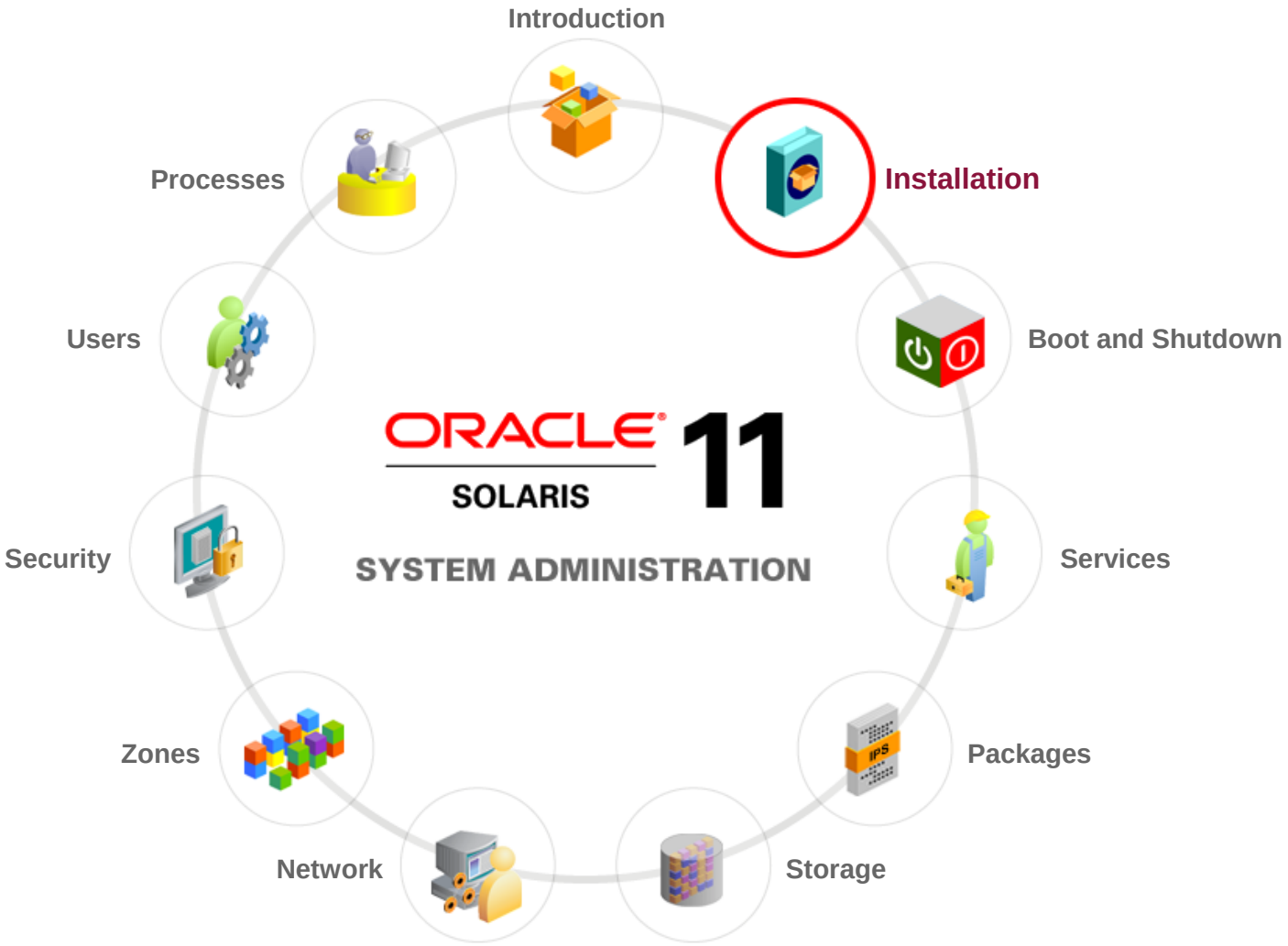
2

Installing the Oracle Solaris 11 Operating System

Workflow Orientation



Objectives

After completing this lesson, you should be able to:

- Describe the Oracle Solaris 11 OS
- Implement a plan for an Oracle Solaris 11 OS installation
- Install the Oracle Solaris 11 OS by using the Live Media installer
- Install the Oracle Solaris 11 OS by using the text installer
- Verify the installed OS

Agenda

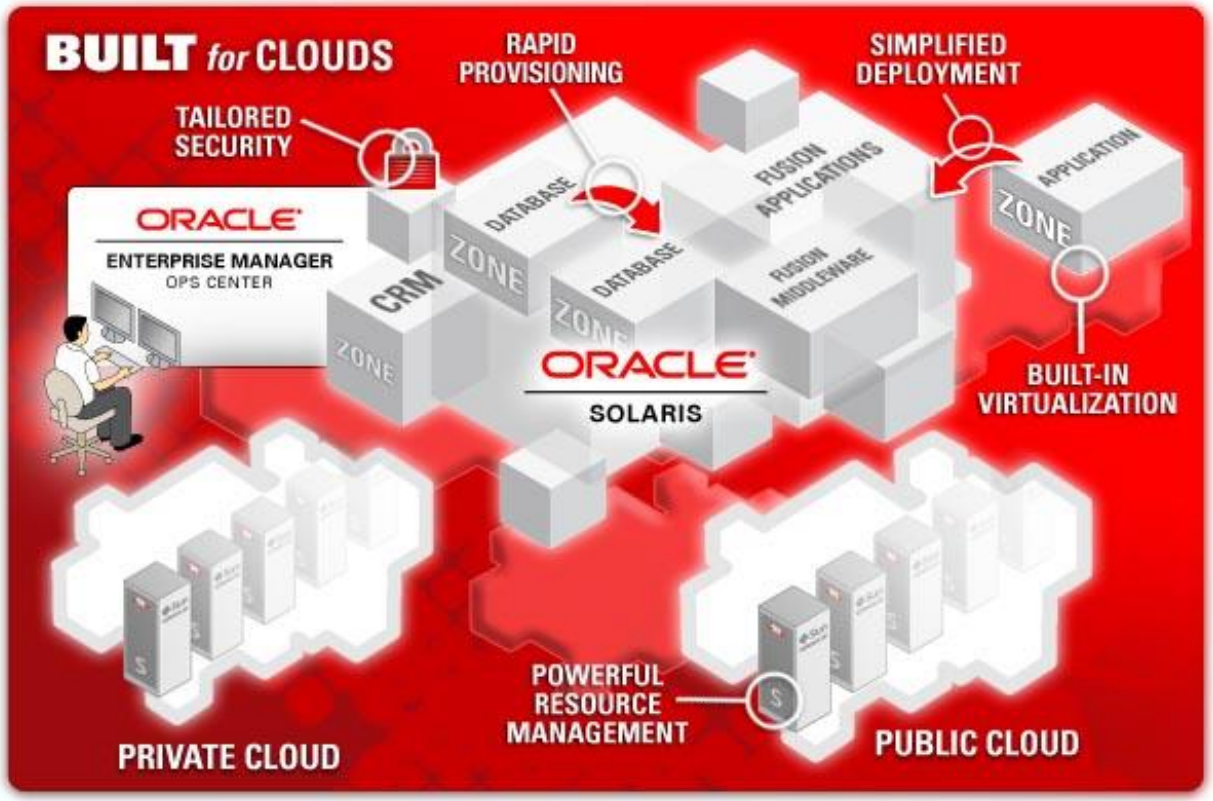
- **Introduction to the Oracle Solaris 11 OS**
- Planning for an Oracle Solaris 11 OS Installation
- Installing the Oracle Solaris 11 OS by Using the Live Media Installer
- Installing the Oracle Solaris 11 OS by Using the Text Installer
- Verifying the OS Installation

Introduction to the Oracle Solaris 11 OS

The Oracle Solaris 11 OS:

- Is supported by over 11,000 applications
- Provides a complete, reliable, secure, and simple solution for deploying your enterprise-grade clouds
- Provides centralized cloud management with complete OpenStack distribution
- Delivers unique features to increase performance, streamline management, and automate support for Oracle deployments

Key Benefits of Oracle Solaris 11



Key Benefits of Oracle Solaris 11

- Simplified administration
- Built-in virtualization
- Scalable data management
- Advanced protection
- Zero-to-complete cloud in minutes with Oracle Solaris and OpenStack
- Greater flexibility with independent and isolated Kernel Zones virtualization
- Fast and agile application provisioning with Unified Archives
- Conformation with service-level agreements by using application-driven and software-defined networking
- Risk reduction with comprehensive compliance checking and reporting

Platforms Supported by Oracle Solaris 11 OS

Architecture	Systems	Virtualization	OS Virtualization
SPARC	M6-32 M5-32	Dynamic Domains, Logical Domains	Oracle Solaris Zones
	T-Series	Oracle VM for SPARC formerly known as LDoms	
x86	X86 (64-bit processor)	Oracle VM for x86	

Note: Third-party virtualization offerings from vendors, including VMware, Windows, and Red Hat, are also supported.

Integration of Oracle Solaris 11 with the Oracle Stack

- Record performance in running Oracle Database, Oracle Middleware, and Oracle Applications
- New high-performance, super scalable virtual memory
- Reduced down time with new Optimized Shared Memory interface
- Kernel Mode Acceleration for Oracle Real Application Clusters (Oracle RAC)
- Faster transparent hardware cryptography acceleration
- Unique observability with Oracle Solaris DTrace
- High availability and disaster recovery across the Oracle stack
- Integrated development environment

Agenda

- Introduction to the Oracle Solaris 11 OS
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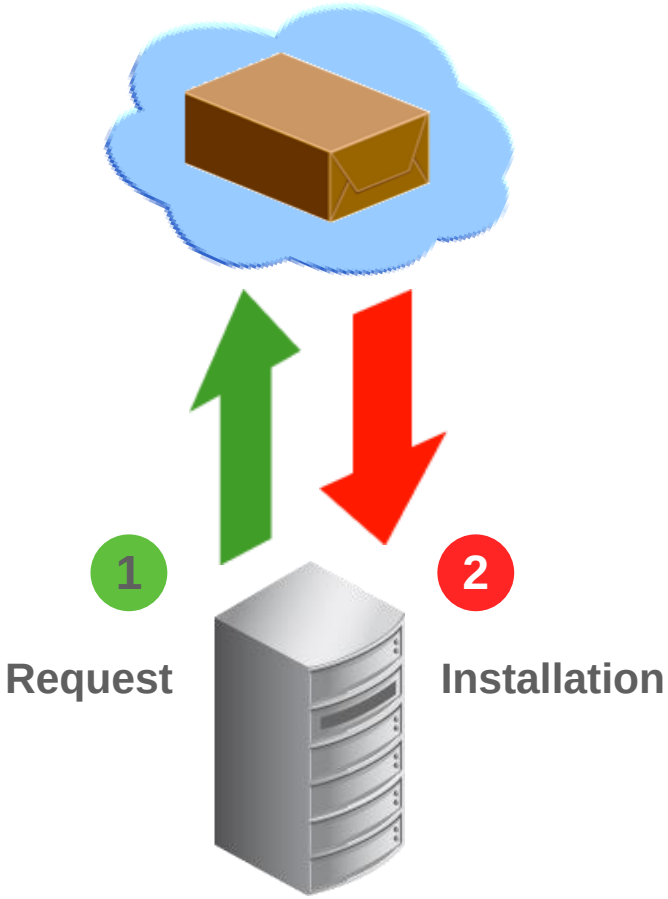
Planning for an Oracle Solaris 11 OS Installation

- Planning is required to make sure that the operating system is:
  - Installed properly
  - Configured to support business needs
- Planning addresses and answers questions such as:
  - How many users will you need to support?
  - What applications will you be running?
  - What type of network will you be using?
  - What are your data storage needs?
  - What are your hardware needs?

Methods of Installing the Oracle Solaris 11 Operating System

	Interactive		Automated
	Live Media	Text Installer	Automated Installer (AI)
SPARC		✓	✓
x86	✓		✓
Single system	✓	✓	✓
Multiple-client systems			✓

Installation Process



Oracle Solaris 11 OS download website:
http://www.oracle.com/technetwork/server-storage/solaris11/downloads

Identifying Pre-Installation Tasks

✓	**Identify system requirements.**
✓	**Identify additional installation considerations.**
✓	**Check device drivers.**

Best practice: Always review installation documentation and release notes carefully before performing an installation.

Identifying System Requirements

Installer	Package Group	Memory	Recommended Minimum Disk Space
Live Media	`solaris-desktop`	2 GB	13 GB
Text	`solaris-large-server`		9 GB

Identifying Additional Installation Considerations

- The Live Media ISO image installer is only for 64-bit x86 platforms.
- For SPARC-based systems, use the Text or Automated Installer.
- Interactive installers can perform an initial installation on:
  - The whole disk
  - The Oracle Solaris x86 partition
  - The SPARC slice (text installer)
- (Caution): The installation overwrites all existing data on the targeted disk.

Checking Device Drivers

- Device drivers enable communication between the operating system and the system's devices.
- Take a few minutes to verify that your system has the appropriate drivers required to manage each of its devices.
  - Before or after an OS installation, use the Oracle Device Detection Tool to determine whether a device driver is available.
  - After the OS installation, use Oracle Device Driver Utility (DDU) to obtain information about devices and their drivers.

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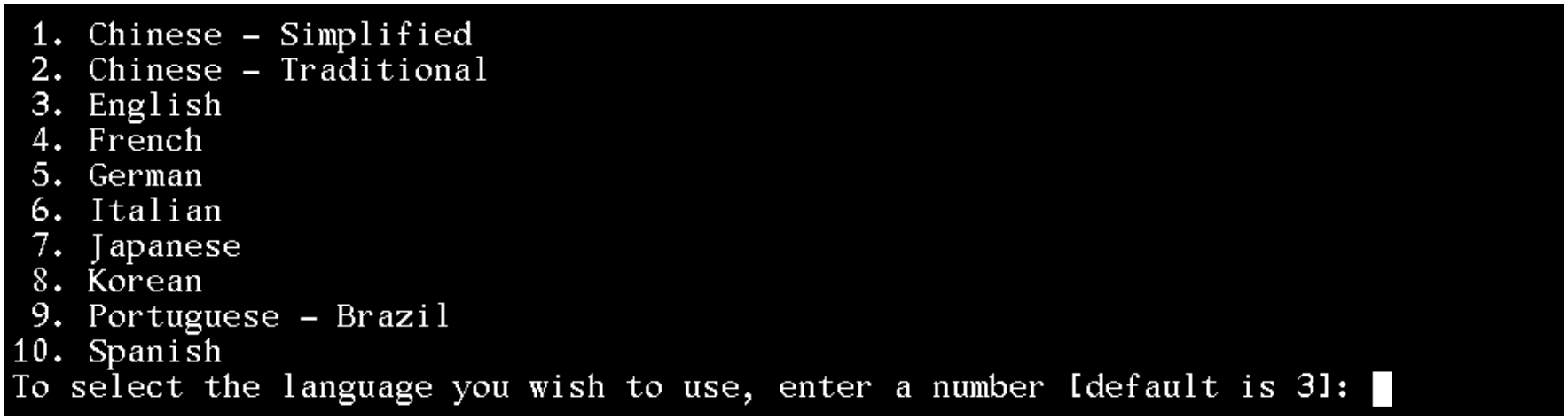
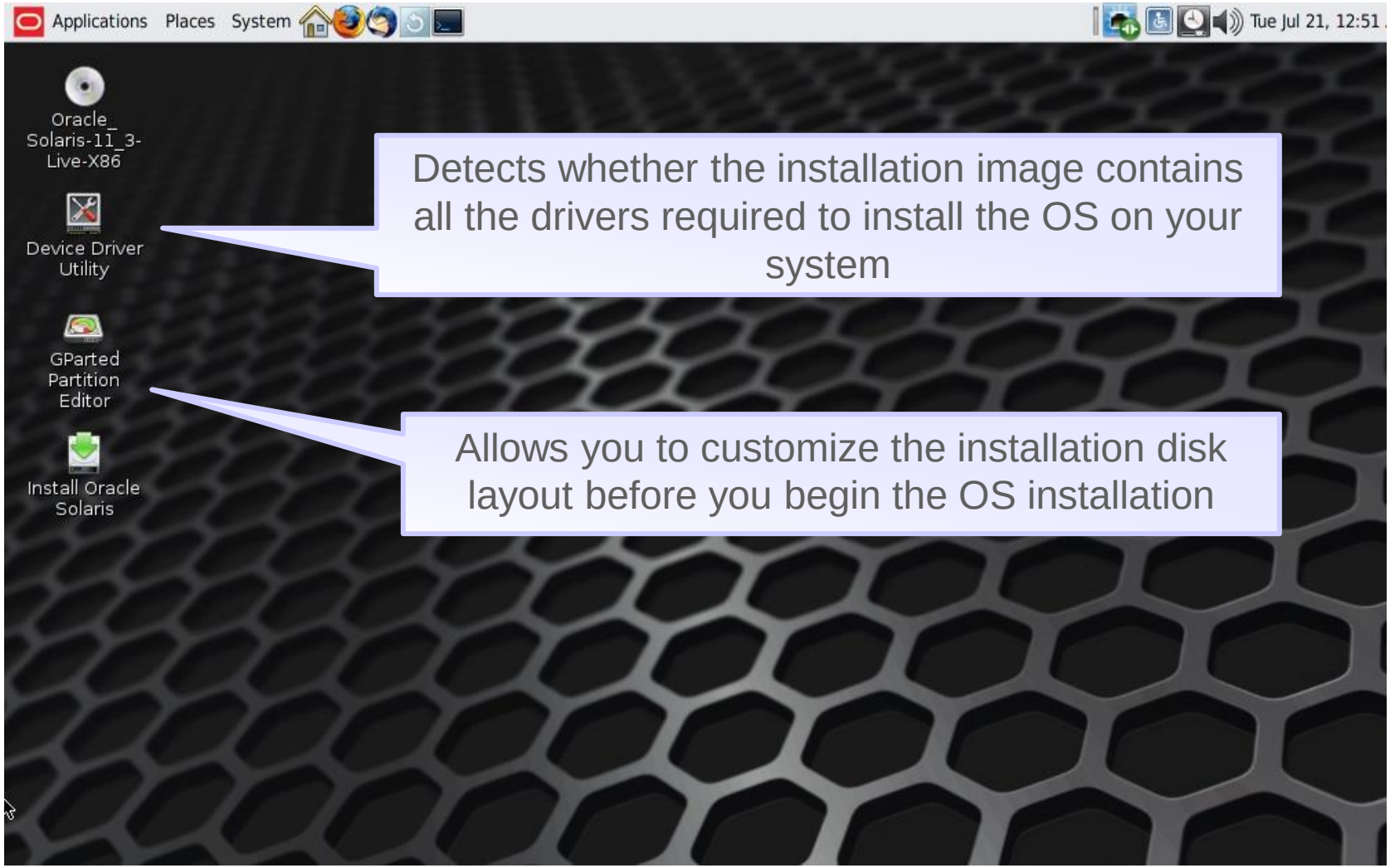
Installing the Oracle Solaris 11 OS by Using the Live Media Installer

