



# **Storage Foundation and High Availability Solutions 5.1 Installer Support for JumpStart**



## Revision History

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# Table of Contents

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Abstract .....	4
What is JumpStart? .....	4
Reasons for JumpStart automated installation.....	4
Veritas product installer supports JumpStart .....	4
Prerequisites.....	4
Overview of configuration steps .....	5
Configuration steps.....	5
1. Configure the JumpStart server.....	5
1.1 JumpStart Server configuration example .....	5
1.2 Boot server.....	6
1.3 Install server .....	6
1.4 Configuration server .....	6
1.5 Target installation systems .....	6
1.6 Example Data .....	6
1.7 Boot Server setup (mktboot) .....	7
1.7.1 /etc/ethers .....	7
1.7.2 /etc/hosts .....	7
1.8 Install Server and Configuration Server setup (engboot) .....	8
1.8.1 Create an install server .....	8
1.8.2 Create a configuration server.....	8
1.8.3 Configure the configuration server: Profile.....	9
1.8.4 Configure the configuration server: rules.....	9
1.8.5 Configure the configuration server: sysidcfg .....	9
1.8.6 Run the install and configuration server .....	10
2. Copy the Veritas Storage Foundation 5.1 products to the install server .....	10
2.1 Copy the Veritas Storage Foundation products to the install server .....	10
2.2 Copy package and scripts files .....	10
2.3 Create a package administration file .....	10
2.4 Creating the package response files for JumpStart (by shell script).....	11
3. Run Installer with "-jumpstart" option to create finish scripts.....	11
3.1 Create JumpStart finish files .....	11
3.1.1 Create JumpStart finish files for encapsulated root disk.....	11
3.1.2 Create JumpStart finish files without encapsulated root disk .....	12
3.2 Create JumpStart finish files with different options .....	12
3.2.1 Create Product-specific JumpStart finish files .....	12
3.3 Configure JumpStart finish files.....	13
3.3.1 Configure JumpStart finish files for encapsulated root disk.....	13
3.3.2 Configure JumpStart finish files without encapsulated root disk .....	13
3.4 Change the file permission of JumpStart finish files .....	13
4. Add the installer finish script to JumpStart rules file.....	13
4.1 Add the installer JumpStart finish file to the rules file.....	13
5. Add install target system and run JumpStart from the install target system prompt.....	14
5.1 Add a new install target system on the boot system .....	14
5.2 Run JumpStart from the install target system prompt .....	14
6. Install Solaris OS and Veritas Storage Foundation and High Availability Solutions .....	14
7. Boot install target system node .....	14
8. Run Installer with "-configure" option to configure product on the install node .....	14
References .....	15

## **Abstract**

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The Veritas product installer for Storage Foundation and High Availability Solutions 5.1 on Solaris provides support for Solaris JumpStart. The Solaris JumpStart feature is a customizable automated installation on Solaris environments. This document provides an overview of how to use the installer with Solaris JumpStart, including some simple examples.

## **What is JumpStart?**

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The JumpStart feature is an automatic installation process available in the Solaris operating environment. It allows system administrators to categorize machines on their network and automatically install systems based on the category to which a system belongs.

## **Reasons for JumpStart automated installation**

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The JumpStart automated installation provides the following benefits:

- Simplifies installations.
- Allows faster installations than installing from the CD/DVD-ROM.
- Allows unattended installations.
- Allows replication, to ensure the same installation on systems across the enterprise.

All Solaris base installations require some basic configuration. With JumpStart, Sun enables the system administrator to avoid repetitive tasks associated with bringing a Solaris system online.

## **Veritas product installer supports JumpStart**

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The Veritas product installer installs Veritas Storage Foundation and High Availability Solutions products. The installer receives user inputs from command line options and user interactions. The installer processes the inputs and organizes the order of package installation. The installer then installs the packages in the correct order.

JumpStart does not allow user interactions. Therefore, JumpStart cannot run the installer directly.

