Chapter 1 Installing a Cluster

This chapter describes how to install an ArC cluster.

Installing a cluster consists of two steps:

- Installing the Operating System
- Installing Archivas Software

Installing the Operating System

The first step in installing a cluster is installing the operating system on each machine that will become a node in the cluster.

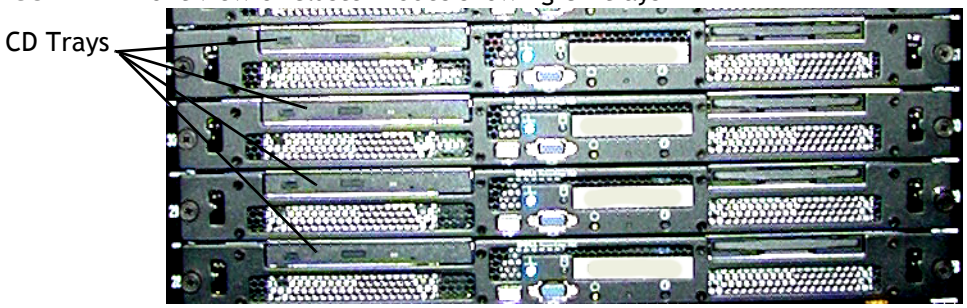
To install the operating system:

1. Ensure that each machine in the cluster is set to boot from CD.

NOTE: If you are going to install the OS from dram, set each machine to boot from dram and omit CD insertion.

2. Locate the CD tray in the front of each node (Figure 1) and insert an operating system CD in **each** node.

FIGURE 1: Front view of cluster nodes showing CD trays



3. Connect a monitor and keyboard to the cpu box of a node in the cluster using either a USB or PS/2 connection. Archivas recommends that you connect to a node that will be the first node in the cluster. This is the node that will be assigned the lowest IP address.

4. Power down all the nodes.

5. Power up all the nodes. This reboots the nodes and begins the OS install process. The laptop command line shows

```
$archivas install disk
$boot
```

The installation process takes about 15 minutes. When the process is complete the system ejects all CDs.

6. Remove the CDs and close the CD trays.

   The system now steps through the network configuration for the first node.

The system prompts:

```
Configuring front-end interface (eth0)
Please enter the IP address for eth0
```

7. Enter the front-end IP address for eth0.
   The system prompts

```
Configuring netmask (eth0)
Please enter the net mask address for eth0
```

8. Enter the netmask IP address for eth0.
   The system prompts

```
I will use these values for eth0
IP address is [your ip address]
netmask is [your netmask address]
Is this correct? [n]
```

9. Enter `y` or `n`. If you enter n the system returns to step 6.

10. The system prompts:

```
Configuring back-end interface (eth1)
Please enter the IP address for eth1
```

11. Enter the back-end IP address for eth1.
    The system prompts

```
Configuring netmask (eth1)
Please enter the net mask address for eth1
```

12. Enter the netmask IP address for eth1.

    The system prompts

```
I will use these values for eth1
IP address is [your ip address]
netmask is [your netmask address]
Is this correct? [n]
```

13. Enter `y` or `n`. If you enter n the system returns to step 11.

    The system prompts

```
Configuring general networking
```

14. Enter the default gateway IP address.

    The system prompts

    ```
    Enter the IP address of your default gateway [THIS STEP MAY GO] This machine needs to be rebooted for these changes to take effect.
    ```

    The system reboots the machine.

15. Disconnect the monitor and keyboard from the first machine and plug it into the second machine.

16. Repeat steps 7 - 14 for each machine.

This completes operating system installation.

NOTE: The machines in the new cluster are now set up as nodes. From this point on, you must access these nodes through the network.

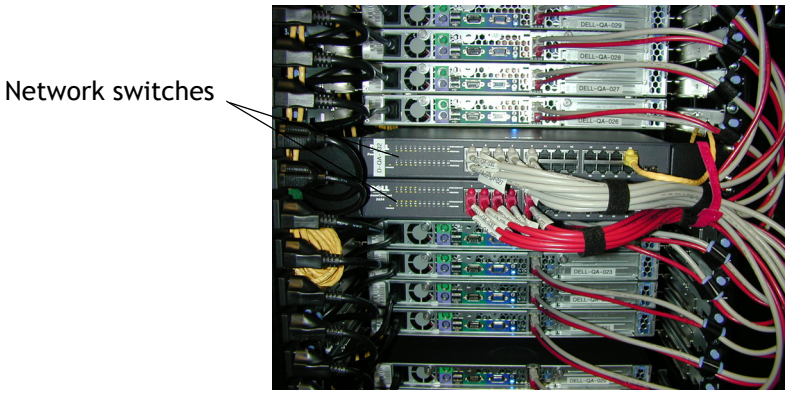
Installing Archivas Software

To install Archivas software on a cluster you must have first installed the operating system.