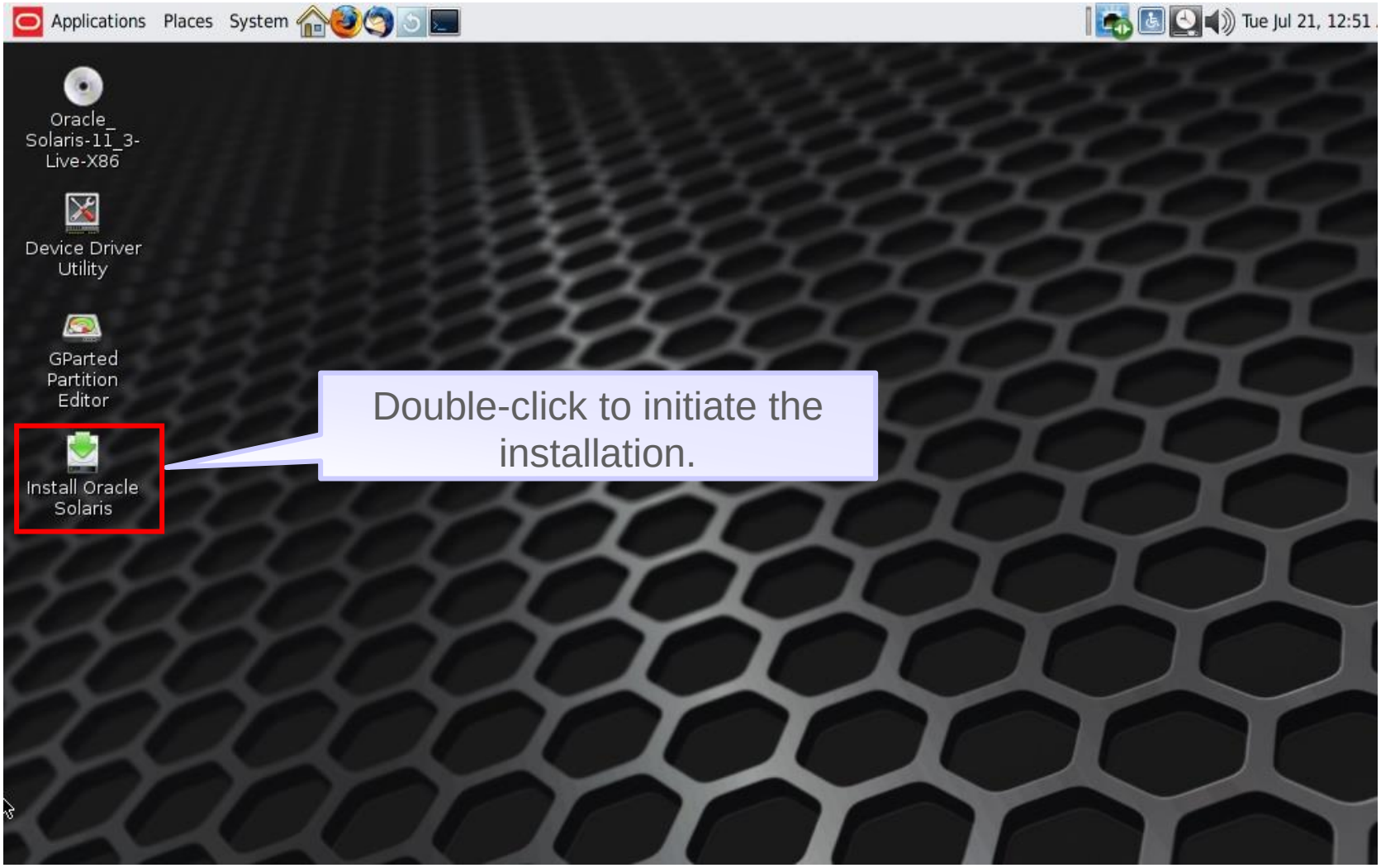
Selecting the Language



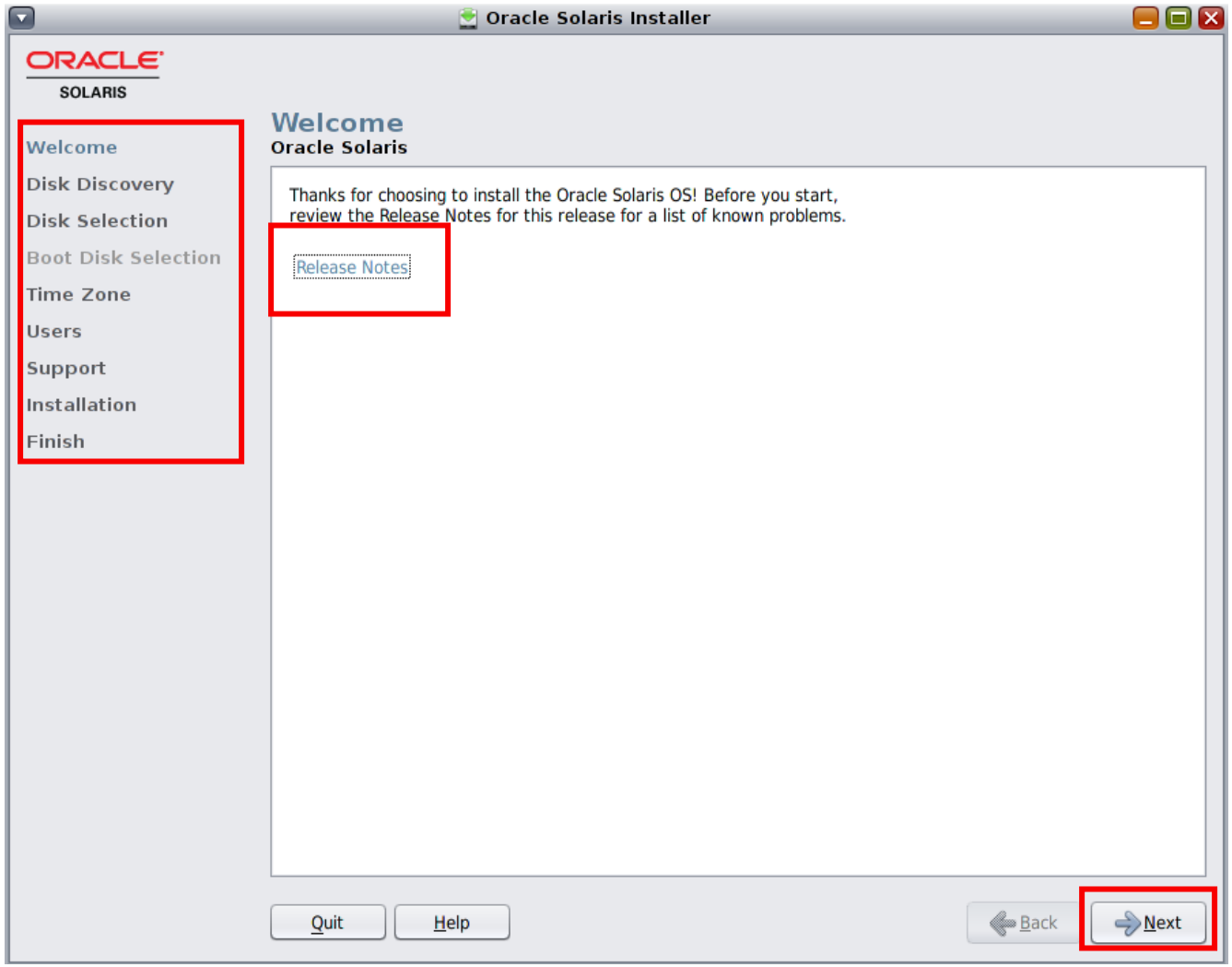
Introducing the Live Media Desktop



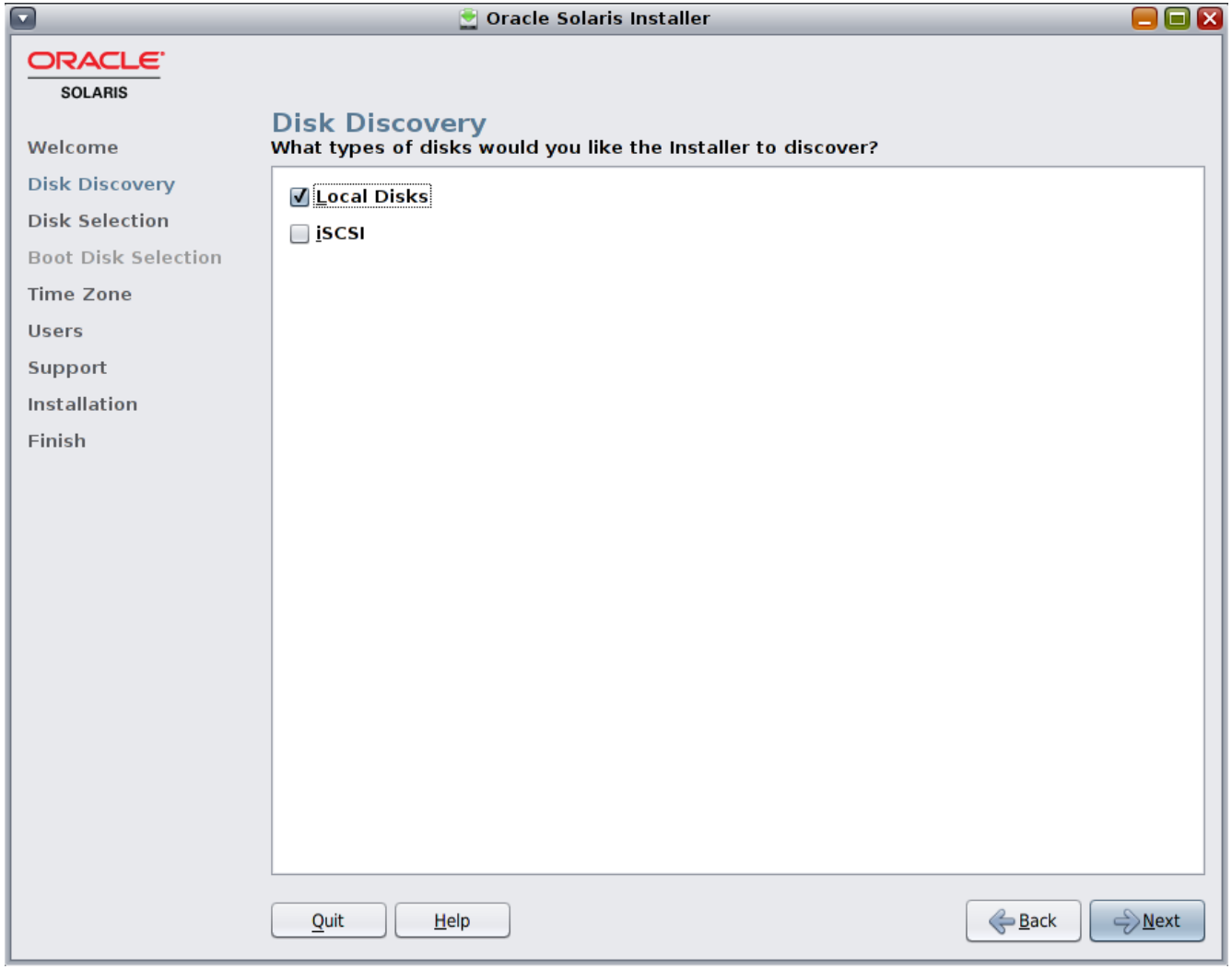
Initiating the Installation with Live Media