However, you can use the installer to generate a script that can be used for JumpStart installation. The installer can do the following tasks:

- Get the user inputs from command line options before you run JumpStart
- Process user inputs and organize the order of package installation.
- Create a shell script to install the packages in the proper order.

Configure JumpStart to do the following tasks:

- Pick up the Installer shell script if the script is added to the JumpStart configuration file.
- Run the shell script to install Veritas packages after the Solaris OS and patches are installed.

## **Prerequisites**

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The following items are required before performing a JumpStart installation:

- A boot server on the same ethernet segment
- An install server with the Solaris Operating System (OS)
- A configuration server that defines rules and profiles.
- A DVD of Veritas Storage Foundation and High Availability Solutions

## Overview of configuration steps

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1. Configure the JumpStart server.
2. Copy the Veritas Storage Foundation and High Availability Solutions packages to the Install server.
3. Run the installer with the "-jumpstart" option to create finish scripts.
4. Add the installer finish script to the JumpStart rules file.
5. Add the install target system and run JumpStart from the install target system prompt.
6. Install the Solaris OS and the Veritas Storage Foundation and High Availability Solutions products.
7. Boot the install target system.
8. Run the installer with the "-configure" option to configure the Veritas Storage Foundation and High Availability Solutions products.

## Configuration steps

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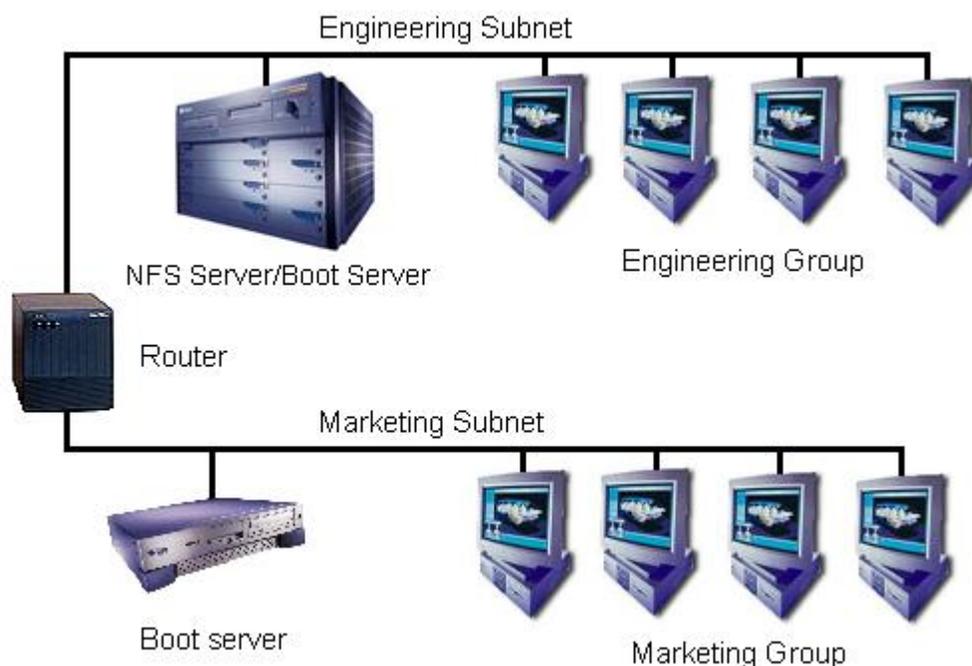
### 1. Configure the JumpStart server

This introduction does not cover the details of setting up JumpStart. For details on setting up JumpStart, refer to other sources such as Solaris documentation. This document provides a simple configuration example to show how to use the Veritas product installer with JumpStart.

To configure a JumpStart server, the following items are required:

- Boot server
- Installation server
- Configuration server
- Configuration files: rules, profile, sysidcfg

#### 1.1 JumpStart Server configuration example



## 1.2 Boot server

The Boot server is the first contact server for installation target systems when they start a JumpStart installation. The Boot server must be on the client's local network because RARP packets are not forwarded across a router.