To install Archivas software follow these steps:

1. Plug a laptop into the back-end network switch for the cluster (Figure 2).

FIGURE 2: Internal and external network switches



2. Change the laptop IP address to the highest IP address of a node in the cluster, **plus 1**. For example, if the highest IP address in the cluster is 143.155.21.106, change the laptop IP address to 143.155.21.107.

NOTE: Appendix A describes changing the laptop IP address for laptops with various operating systems.

Performing steps 1 and 2 adds the laptop to the cluster's network.

IMPORTANT: During the installation process, do not press the SSH key on the customer's system under any circumstances.

3. Log into the remote machine using an ssh agent:

```
[jjones@localhost jjones]$ ssh-agent bash
[jjones@localhost jjones]$ ssh-add
```

4. You are prompted to enter the password for this machine:

```
Enter passphrase for /home/jjones/.ssh/id_dsa:
```

The system responds:

```
Identity added: /home/jjones/.ssh/id_dsa (/home/jjones/.ssh/id_dsa)
```

5. Log into the host. The option `-A` enables forwarding of the authentication agent connection. The authenticity message appears only if this is a completely new installation and there is no existing host list file. It has no effect on the installation.

```
[jjones@localhost jjones]$ ssh -A service@dell-qa-010.archivas.com
The authenticity of host 'dell-qa-010.archivas.com (192.168.130.10)' can't
be established.
RSA key fingerprint is 49:0d:0a:9a:f2:0b:94:42:d2:56:01:ec:36:ad:1a:18.

Are you sure you want to continue connecting (yes/no)?
```

6. Enter **yes** at the prompt. The host displays the configuration menu for the first node:

```
Warning: Permanently added 'dell-qa-010.archivas.com,192.168.130.10' (RSA)
to the list of known hosts.
Linux 2.6.10.
root@darkstar:/home/service# ./config_menu
```

The IP address and key information displayed in steps 5 and 6 are examples. The values you see will correspond to your installation.

The Config Menu appears.

```
                    Config Menu



  [ 1 ]     Locate and Get the Archivas Software
  [ 2 ]     Run the Wizard to Configure the Cluster
  [ 3 ]     Run Arc-Deploy Against the Cluster
  [ S ]     Give me a shell on this system
Please type the number of your choice, and press Enter.
```

7. Enter **1**. The program mounts, untars, and unzips the installation files **[??]** and creates the arc-deploy directory. The arc-deploy directory contains the tools necessary to propogate the installation to all nodes in the cluster.

8. Enter **2**. The program displays:

```
                    Welcome to the:

          ** Archivas Cluster Configuration Wizard **

                        (version 1.0)

                  Press Enter to continue...
```

9. Press **Enter**. The program displays the Cluster Configuration Wizard. When you execute steps 1 - 11 of this wizard you are creating a configuration file for the installation. Step A steps you through the entire install process. When you are done you have an install config file. Steps I, W, X, and Q perform special actions.

```
                  Archivas Cluster Configuration Wizard


  [ A ]     * Step through the entire installation

  [ 1 ]     Path of build tarball to install
  [ 2 ]     DNS name for the cluster
  [ 3 ]     User name to run the install as
  [ 4 ]     List of DNS server IP addresses
  [ 5 ]     Search domain
  [ 6 ]     Gateway router IP address
  [ 7 ]     Root directory to install to
  [ 8 ]     Hostname prefix for nodes
  [ 9 ]     Cluster Multicast Network
  [ 10 ]    List of timeserver IP addresses
  [ 11 ]    List of node IP addresses to install on

  [ I ]     Read in a config file
  [ W ]     Write out a config file
  [ X ]     Abort, and don't change anything
  [ Q ]     Exit, and write out the config file

Please type the number of your choice, and press Enter.
```

10. To read in an existing config file, enter **I**.
11. To write out an existing config file, enter **W**.
12. To cancel without change, enter **X**.
13. To exit and write out the config file, enter **Q**.
14. To create a new config file, type **A** and press **Enter**. This selection steps through each portion of the installation. You can also perform this configuration by entering one or more parameters that you want to change.