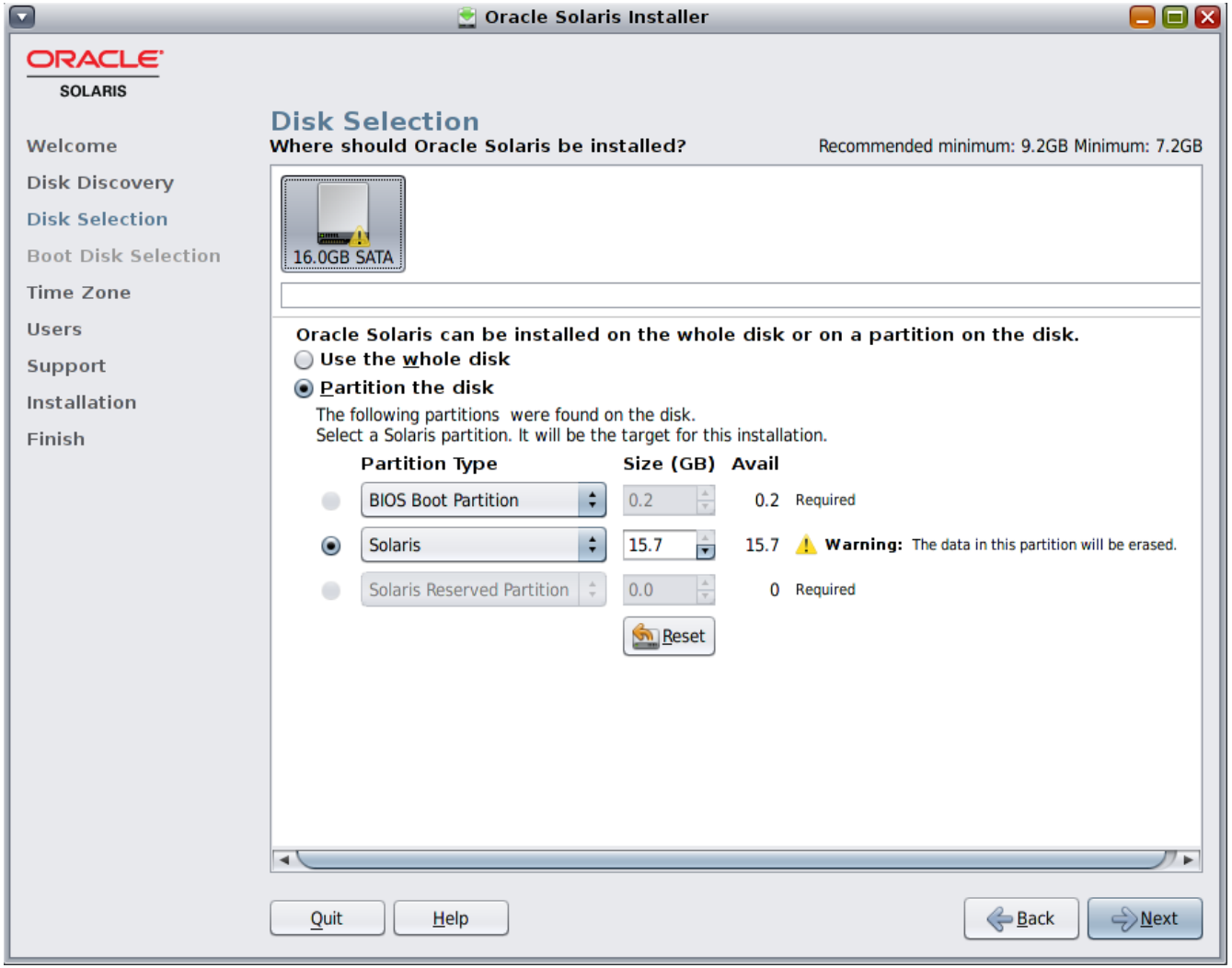
Welcome Screen



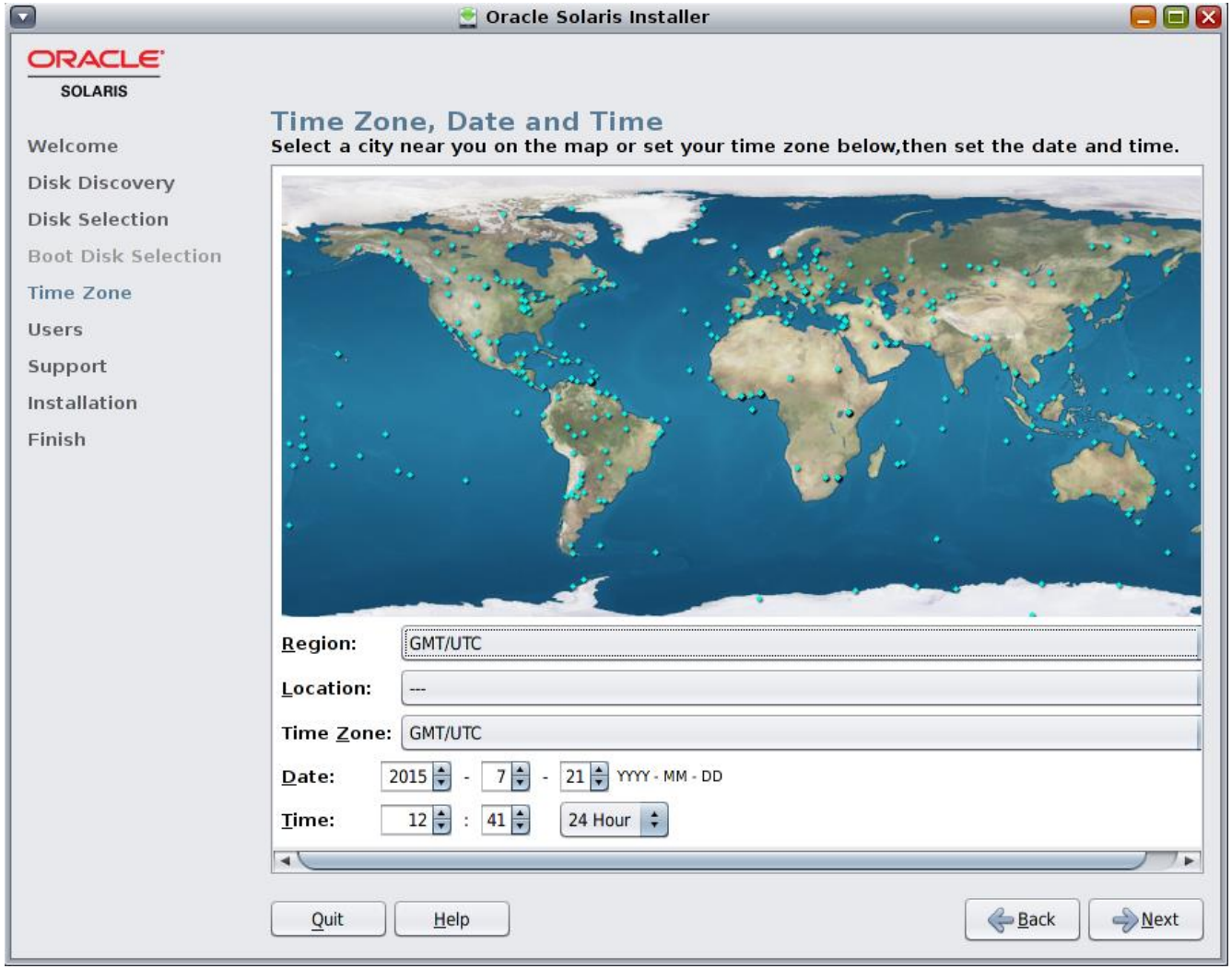
Disk Discovery



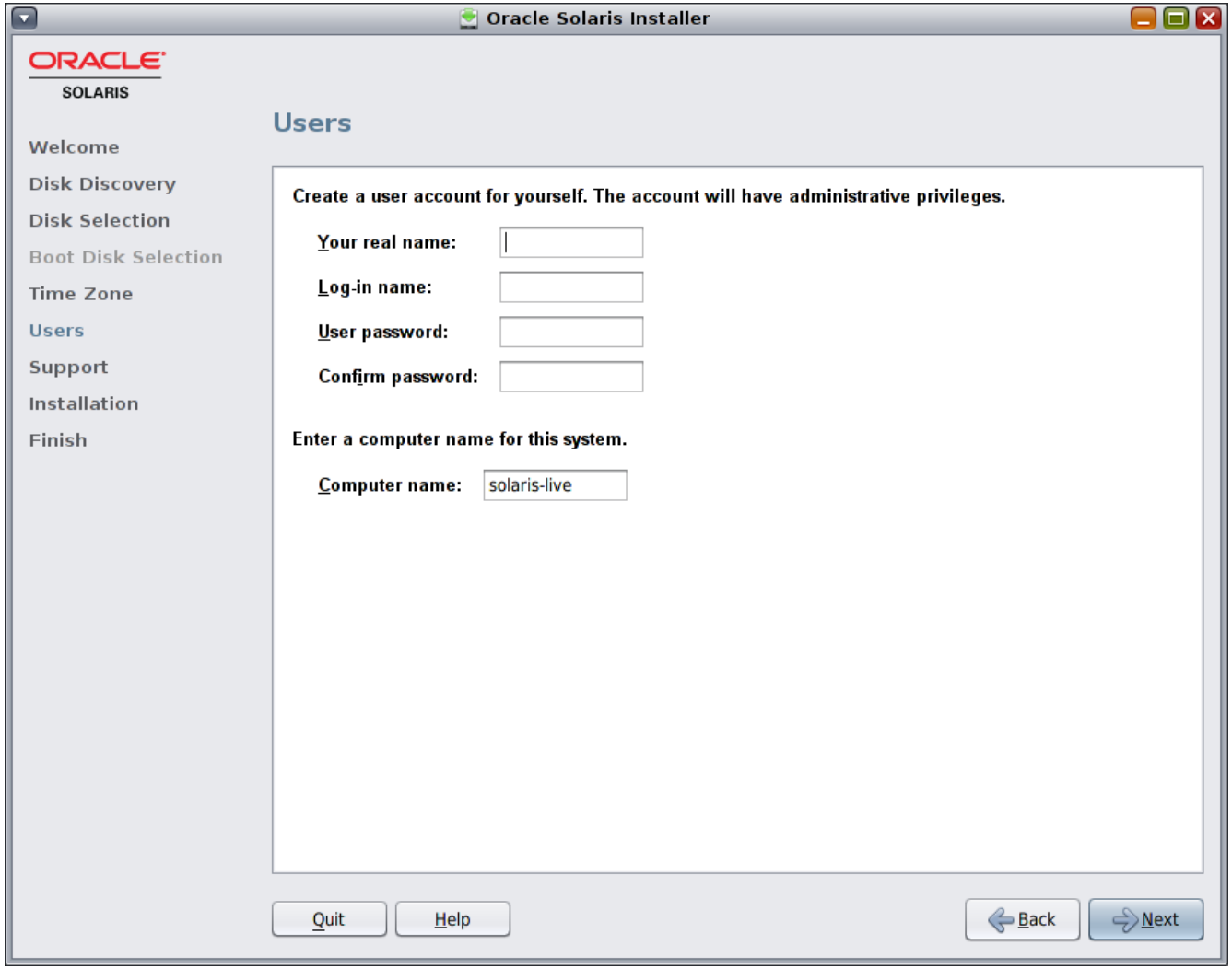
Selecting a Disk



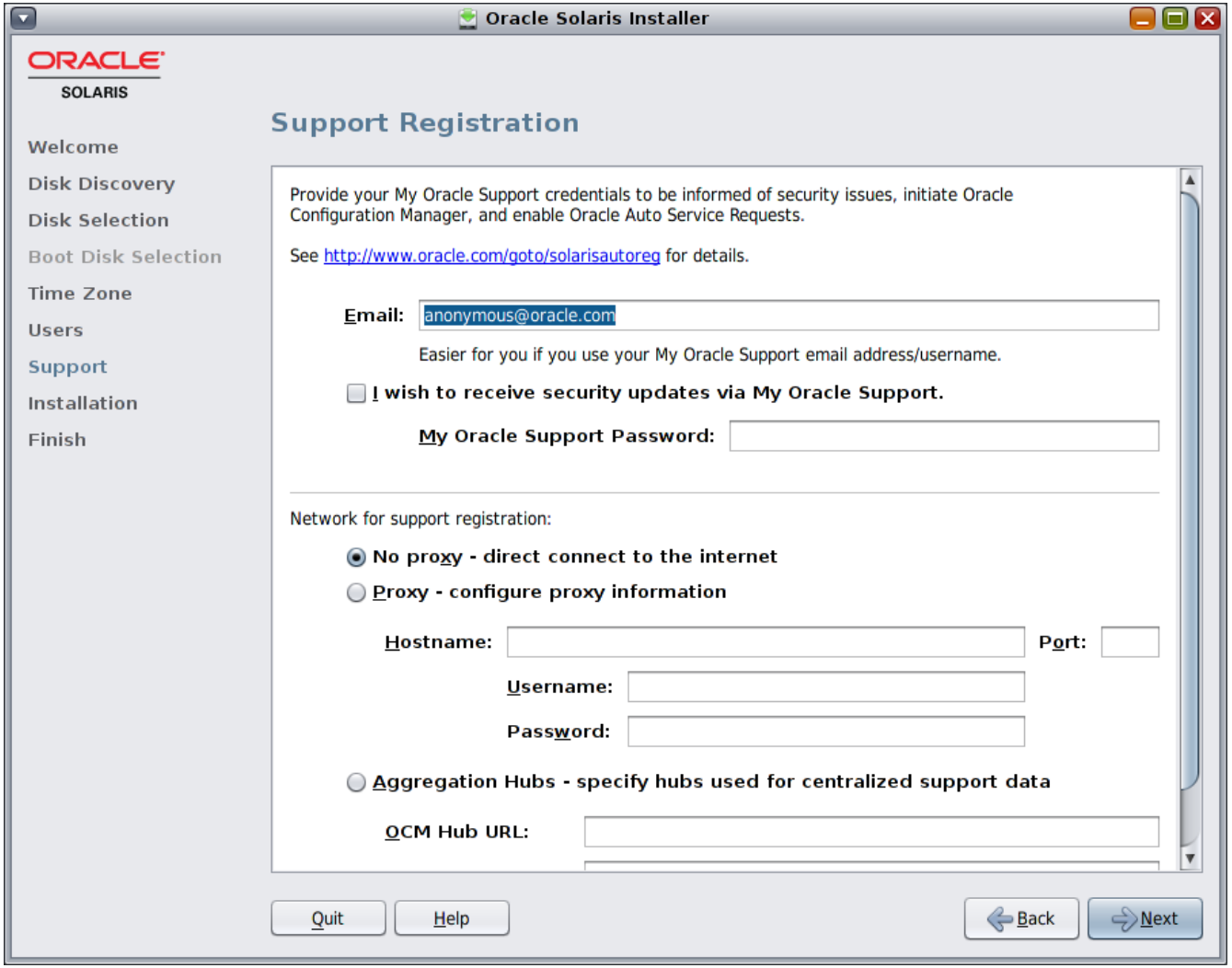
Setting the Time Zone, Date, and Time



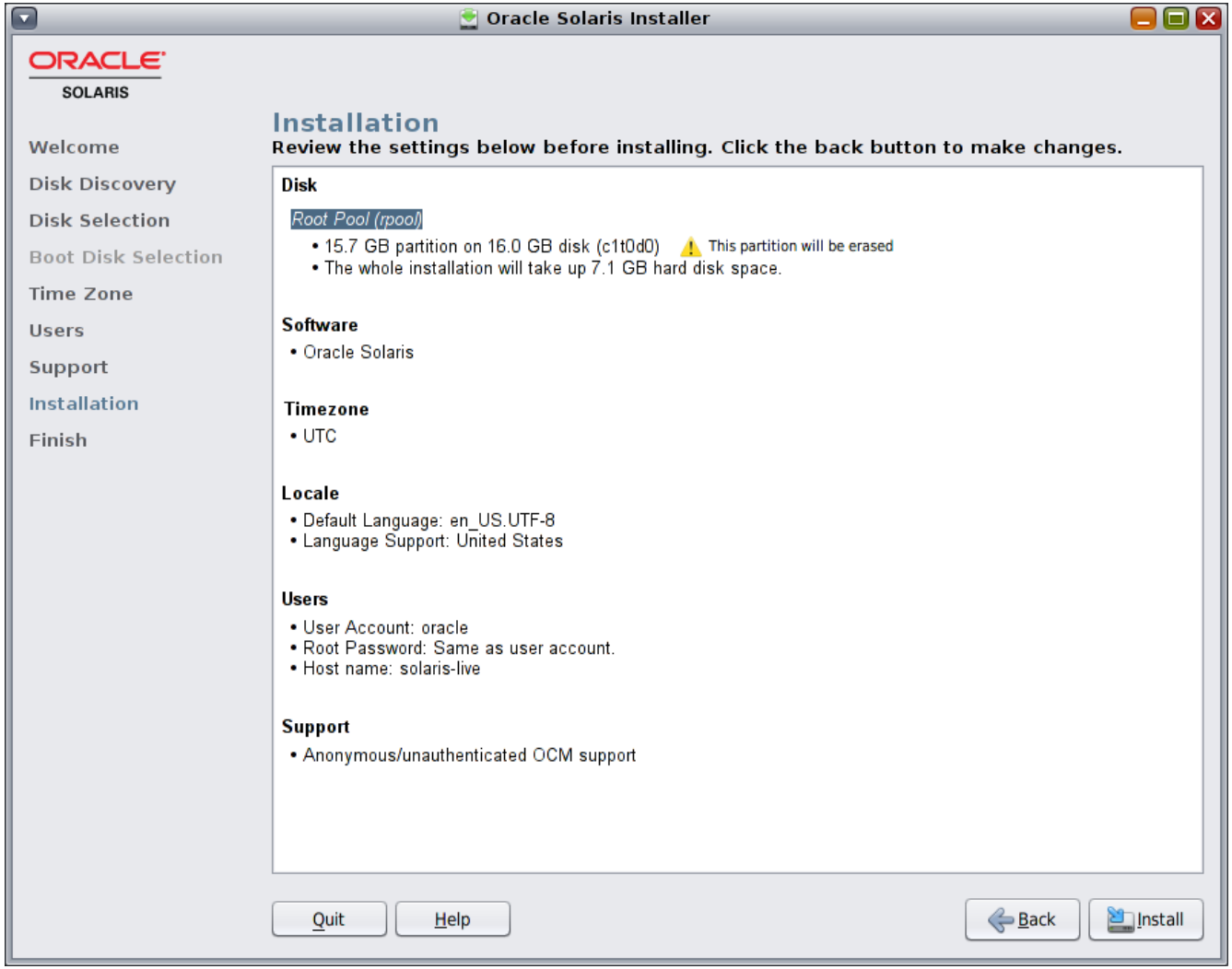
Providing User Information



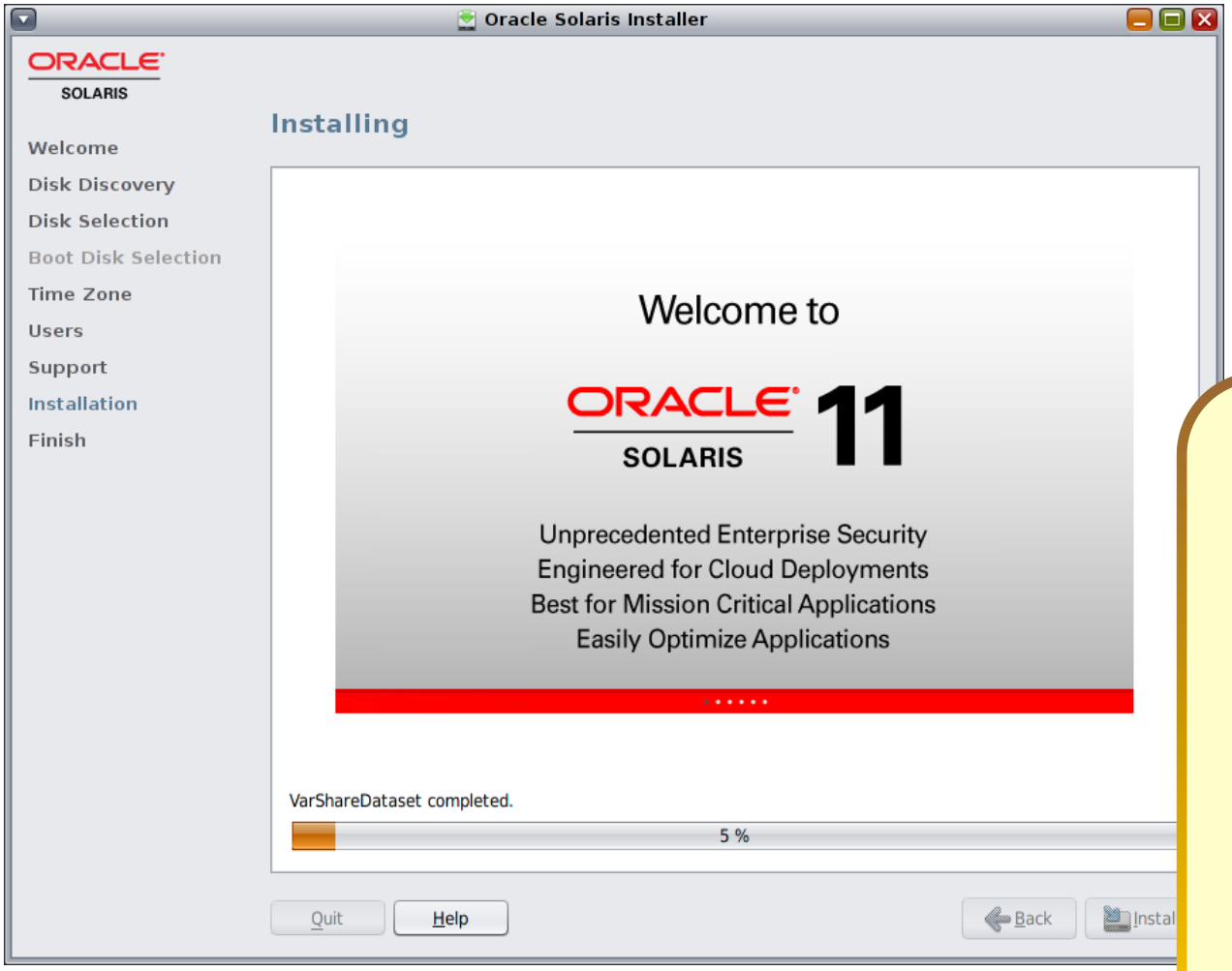
Support Registration



Reviewing Installation Specifications



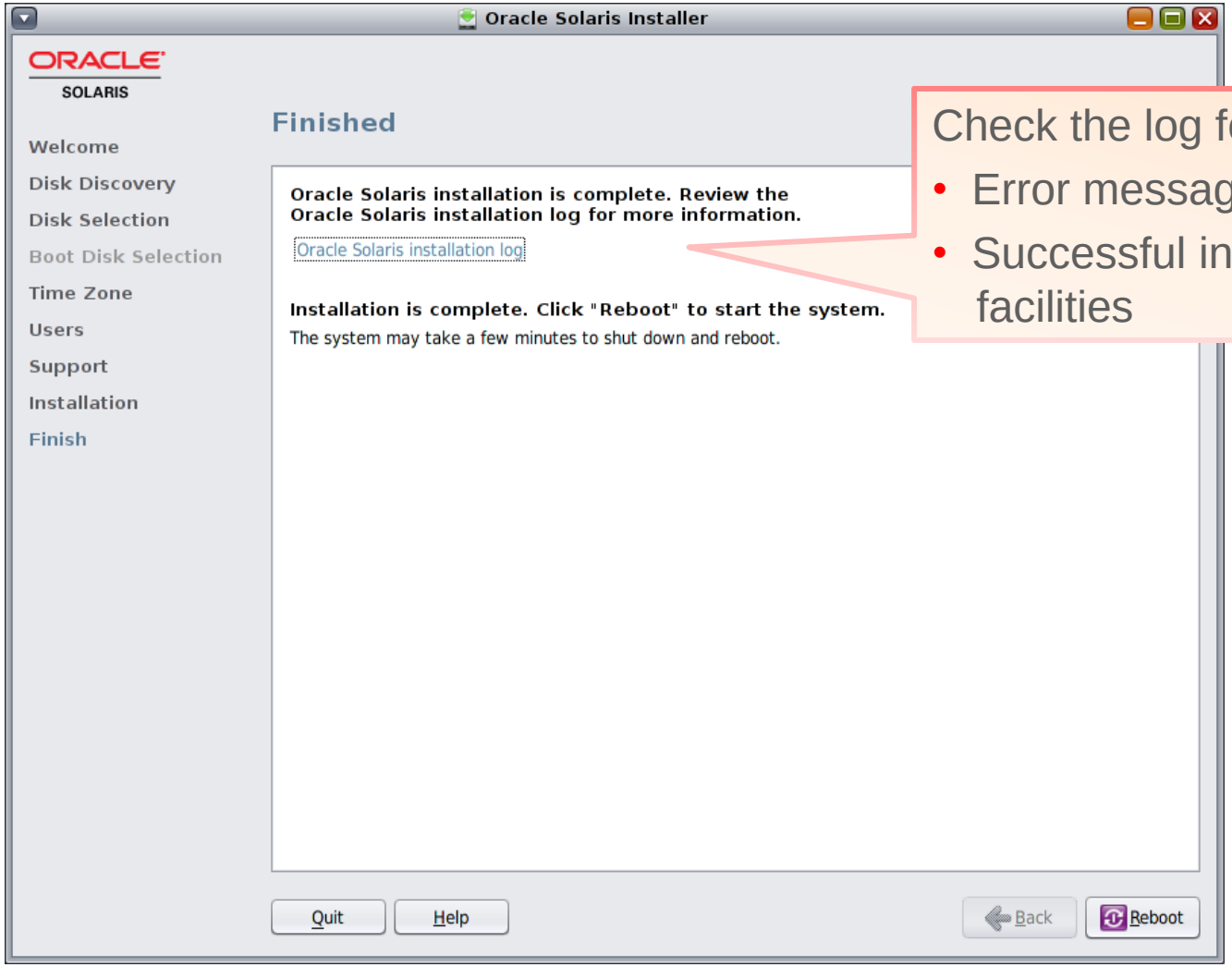
Monitoring the Installation



Caution:

After the installation starts, do not interrupt it. An incomplete installation can leave a disk in an indeterminate state.