## 1.3 Install server

The install server supplies the client with the Solaris OS packages as well as other products, such as Veritas Storage Foundation and High Availability Solutions. The install server is an NFS share with the Solaris install image. Any OS able to export NFS shares is able to serve as a JumpStart Install Server.

## 1.4 Configuration server

The configuration server is comprised of configuration files such as the rules file, profiles, and sysidcfg. It allows the administrator to have available different custom jumpstart configurations based on rule sets. The custom rule sets are helpful when different groups within an organization require different system configurations.

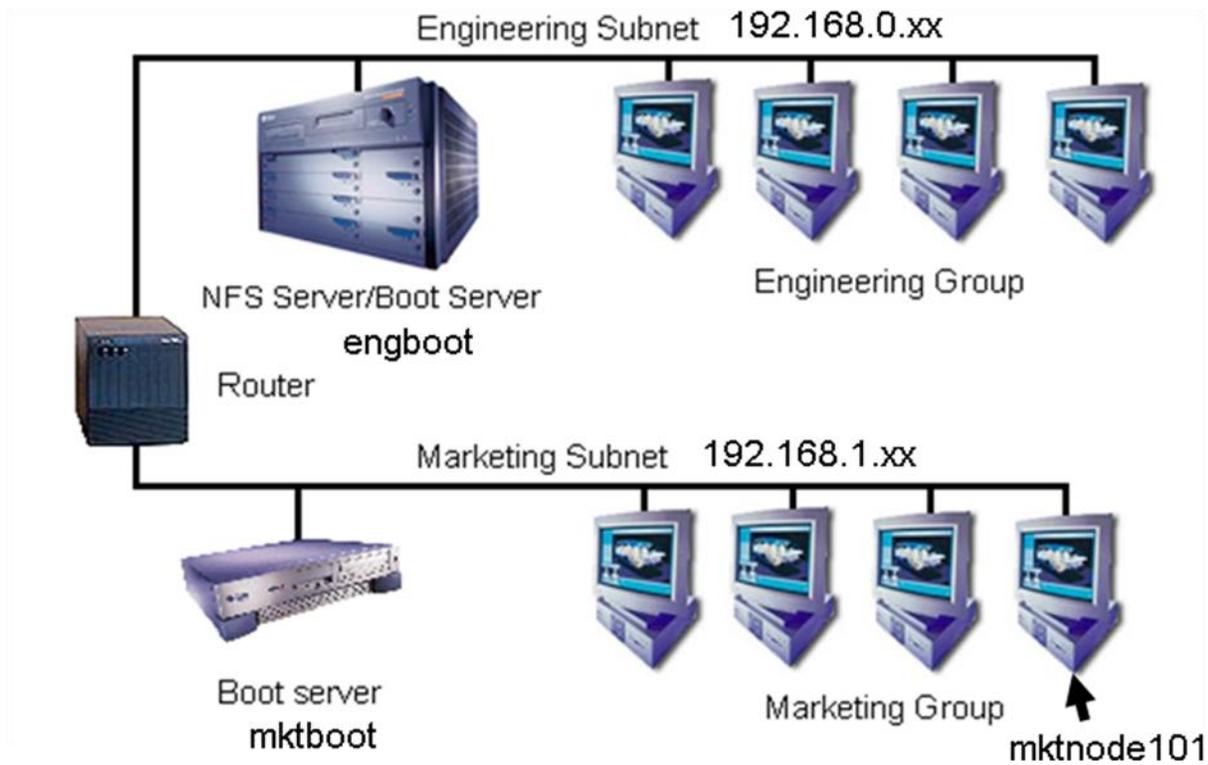
## 1.5 Target installation systems

Target installation systems are the systems on which the administrator wants to install the new Solaris OS as well as Veritas Storage Foundation and High Availability Solutions packages.

