

Enter your choice [x]: f

```
Enter the full pathname of your stop action script or
"default"
for the default script (x to exit):
/usr/opt/SWCC220/scripts/steamstop
```

/This is the absolute path to the script illustrated previously. /

Modifying the stop action script for 'steam':

- f) Replace the stop action script
- e) Edit the stop action script
- g) Modify the stop action script arguments [steam]
- t) Modify the stop action script timeout [60]
- r) Remove the stop action script
- x) Exit - done with changes

Enter your choice [x]: x

Modifying user-defined scripts for 'steam':

- 1) Start action
- 2) Stop action
- 3) Add action
- 4) Delete action
- 5) Check action
- x) Exit - done with changes

Enter your choice [x]: **x**

Selecting an Automatic Service Placement (ASP) Policy

Select the policy you want ASE to use when choosing a member to run this service:

- b) Balanced Service Distribution
- f) Favor Members
- r) Restrict to Favored Members

?) Help

Enter your choice [b]: **b**

/ Balanced will relocate steam to the least busy node should it be necessary. You may want to specify favored nodes. Choose accordingly. /

Selecting an Automatic Service Placement (ASP) Policy

Do you want ASE to consider relocating this service to another member if one becomes available while this service is running (y/n/?): **n**

/ If "b" was NOT picked for the previous question, "y" should be picked for this one. /

Enter 'y' to add Service 'steam' (y/n): **y**

Adding service...

Starting service...

Service steam successfully added...

Service Configuration

- a) Add a new service
- m) Modify a service
- o) Modify a service without interrupting its availability
- d) Delete a service
- s) Display the status of a service
- c) Display the configuration of a service

- q) Quit (back to Managing ASE Services)
- x) Exit ?) Help

Enter your choice [q]: **q**

Managing ASE Services

```

    c)  Service Configuration      -->
    r)  Relocate a service
    on) Set a service on line
    off) Set a service off line
    res) Restart a service
    s)  Display the status of a service
    a)  Advanced Utilities        -->

    q)  Quit (back to the Main Menu)
    x)  Exit                      ?)  Help

```

Enter your choice [q]: **q**

TruCluster Production Server (ASE)

ASE Main Menu

```

    a)  Managing the ASE          -->
    m)  Managing ASE Services    -->
    s)  Obtaining ASE Status      -->

    x)  Exit                      ?)  Help

```

Enter your choice: **x**

tincp4>

If everything was entered correctly the steamd should be running on one of the nodes in the cluster. If that node should go down, the steamd will automatically be relocated to another node in the cluster.

Note: If the SWCC agent is running on a node which has a LUN reserved to it, and that Agent fails over to another node; be aware of the fact that you will no longer be able to monitor that LUN. If a disk service is relocated, it is necessary to run `/usr/opt/SWCC220/scripts/swcc_config` and select Option 2 to reconfigure your storage accordingly. It will be necessary to restart the Agent to have these changes take effect.