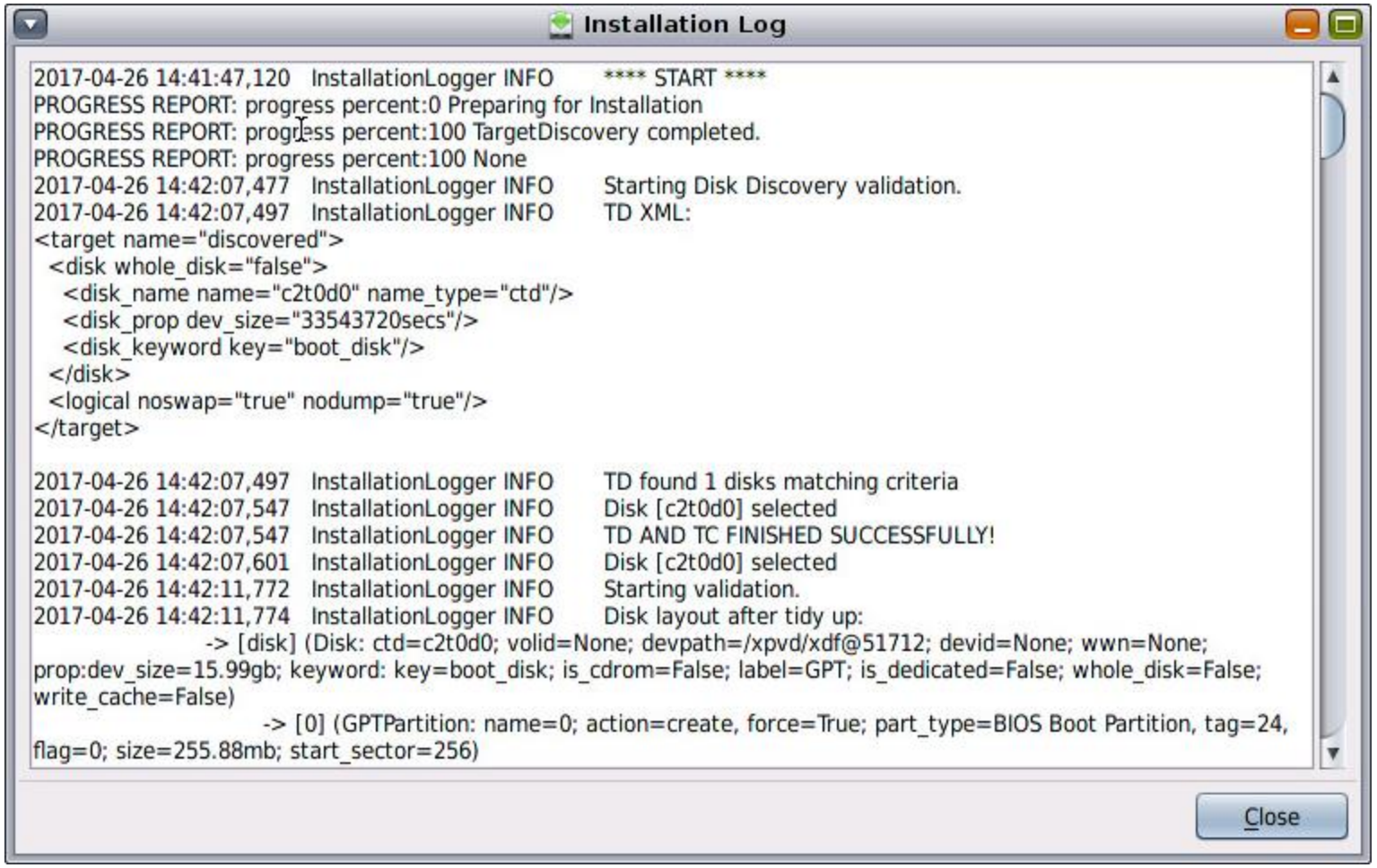
Verifying the Installation



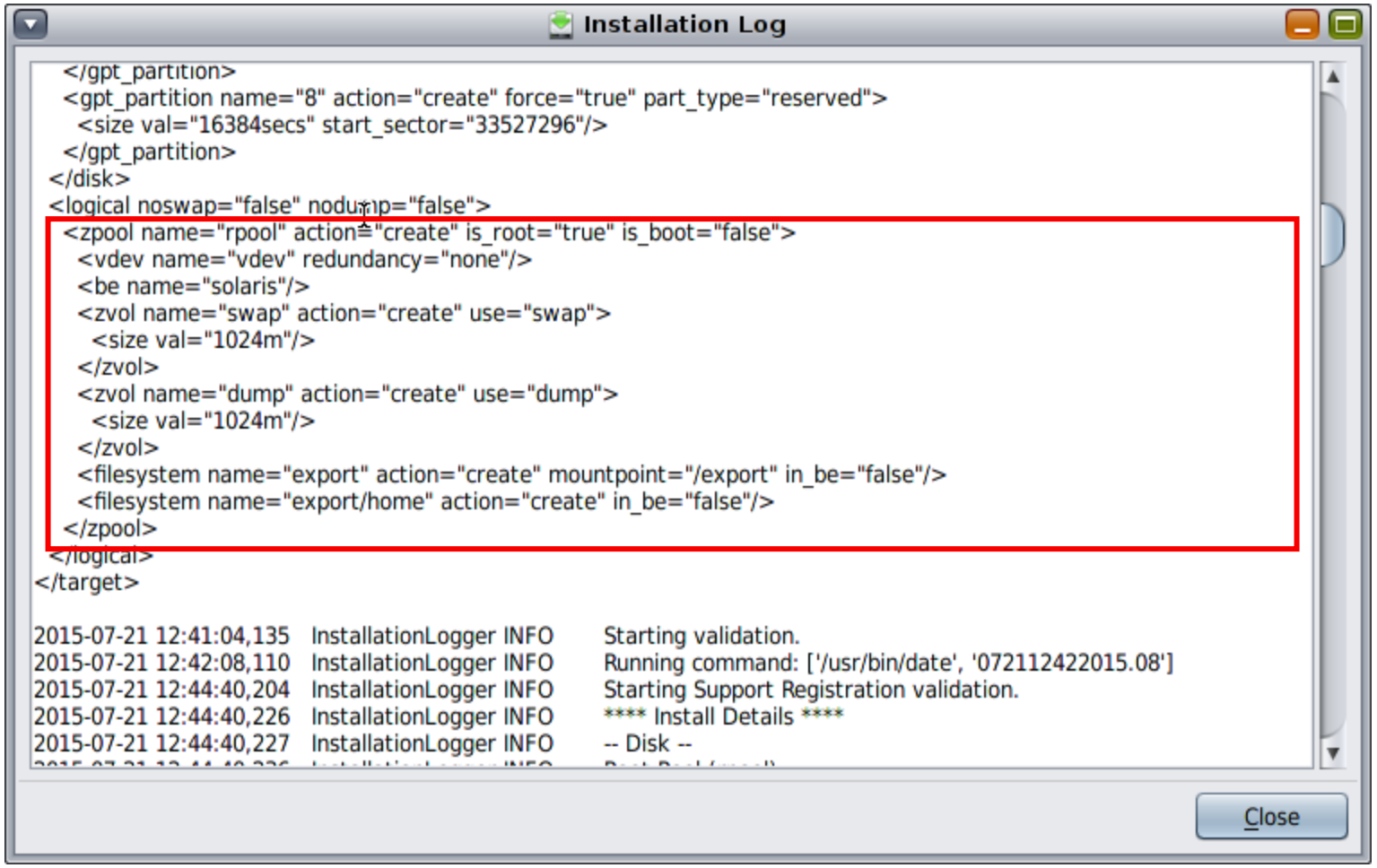
Check the log for the following:

- Error messages
- Successful installation of major facilities

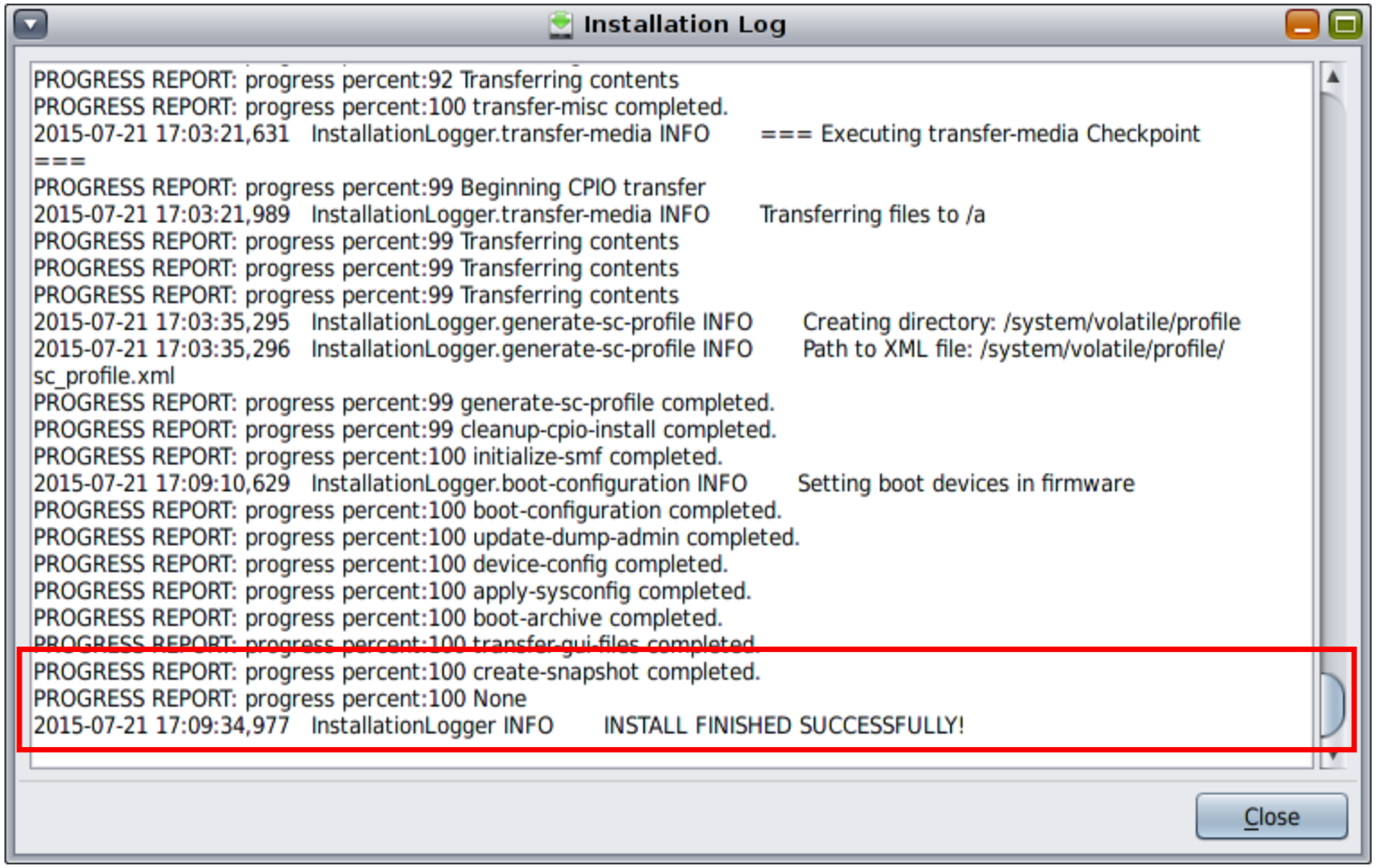
Reviewing the Installation Log



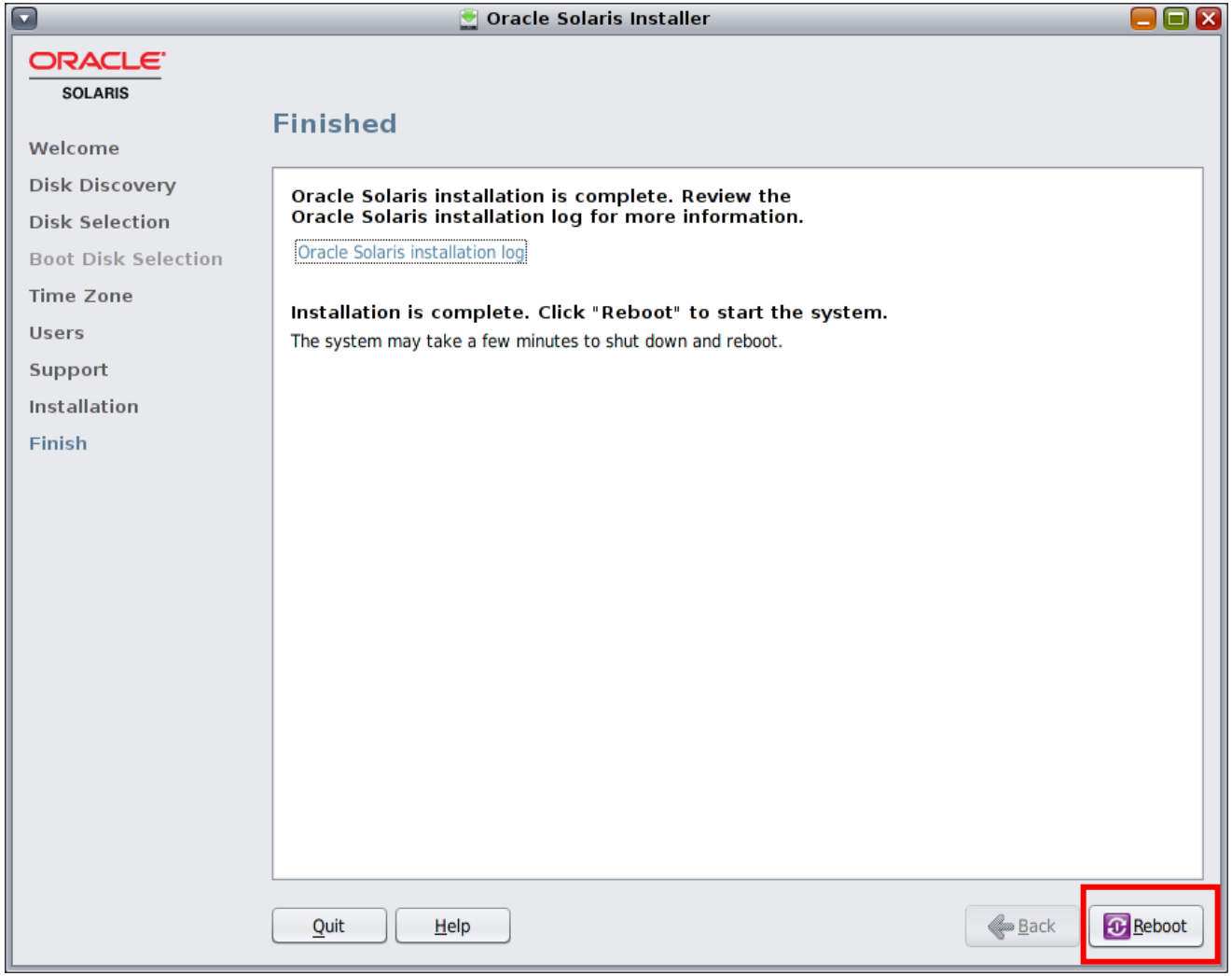
Reviewing the Installation Log



Reviewing the Installation Log



Rebooting the System



Login Screen

Agenda

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- **Installing the Oracle Solaris 11 OS by Using the Text Installer**
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Installing Oracle Solaris 11 by Using the Text Installer