## 1.6 Example Data

This introduction uses the following example data:

Object	System Name	Subnet	IP address	Ethernet Address
Engineering Subnet		192.168.0.xx		
Marketing Subnet		192.168.1.xx		
Boot Server (Eng)	engboot	192.168.0.xx	192.168.0.1	
Boot Server (Mkt)	mktboot	192.168.1.xx	192.168.1.1	
Install Server	engboot	192.168.0.xx	192.168.0.1	
Configuration Server	engboot	192.168.0.xx	192.168.0.1	
Target System (sun4u)	mktnode101	192.168.1.xx	192.168.1.101	a1:b2:c3:d4:e5:f6



## 1.7 Boot Server setup (mktboot)

The target system of the example is under the Marketing Subnet (192.168.1.xx). Therefore, the boot server **mktboot** needs to be configured. It requires the following file changes:

### 1.7.1 /etc/ethers

```
mktboot# vi /etc/ethers
```

Add the Ethernet address and system name for the target as follows:

```
a1:b2:c3:d4:e5:f6 mktnode101
```

### 1.7.2 /etc/hosts

```
mktboot# vi /etc/hosts
```

Add the IP address for the target systems as follows:

```
192.168.1.101 mktnode101
```

## 1.8 Install Server and Configuration Server setup (engboot)

Install Server and Configuration Server is any regular NFS server which has Solaris OS CD/DVD image and other products such as Veritas Storage Foundation and High Availability Solutions packages. In this example, Engineering Subnet Boot server, *engboot* is an install server as well as a configuration server for both Engineering Subnet target systems and Marketing Subnet target systems.

The example uses the following data:

example item	example values
CD/DVD media directory	/cdrom
Solaris10 6/06 CD image directory	/export/install/Solaris10
Configuration directory	/jumpstart
Veritas Storage Foundation and High Availability Solutions package and scripts directories	/export/install/VRTS5.1/pkg /export/install/VRTS5.1/scripts

### 1.8.1 Create an install server

Create a Solaris OS image directory and copy the CD/DVD contents to the installation directory.

```
engboot# mkdir -p /export/install/Solaris10  
engboot# cd /cdrom/Solaris_10/Tools  
engboot# ./setup_install_server /export/install/Solaris10
```

Repeat the following commands for each additional CDs you want to install, including the Language CD.

```
engboot# cd /cdrom/Solaris_10/Tools  
engboot# ./add_to_install_server /export/install/Solaris10
```

### 1.8.2 Create a configuration server

Add a new entry for the Ethernet addresses of the target systems.

```
engboot# mkdir -p /jumpstart  
engboot# cp -r /export/install/Solaris10/Solaris_10/Misc/jumpstart_sample/* \  
/jumpstart
```

### 1.8.3 Configure the configuration server: Profile

Create a new profile for Marketing Subnet target systems

```
engboot# cd /jumpstart
engboot# vi marketing_default.profile
```

Enter the below contents and save the file.

```
install_type    initial_install
system_type     standalone
partitioning    default
cluster         SUNWCuser
filesystems     any 512 swap
```

Engineering Subnet profile can have "SUNWCprog" cluster instead of "SUNWuser". For more details, see the sites listed in the reference section.

### 1.8.4 Configure the configuration server: rules

Create a new rules file for the target systems in the Marketing Subnet:

```
engboot# cd /jumpstart
engboot# mv rules rules.sample
engboot# vi rules
```

rules.sample has many examples of usage. For more information on the rules file, [click here](#)

Enter the below contents and save the file.

```
network 192.168.1.0 - marketing_default.profile -
```

Validate the rules file using the following commands:

```
engboot# cd /jumpstart
engboot# ./check
```

Check any errors after the above commands run. If there are any errors, fix the errors and run the command again until there are no errors. When there are no errors, the check command creates the "rules.ok" file under the same directory.

### 1.8.5 Configure the configuration server: sysidcfg

Create a new rules file for Marketing Subnet target systems:

```
engboot# cd /jumpstart
engboot# vi sysidcfg
```

Enter the below contents and save the file:

```
system_locale=en_US
timezone=US/Pacific
network_interface=primary {netmask=255.255.240.0 protocol_ipv6=no}
terminal=vt100
security_policy=NONE
name_service=NONE
timeserver=localhost
```

For more information on the sysidcfg file, [click here](#).