    These instructions assume that you have selected option **A.**

15. Enter the path to the location of the Archivas build you want to install, or press **Enter** to select the default path (Step 1).

```
Path of build tarball to install

    This is the path to the location of the Archivas build to install.

   Enter your text below, or hit Enter to accept the default.

[ package/arc-main-1.0.45.0.tgz ]
```

16. Enter the DNS name for the cluster or press **Enter** to select the default name.

```
DNS name for the cluster

    This is the name of the whole cluster in DNS.
(i.e., cluster1.archivas.com)

    Please enter your text below, or hit Enter to accept the default.

[cluster1.archivas.com ]

  >  clstr130b.archivas.com
```

17. Enter the list of DNS server IP addresses. Enter up to three addresses, or press **Enter** to accept the default.

```
List of DNS server IP addresses

    This is the list of DNS servers that the cluster will use to perform DNS
```

```
    resolution.  A maximum of three can be defined.

    You should specify the IP Addresses, for instance - "192.168.100.10"

    Please enter your text below, or hit Enter to accept the default.

reading dns server 1

  >  192.168.100.10
add another? [y/n]
```

18. Enter the search domain that the cluster will use to resolve names, or press **Enter** to accept the default.

```
Search domain

    This is the search domain that the cluster will use to resolve names.
    (i.e. 'archivas.com')

    Please enter your text below, or hit Enter to accept the default.

[  ]

  >  archivas.com
```

19. Enter the IP address of the gateway router or press **Enter** to accept the default.

```
Gateway router IP address

    This is the IP address of the gateway router.

    Please enter your text below, or hit Enter to accept the default.

[  ]

  >  192.168.130.1
```

20. Enter the directory where you want to install the cluster software on each node. Press **Enter** to select the default.

```
Root directory to install to
```

```
    This is the directory to install the cluster software in on each node.
    It should be set to '/opt/arc', and you should never, ever change it.

    Please enter your text below, or hit Enter to accept the default.

[ /opt/arc ]
```

21. Enter the hostname prefix you want the software to use when it builds the hostname on each node. Press **Enter** to select the default.

```
Hostname prefix for nodes

    The is the hostname prefix to use when building the hostname on every
node.
    For instance, if you put in 'arc-node', then the nodes will be named:
    - arc-node-001
    - arc-node-002
    - etc...

    Please enter your text below, or hit Enter to accept the default.

[ arc-node ]
```

22. Enter the Cluster Multicast Network value. Press **Enter** to select the default.

```
                        Cluster Multicast Network

    This is the Cluster Multicast Network value.

    Please enter your text below, or hit Enter to accept the default.

[ 238.177.1.1 ]
```

23. Enter up to three timeserver addresses, or the special value, `internal`, which forces the cluster to calculate these values. Press **Enter** to accept the default.

```
                                List of timeserver IP addresses

    This tells the cluster what to use as a timeserver.  A maximum of three
can be defined.

   You can also enter the special value 'internal', which tells the cluster
to figure it out for itself.

   If you're installing in the field, you should find out from the customer
whether or not they have a timeserver whose IP address you should   fill in
here.  Otherwise, enter 'internal'.

   Enter your text below, or press Enter to accept the default.



reading timeserver 1


  >  internal
add another? [y/n]
```

24. Enter the list of IP addresses (nodes) on which to install the software. You must first select either `literal`, which prompts you for each address individually, or `range`, which lets you enter a range of addresses in the form

    ```
    address1-addressn
    ```

```
List of node IP addresses to install on


There are two ways to input a list of nodes:  "literal" and "range" pick
one or the other []
```

If you enter `literal`, the prompts continue:

```
start typing - one ip address per line, please.
enter a blank line to quit.
```

Enter the list of IP addresses for the nodes in the cluster. For example,

```
192.168.130.7
adding 192.168.130.7...
192.168.130.8
adding 192.168.130.8...
192.168.130.9
adding 192.168.130.9...
192.168.130.10
adding 192.168.130.10...
```

```
NOTE: Type Q at the wizard menu to launch you into the config menu, see
below:
```

If you enter `range`, you are prompted only for the first and last IP addresses.

25. This completes the configuration process for the first node in the cluster. Enter **Q** at the wizard menu prompt to return to the Configuration Menu:

```
                    Config Menu

  [ 1 ]     Locate and Get the Archivas Software

  [ 2 ]     Run the Wizard to Configure the Cluster

  [ 3 ]     Run Arc-Deploy Against the Cluster

  [ S ]     Give me a shell on this system


    Type the number of your choice, and press Enter.
```

26. Enter **3** to run Arc-Deploy against the cluster. The deployer

- Checks all nodes to determine that ArC is **not** running
- Stops any ArC processes that are running
- Deletes existing installs
- Sets up a database on each node
- Reboots all machines
- Starts ArC on all nodes

```
/home/service/arc-deploy /home/service
Deployer Initialized, loading configuration: config/default.cfg
Successfully loaded configuration: config/default.cfg
Verifying cluster members are alive.
```

This completes cluster installation.

Viewing log files

To view cluster log files:

1. Choose option **S** from the Configuration menu.
2. Log files are located in these directories:

```
arc-deploy/logs/...
            arc-deploy.log
            logs/serverStderr
            logs/serverStdout
```