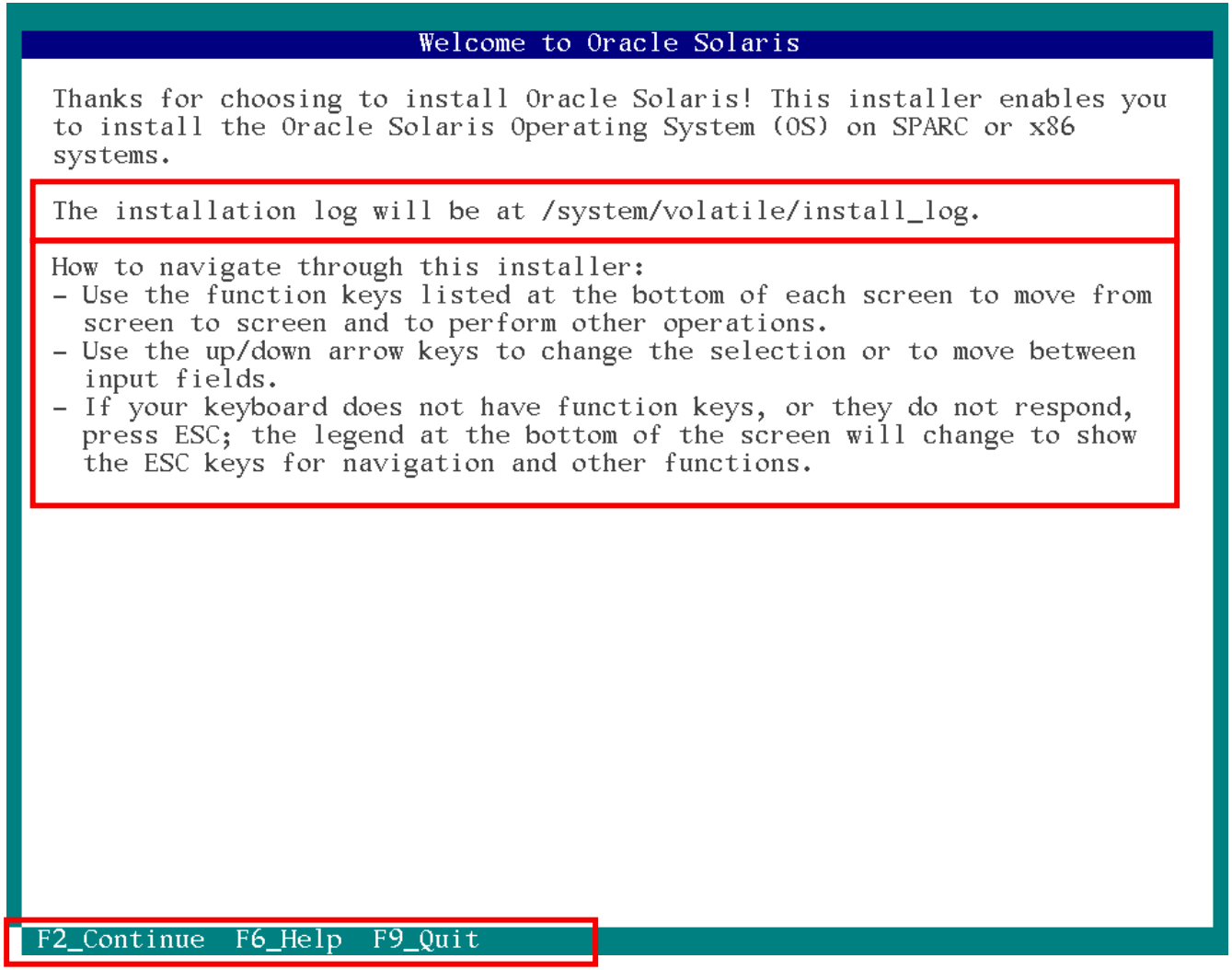
```
Welcome to the Oracle Solaris installation menu

      1  Install Oracle Solaris
      2  Install Additional Drivers
      3  Shell
      4  Terminal type (currently sun-color)
      5  Reboot

Please enter a number [1]: _
```

Initiating Installation with the Text Installer

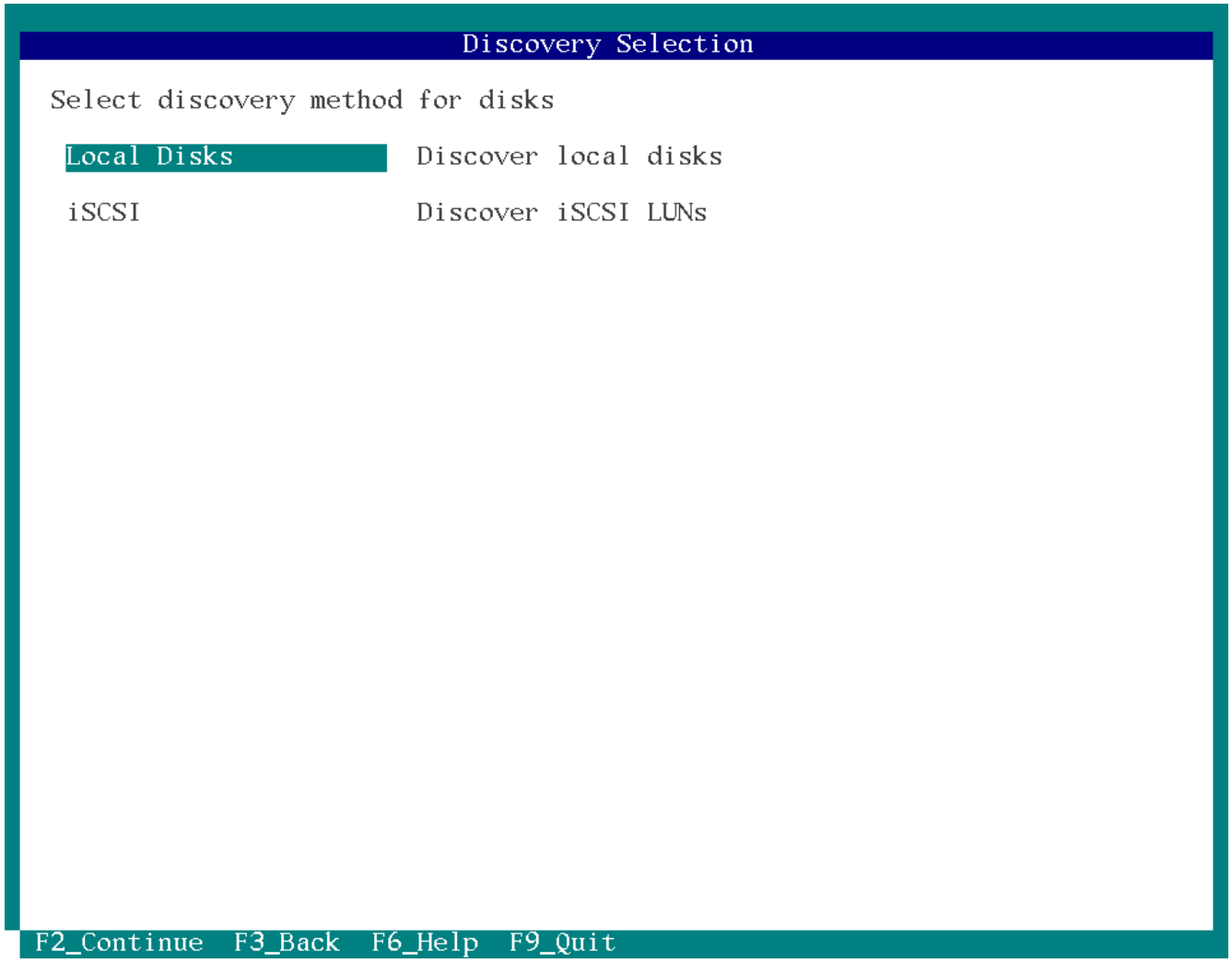
Select option 1 to initiate installation.

```
Welcome to the Oracle Solaris installation menu

      1  Install Oracle Solaris
      2  Install Additional Drivers
      3  Shell
      4  Terminal type (currently sun-color)
      5  Reboot

Please enter a number [1]: _
```