### 1.8.6 Run the install and configuration server

Edit the NFS service file on the install (and configuration) server:

```
engboot# vi /etc/dfs/dfstab
```

Add the following contents and save the file:

```
share -F nfs -o ro,anon=0 /jumpstart
share -F nfs -o ro,anon=0 /export/install
```

Run NFS services on the install (and configuration) server and check if the directory is properly exported:

```
engboot# /usr/sbin/svcadm restart network/nfs/server
engboot# share
-          /jumpstart      ro,anon=0  ""
-          /export/install  ro,anon=0  ""
```

## 2. Copy the Veritas Storage Foundation 5.1 products to the install server

### 2.1 Copy the Veritas Storage Foundation products to the install server

Insert the Veritas product DVD media in the DVD driver. Create a directory to copy the files.

```
engboot# mkdir -p /export/install/VRTS5.1/pkg
engboot# mkdir -p /export/install/VRTS5.1/scripts
```

### 2.2 Copy package and scripts files

Copy all package files under each product's pkg directory to the install server.

```
engboot# cp -rp /cdrom/pkg/* /export/install/VRTS5.1/pkg
```

Also copy all scripts files under the product's scripts directory to the install server.

```
Engboot# cp -rp /cdrom/scripts/* /export/install/VRTS5.1/scripts
```

### 2.3 Create a package administration file

Create a package administration file to skip the user interactions.

```
engboot# vi /export/install/VRTS5.1/pkg/admin
```

Enter the following contents and save the file.

```
mail=
instance=unique
partial=nocheck
runlevel=nocheck
idepend=nocheck
rdepend=nocheck
space=nocheck
```

```
setuid=nocheck
conflict=nocheck
action=nocheck
networktimeout=60
networkretries=3
authentication=quit
keystore=/var/sadm/security
proxy=
basedir=default
```

## 2.4 Creating the package response files for JumpStart (by shell script)

There are a few packages that require package response files in SxRT 5.1.

You can run the below script to create all response files. Select the default values unless you are sure for other values.

```
engboot# cd /export/install/VRTS5.1/pkg
engboot# for PKG in VRTS*
> do
> /usr/sbin/pkgask -d ${PKG} -r ./${PKG%'.pkg'}.response ${PKG%'.pkg'}
> done
```

## 3. Run Installer with “-jumpstart” option to create finish scripts

### 3.1 Create JumpStart finish files

#### 3.1.1 Create JumpStart finish files for encapsulated root disk

Insert Veritas product DVD media to DVD driver and run installer to create a JumpStart finish file. On Storage Foundation and High Availability Solutions 5.1, the installer has a new feature to install Storage Foundation and High Availability Solutions packages for JumpStart and create encapsulated root disk. There are certain reasons of creating the encapsulated root disks such as mirroring root disk. For more information regarding encapsulated root disk, please refer [here](#).

```
engboot# cd /cdrom
engboot# mkdir -p /jumpstart
engboot# ./installer -jumpstart /jumpstart
Would you like to generate the finish script to encapsulate the boot disk? [y,n,q,?] (y) y
```

Specify the disk group name of the root disk to be encapsulated: **rootdg**

Specify the private region length of the root disk to be encapsulated: (65536)

Specify the disk media name of the root disk to be encapsulated: (rootdg\_01)

The finish scripts for AT50 is generated at /jumpstart/jumpstart\_at50.fin

The installer script to configure AT is generated at /jumpstart/installat

The installer script to uninstall AT is generated at /jumpstart/uninstallat

The finish scripts for FS51 is generated at /jumpstart/jumpstart\_fs51.fin

The installer script to configure FS is generated at /jumpstart/installfs

The installer script to uninstall FS is generated at /jumpstart/uninstallfs

The finish scripts for SF51 is generated at /jumpstart/jumpstart\_sf51.fin

The installer script to configure SF is generated at /jumpstart/installsf  
The installer script to uninstall SF is generated at /jumpstart/uninstallsf  
The finish scripts for SFCFS51 is generated at /jumpstart/jumpstart\_sfcs51.fin  
The installer script to configure SFCFS is generated at /jumpstart/installsfcs  
The installer script to uninstall SFCFS is generated at /jumpstart/uninstallsfcs  
The finish scripts for SFRAC51 is generated at /jumpstart/jumpstart\_sfrac51.fin  
The installer script to configure SF Oracle RAC is generated at /jumpstart/installfrac  
The installer script to uninstall SF Oracle RAC is generated at /jumpstart/uninstallsfrac  
The finish scripts for VCS51 is generated at /jumpstart/jumpstart\_vcs51.fin  
The installer script to configure VCS is generated at /jumpstart/installvcs  
The installer script to uninstall VCS is generated at /jumpstart/uninstallvcs  
The finish scripts for VM51 is generated at /jumpstart/jumpstart\_vm51.fin  
The installer script to configure VM is generated at /jumpstart/installvm  
The installer script to uninstall VM is generated at /jumpstart/uninstallvm  
The encapsulation boot disk script for VM is generated at /jumpstart/encap\_bootdisk\_vm51.fin

### 3.1.2 Create JumpStart finish files without encapsulated root disk

Insert Veritas product DVD media to DVD driver and run Installer to create a JumpStart finish file without creating encapsulated root disk.

```
engboot# cd /cdrom
engboot# mkdir -p /jumpstart
engboot# ./installer -jumpstart /jumpstart
Would you like to generate the finish script to encapsulate the boot disk? [y,n,q,?] (y) n
The finish scripts for AT50 is generated at /jumpstart/jumpstart_at50.fin
The installer script to configure AT is generated at /jumpstart/installat
The installer script to uninstall AT is generated at /jumpstart/uninstallat
The finish scripts for FS51 is generated at /jumpstart/jumpstart_fs51.fin
The installer script to configure FS is generated at /jumpstart/installfs
The installer script to uninstall FS is generated at /jumpstart/uninstallfs
The finish scripts for SF51 is generated at /jumpstart/jumpstart_sf51.fin
The installer script to configure SF is generated at /jumpstart/installsf
The installer script to uninstall SF is generated at /jumpstart/uninstallsf
The finish scripts for SFCFS51 is generated at /jumpstart/jumpstart_sfcs51.fin
The installer script to configure SFCFS is generated at /jumpstart/installsfcs
The installer script to uninstall SFCFS is generated at /jumpstart/uninstallsfcs
The finish scripts for SFRAC51 is generated at /jumpstart/jumpstart_sfrac51.fin
The installer script to configure SF Oracle RAC is generated at /jumpstart/installfrac
The installer script to uninstall SF Oracle RAC is generated at /jumpstart/uninstallsfrac
The finish scripts for VCS51 is generated at /jumpstart/jumpstart_vcs51.fin
The installer script to configure VCS is generated at /jumpstart/installvcs
The installer script to uninstall VCS is generated at /jumpstart/uninstallvcs
The finish scripts for VM51 is generated at /jumpstart/jumpstart_vm51.fin
The installer script to configure VM is generated at /jumpstart/installvm
The installer script to uninstall VM is generated at /jumpstart/uninstallvm
```

## 3.2 Create JumpStart finish files with different options

### 3.2.1 Create Product-specific JumpStart finish files

You can create a JumpStart finish file for a specific selective product. Insert the Veritas product DVD media in the DVD driver. Use the product installer to create a product-specific JumpStart finish file. Below is an example for the Storage Foundation (SF) product.

```
engboot# cd /cdrom/storage_foundation
```

```
engboot# ./installsf -jumpstart /jumpstart
Would you like to generate the finish script to encapsulate the boot disk? [y,n,q,?] (y) n
The finish scripts for SF51 is generated at /jumpstart/jumpstart_sf51.fin
The installer script to configure SF is generated at /jumpstart/installsf
The installer script to uninstall SF is generated at /jumpstart/uninstallsf
```