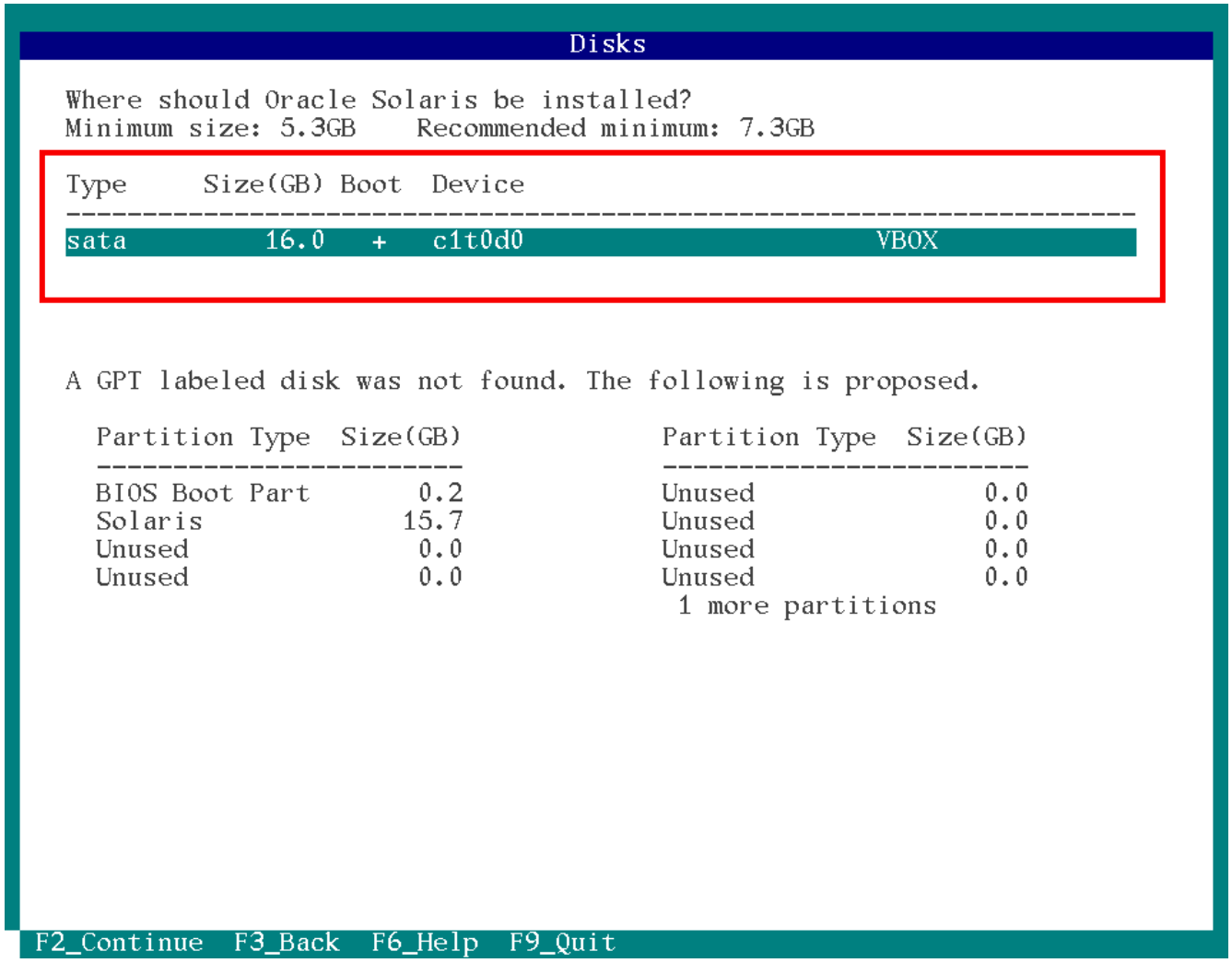
Welcome to Oracle Solaris



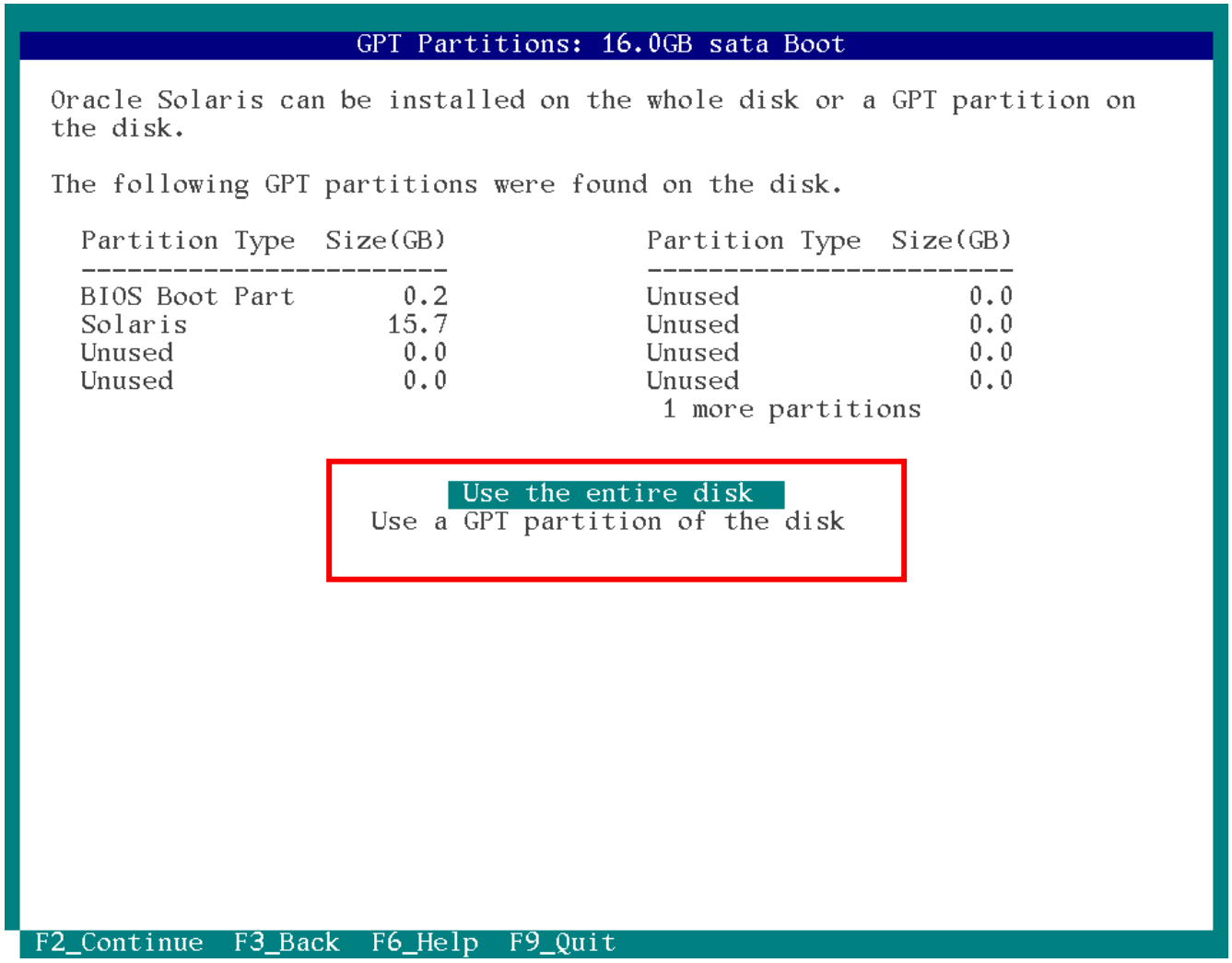
Selecting the Discovery Method



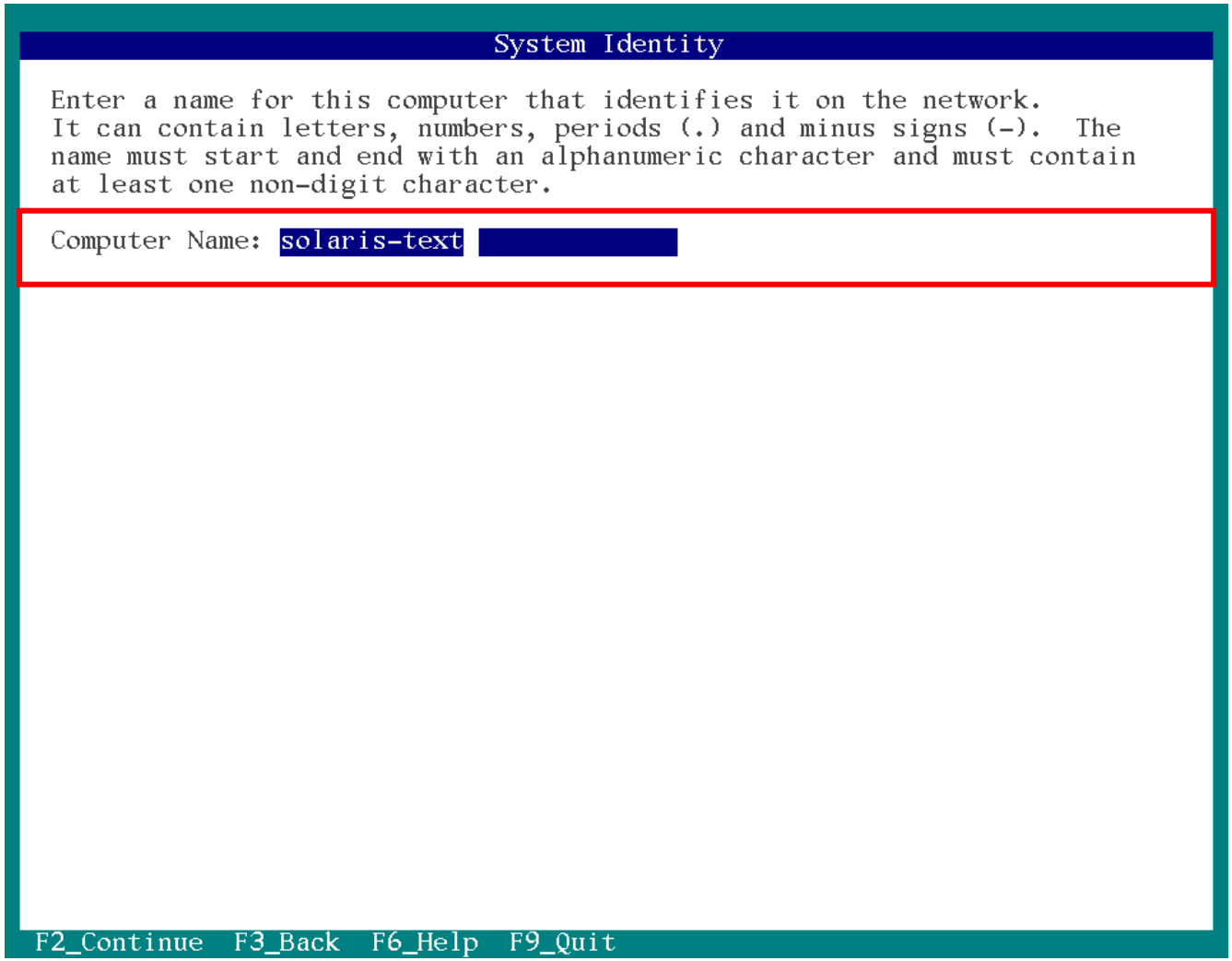
Selecting a Disk



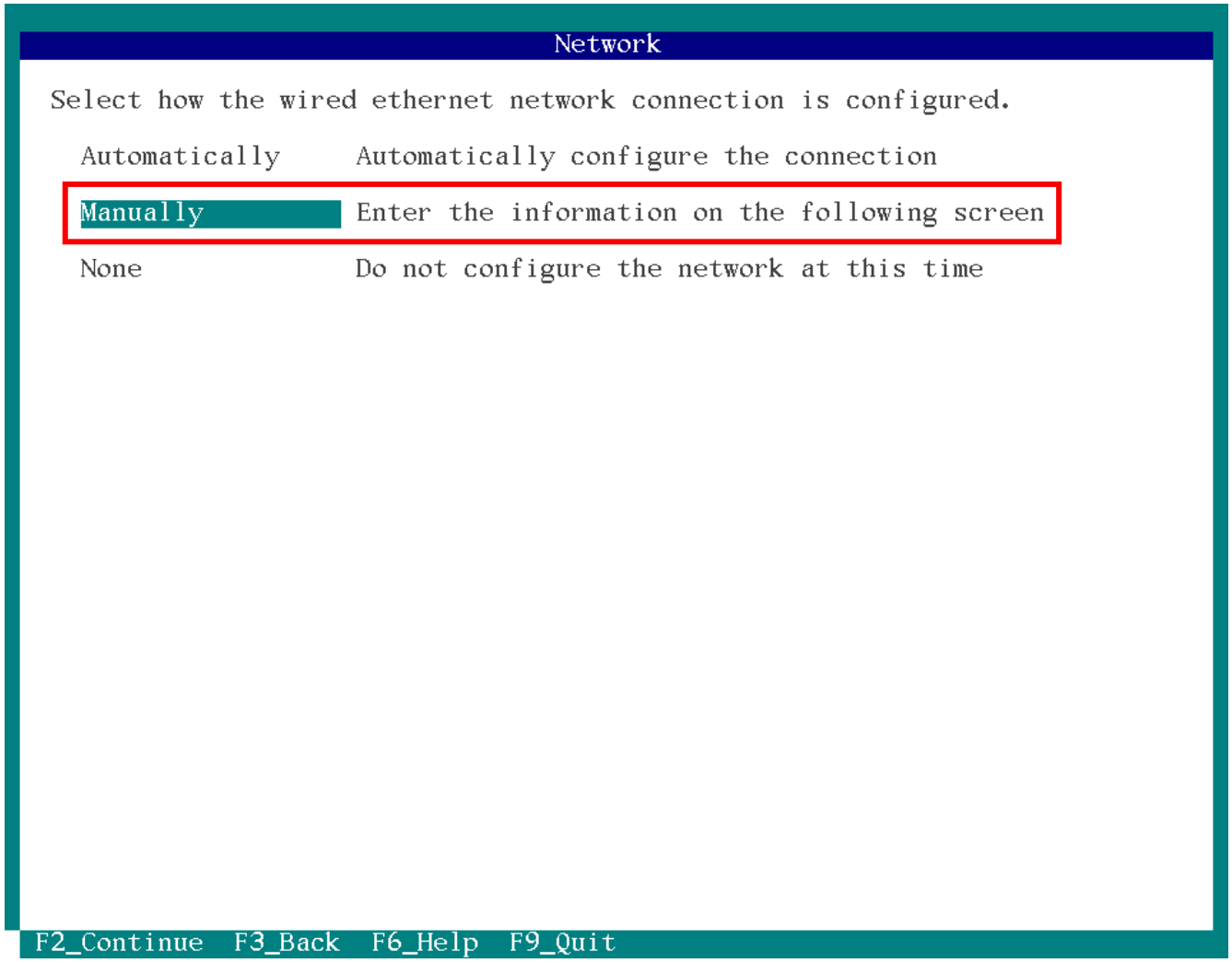
Selecting an Fdisk Partition



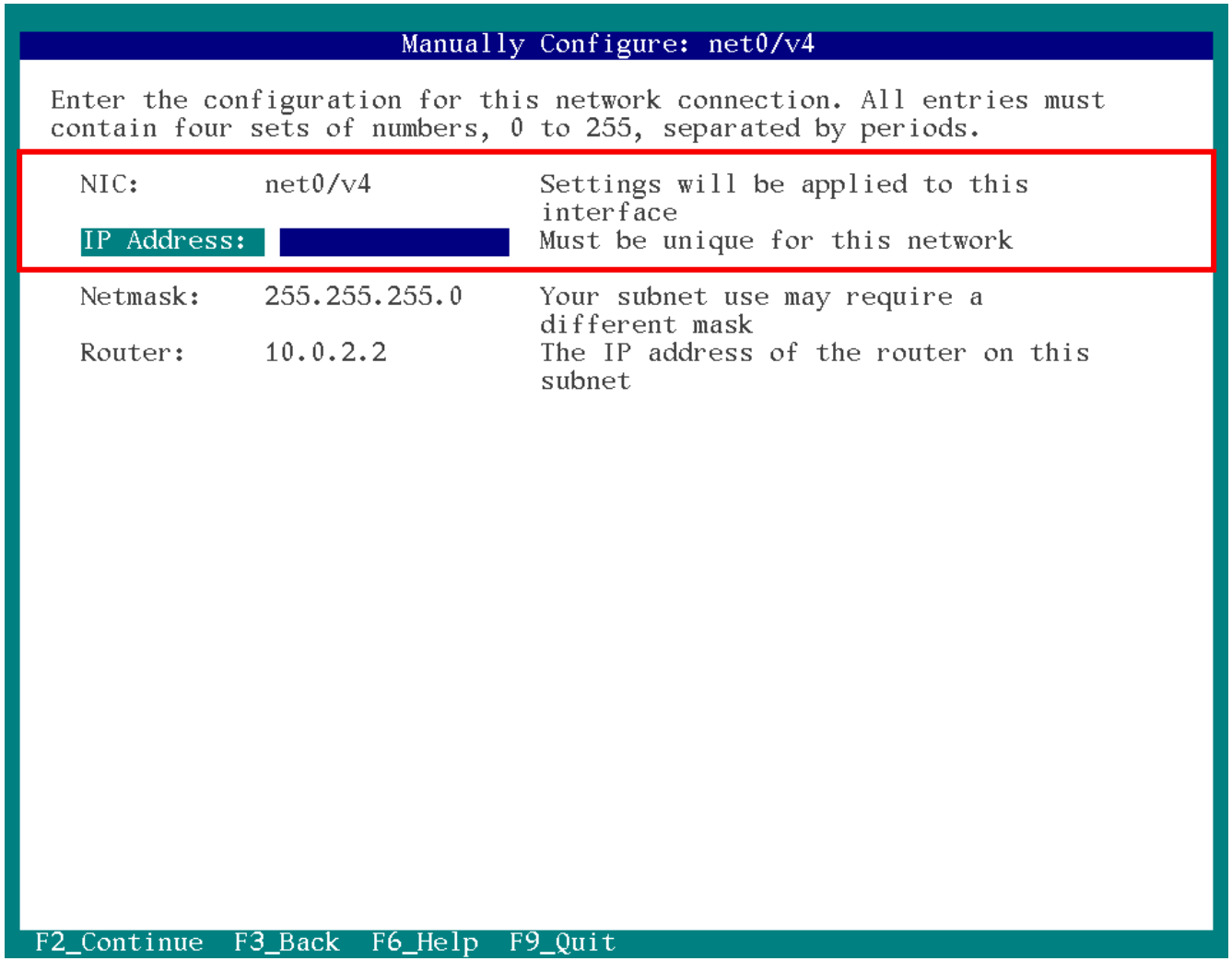
Providing a System Identity



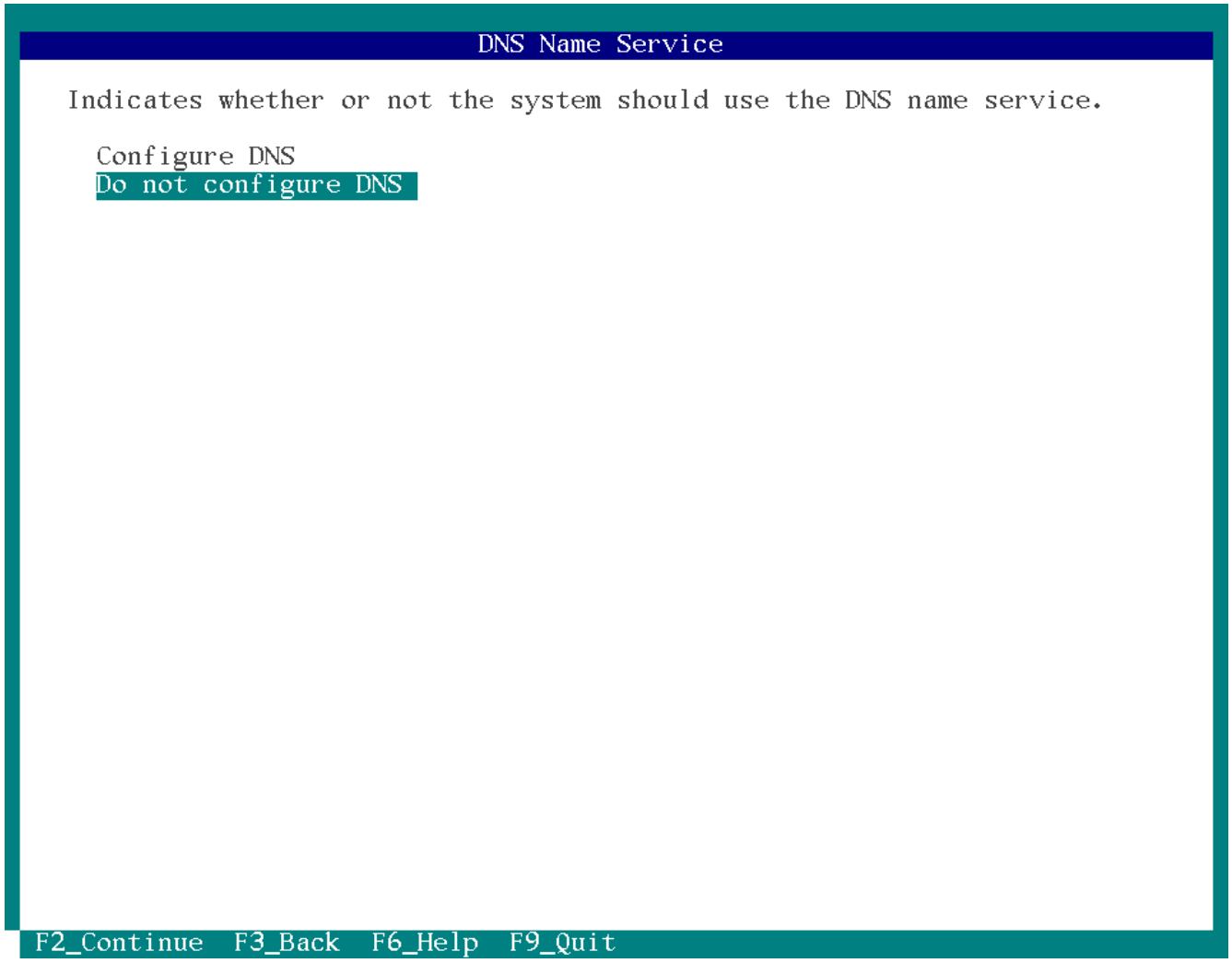
Selecting a Network



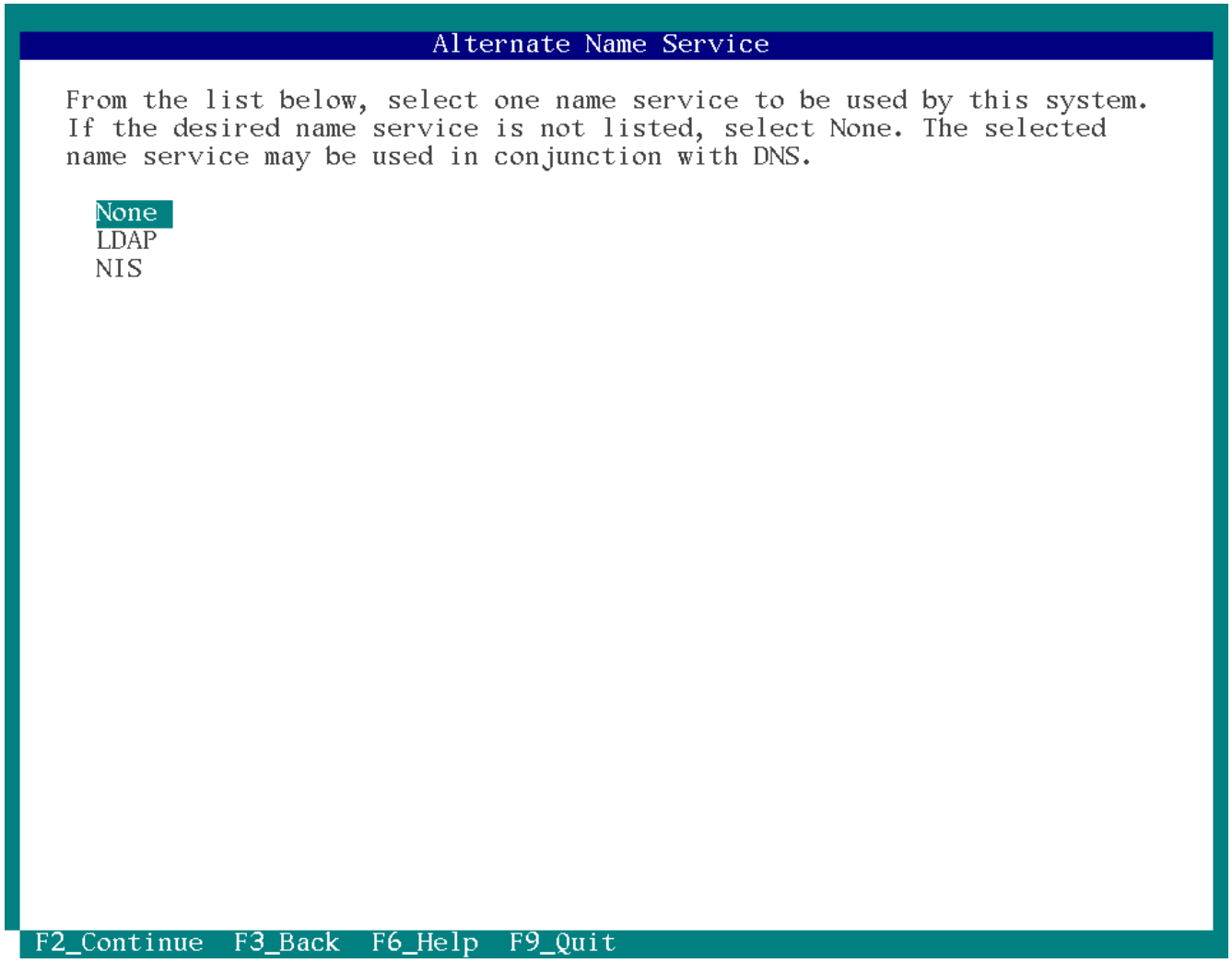
Manually Configuring the Network



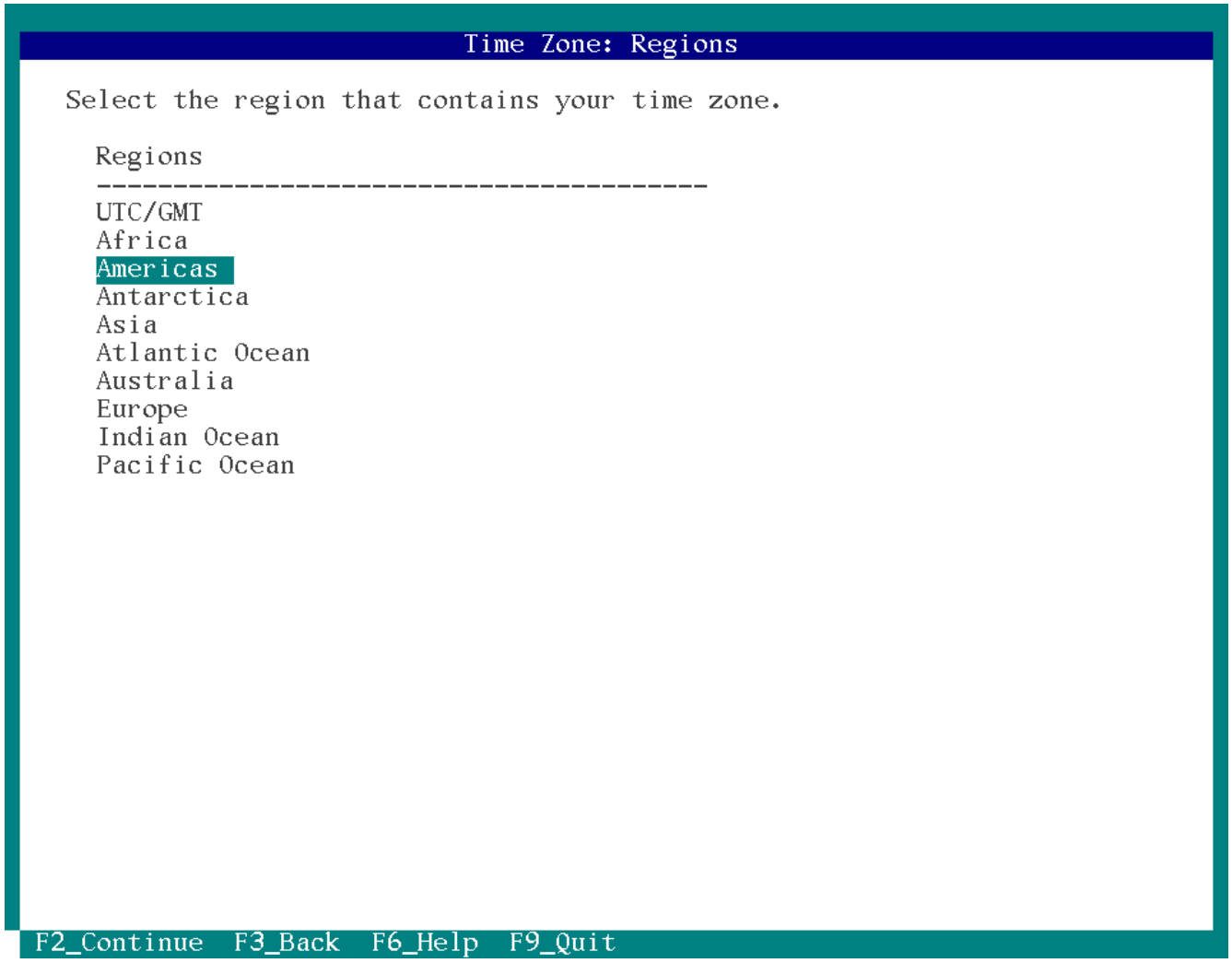
DNS Name Service



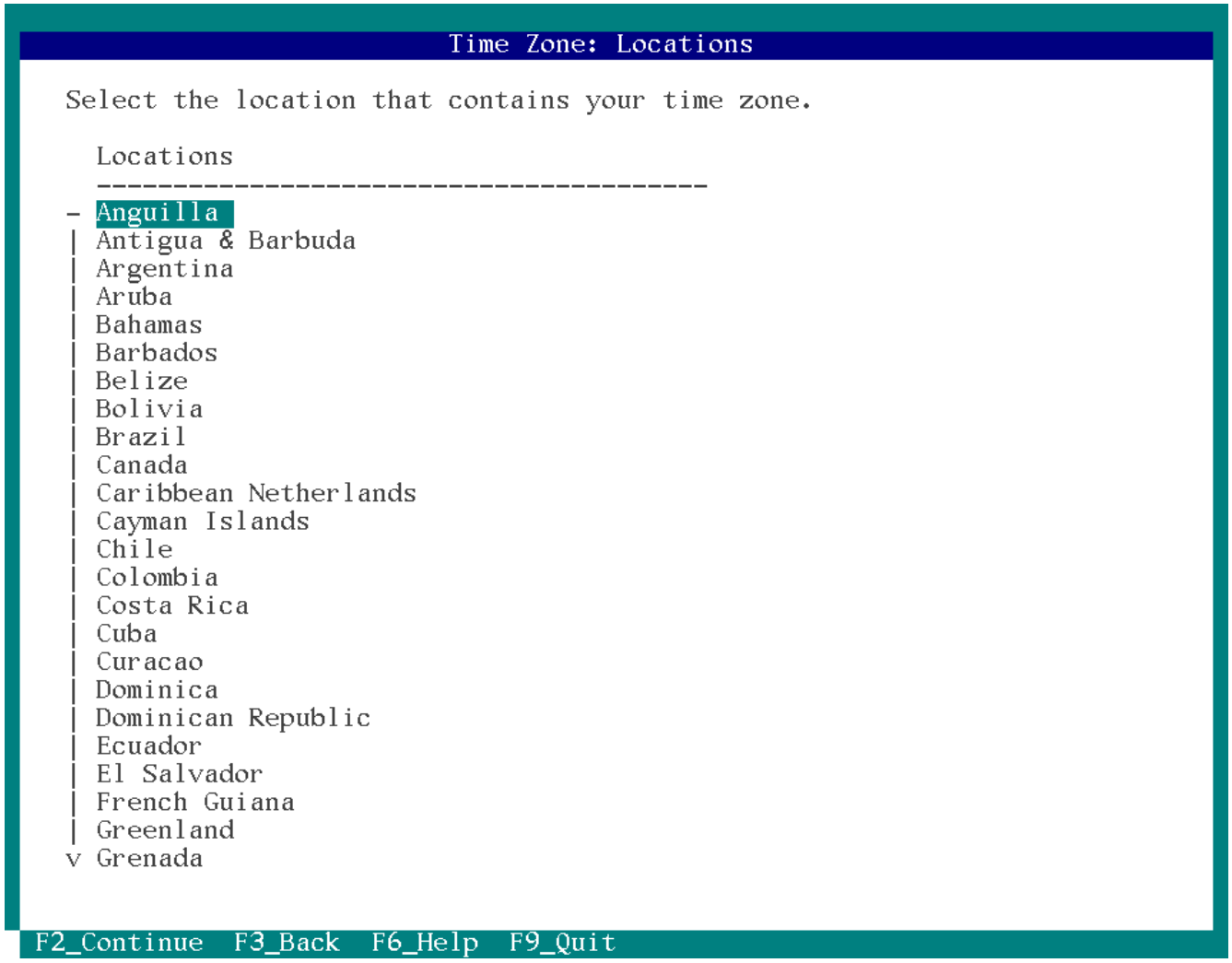
Alternate Name Service



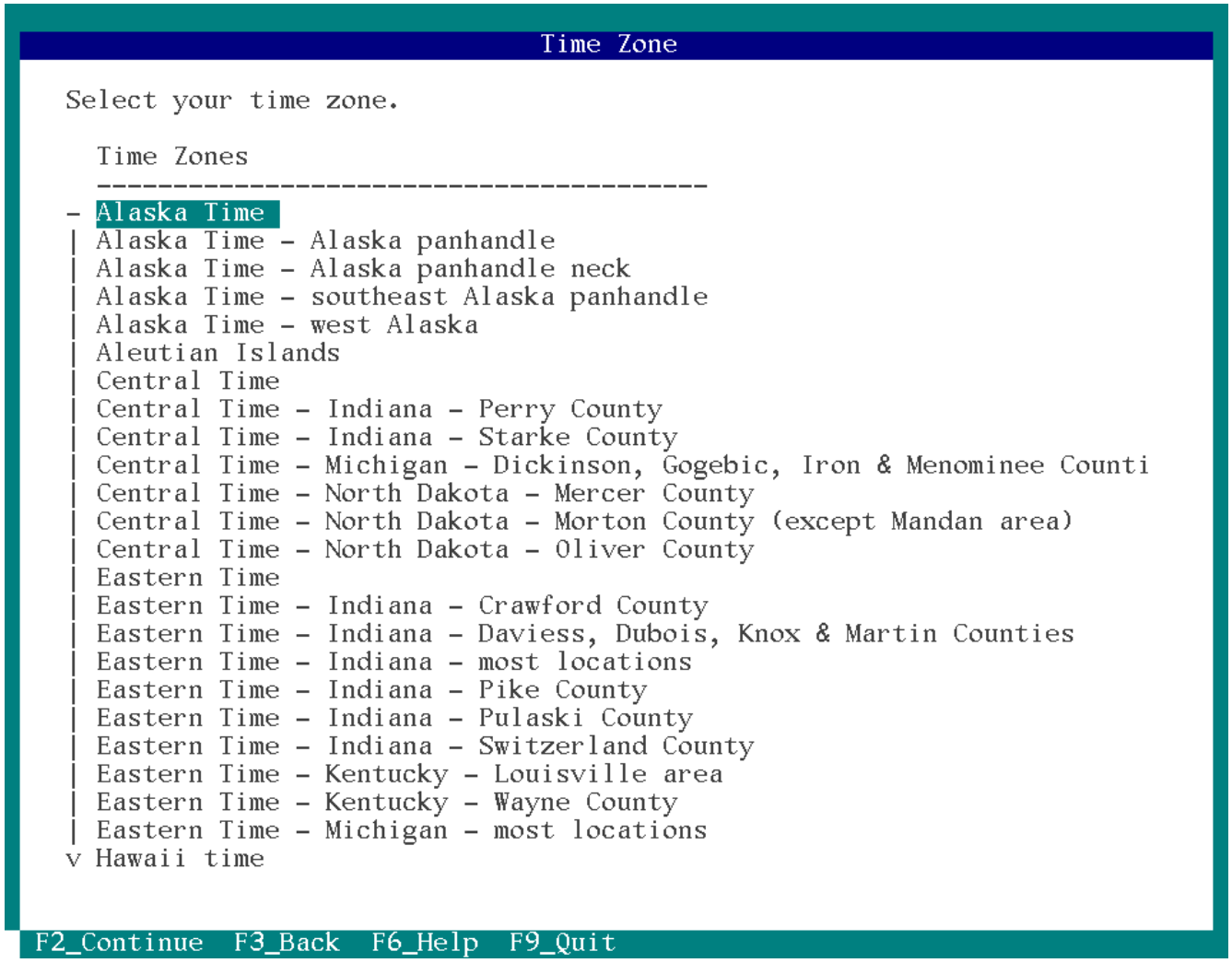
Selecting Time Zone: Regions



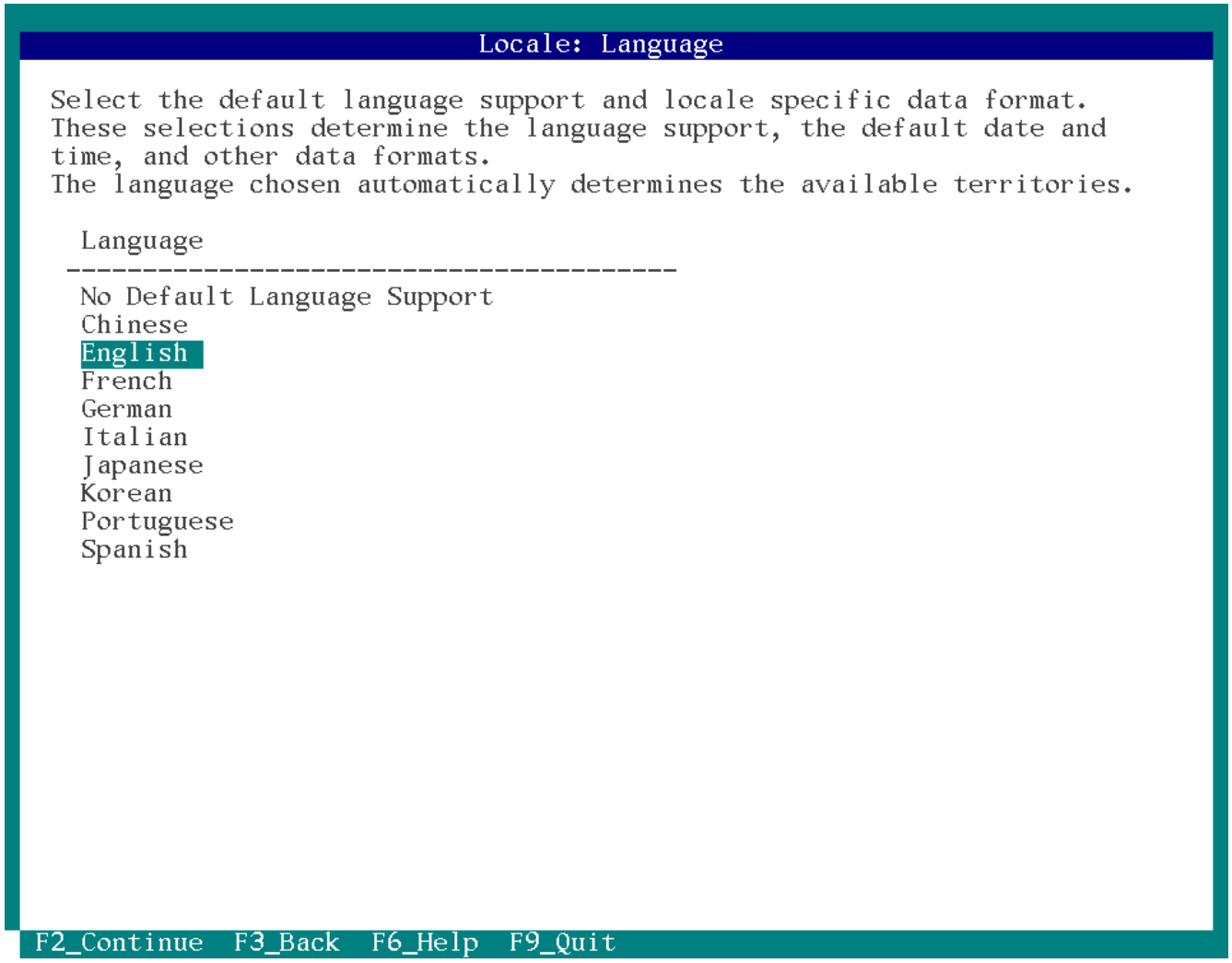