### 3.3 Configure JumpStart finish files

#### 3.3.1 Configure JumpStart finish files for encapsulated root disk

The newly created jumpstart finish files need to be modified for the install server. Below is one example of SF5.1 file with encapsulated root disk. The steps need to be repeated for all products scripts.

```
engboot# vi /jumpstart/jumpstart_sf5.1.fin
```

Change the script file as indicated in bold in the example. Make the change in the finish files for any product that you want to install to the target system.

```
BUILDSRC="engboot:/export/install/VRTS5.1"
ENCAPSRC="engboot:/jumpstart"
```

#### 3.3.2 Configure JumpStart finish files without encapsulated root disk

Below is one example of SF5.1 file for configuring Jumpstart finish file without encapsulated root disk. The steps need to be repeated for all products scripts.

```
engboot# vi /jumpstart/jumpstart_sf5.1.fin
```

Change the script file as indicated in bold in the example. Make the change in the finish files for any product that you want to install to the target system.

```
BUILDSRC="engboot:/export/install/VRTS5.1"
ENCAPSRC=""
```

### 3.4 Change the file permission of JumpStart finish files

Change the file permissions for each finish file for JumpStart, as follows:

```
engboot# chmod a+x /jumpstart/*.fin
```

## 4. Add the installer finish script to JumpStart rules file

### 4.1 Add the installer JumpStart finish file to the rules file

The Installer JumpStart finish script files need to be added to the configuration server's rules file.

```
engboot# vi /jumpstart/rules
```

Modify the contents with the bold style parts below on the rules file. Below is an example to install SF 5.1 product.

```
network 192.168.1.0 - marketing_default.profile finish_files/jumpstart_sf5.1.fin
```

After you change the rules file, you need to run verification every time.

```
engboot# cd /jumpstart  
engboot# ./check
```

Check any errors after the above commands run. If there are any errors, fix the errors and run the command again until there are no errors. When there are no errors, the check command creates the "rules.ok" file under the same directory.

## **5. Add install target system and run JumpStart from the install target system prompt**

### **5.1 Add a new install target system on the boot system**

We need to add a new install target system on the boot server (*mktboot*).

```
mktboot# cd /export/install/Solaris10/Solaris_10/Tools
```

Run add client command to add a new target install system as below.

```
mktboot# ./add_install_client -c engboot:/jumpstart -p engboot:/jumpstart mktnode101 sun4u
```

### **5.2 Run JumpStart from the install target system prompt**

Run below from the target install system (mktnode101) console open boot prompt.

```
ok boot net - install
```

## **6. Install Solaris OS and Veritas Storage Foundation and High Availability Solutions**

After the run jumpstart from the install target system prompt, JumpStart will install Solaris OS and then Veritas Storage Foundation and High Availability Solutions products you selected in the Installer jumpstart finish files.

## **7. Boot install target system node**

After the JumpStart installation completes, the target install system prompts you to log in.

## **8. Run Installer with "-configure" option to configure product on the install node**

Run Installer product for configuration.

```
mktnode101# /opt/VRTS/install/installer -configure
```

## **References**

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<http://docs.sun.com/app/docs/doc/817-5506>

<http://docs.sun.com/app/docs/doc/817-5504/6mkv4nh3m?a=view>

<http://docs.sun.com/app/docs/doc/819-5778/customjumpsample-1?a=view>

[http://www.brandanhutchinson.com/Solaris\\_JumpStart\\_notes.html](http://www.brandanhutchinson.com/Solaris_JumpStart_notes.html)

<http://www.amorin.org/professional/jumpstart.php>

<http://docs.sun.com/app/docs/doc/819-5778/epucy?a=view>

<http://www.sun.com/blueprints/0401/BuildInf.pdf>

<http://www.sun.com/blueprints/0300/sysidcfg.pdf>