Setting Time Zone: Locations



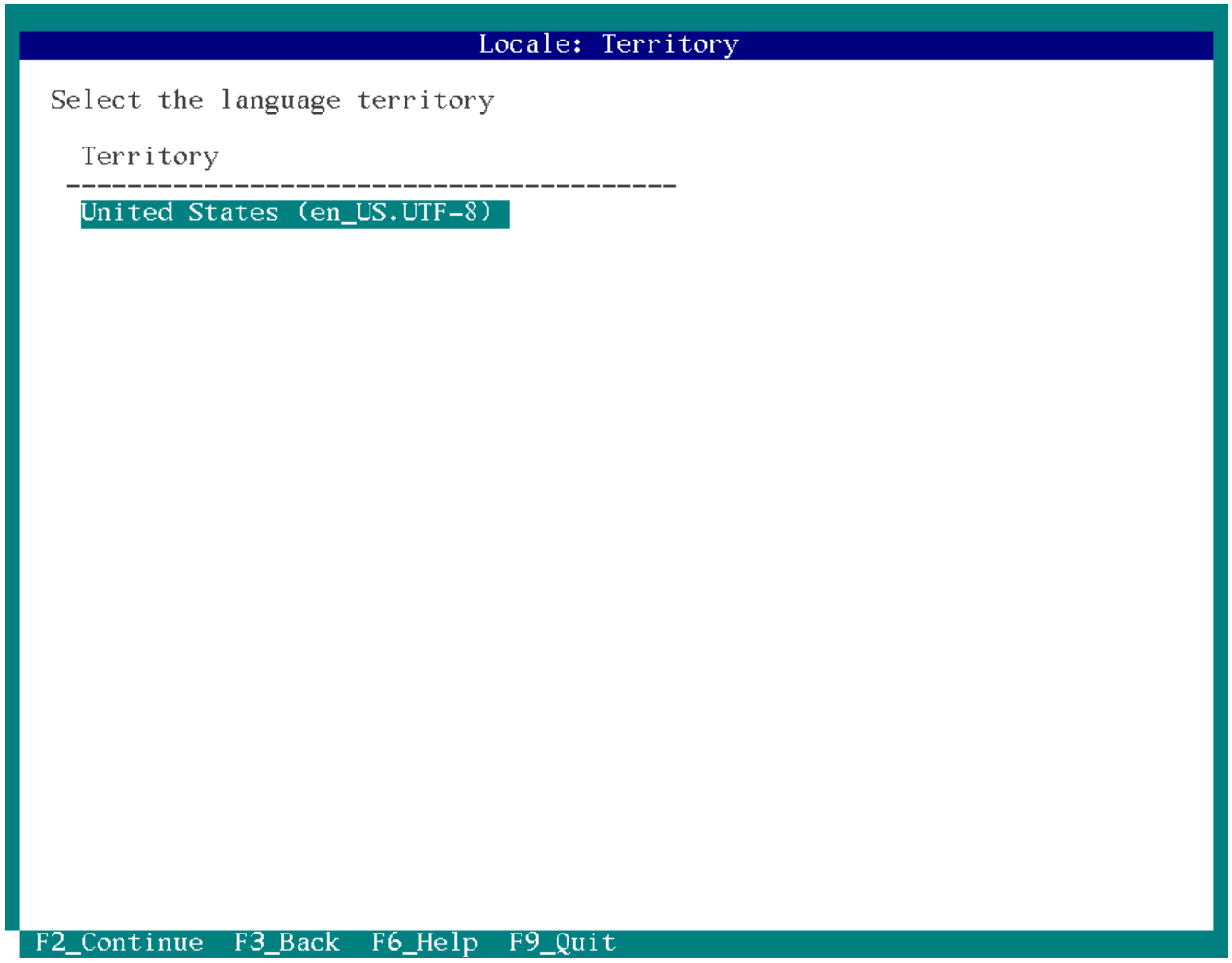
Selecting the Time Zone



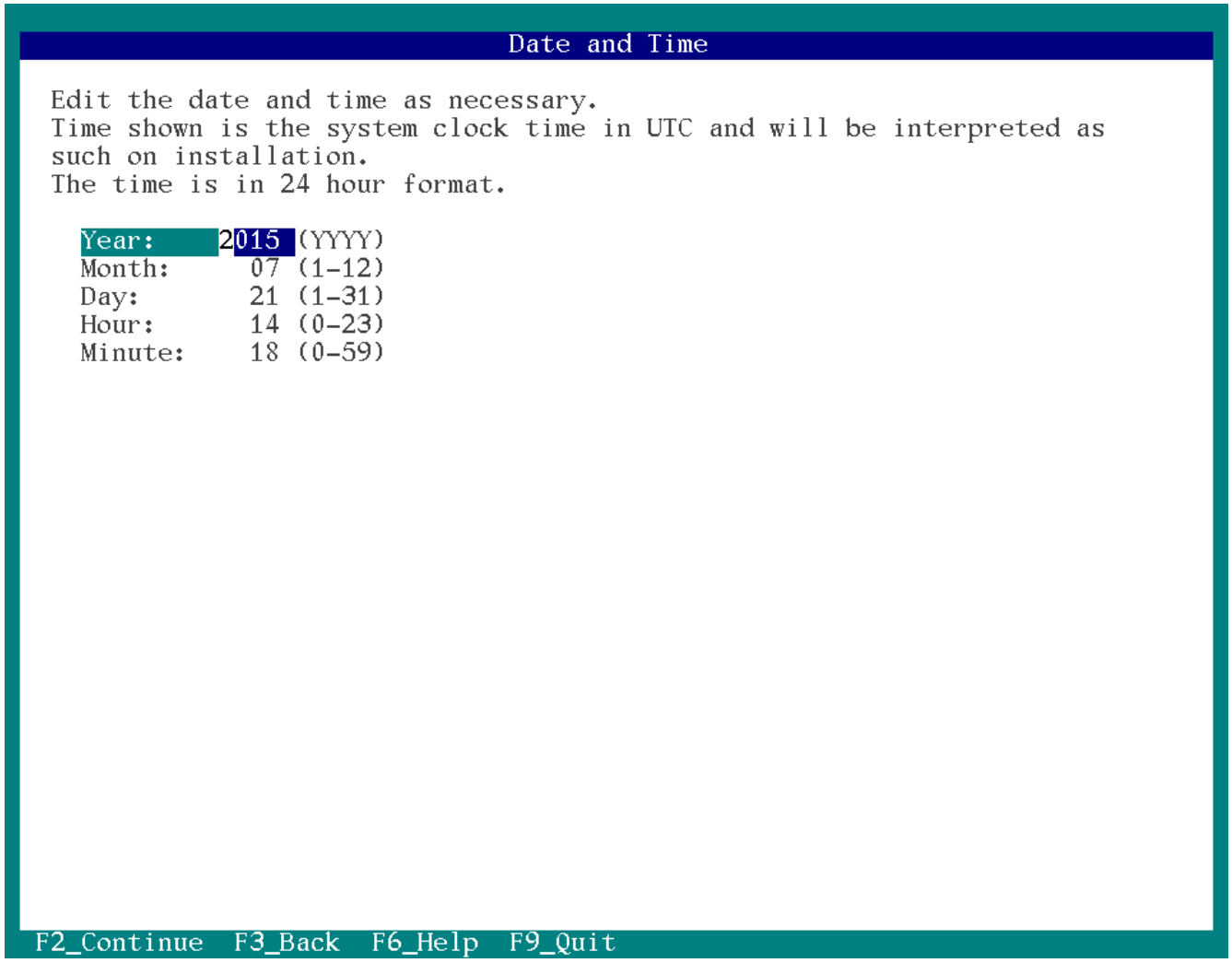
Selecting the Language



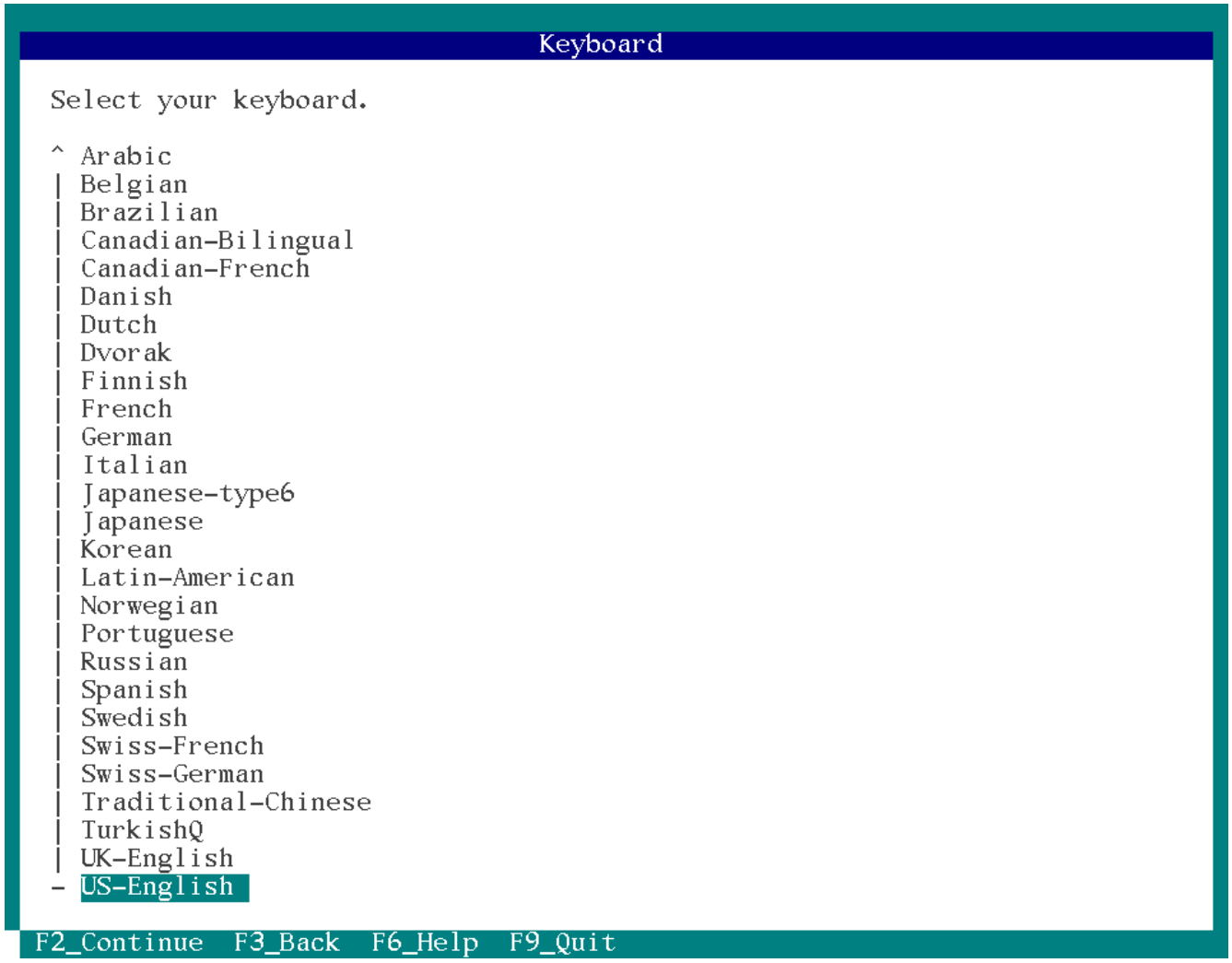
Selecting the Territory



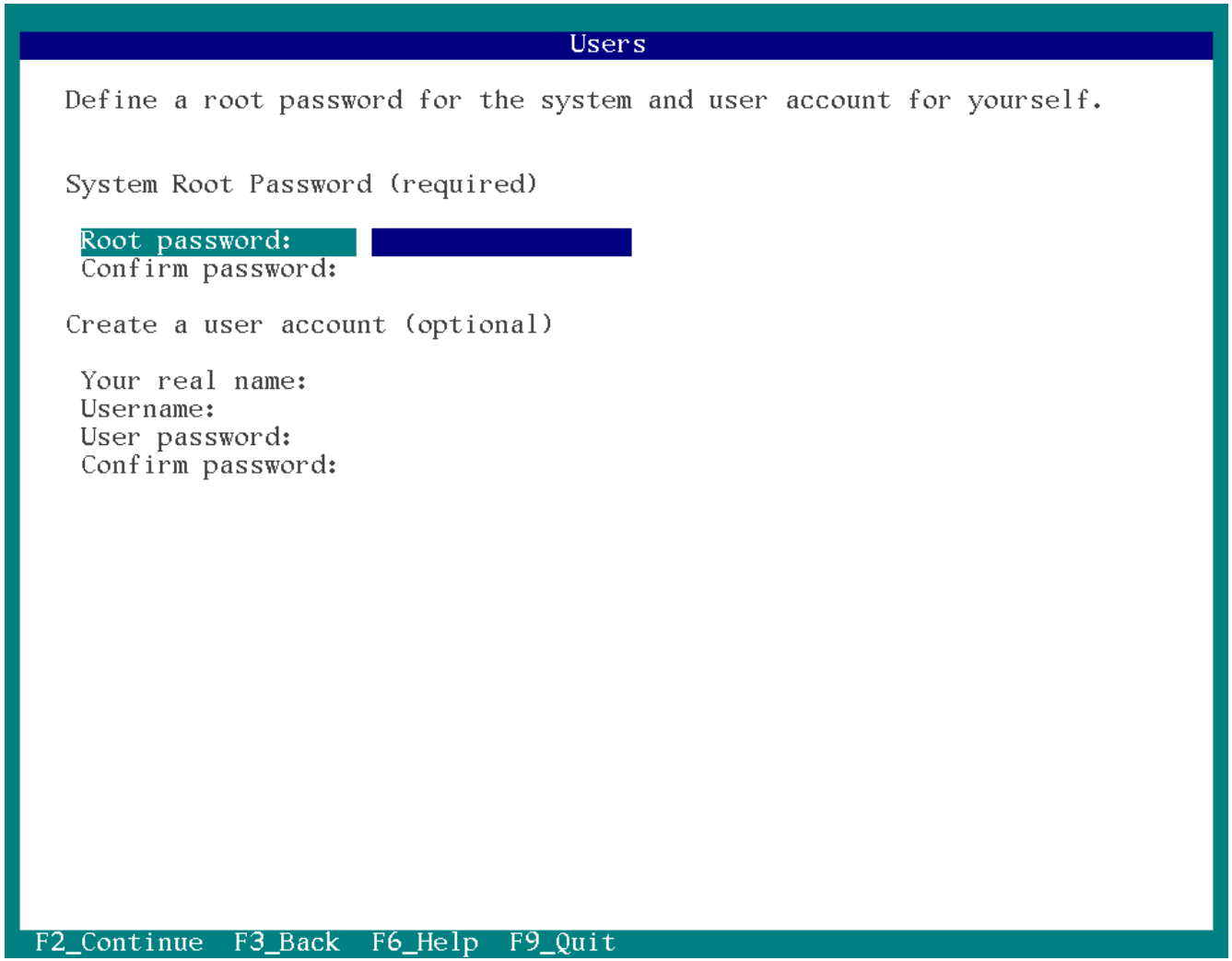
Setting the Date and Time



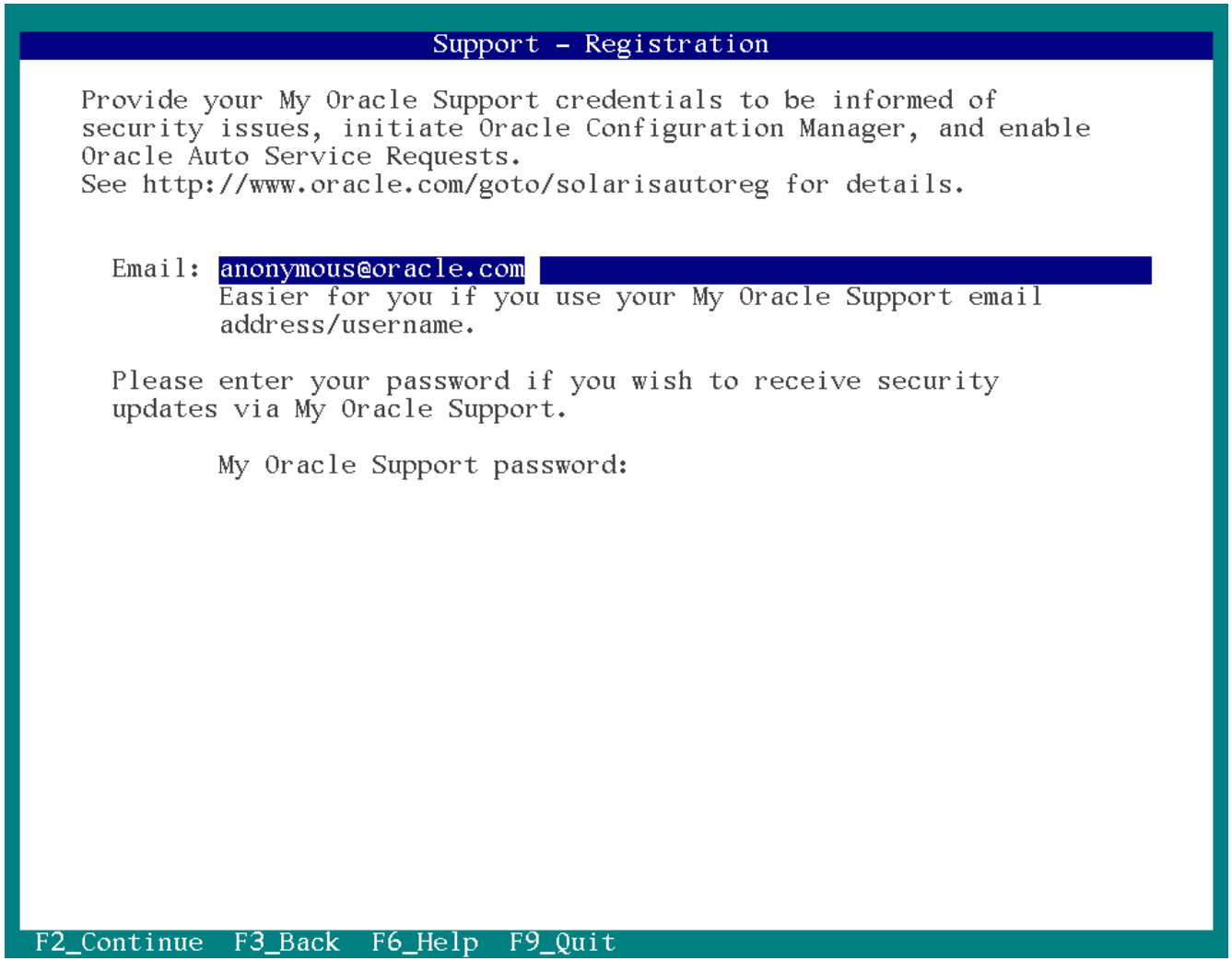
Selecting the Keyboard



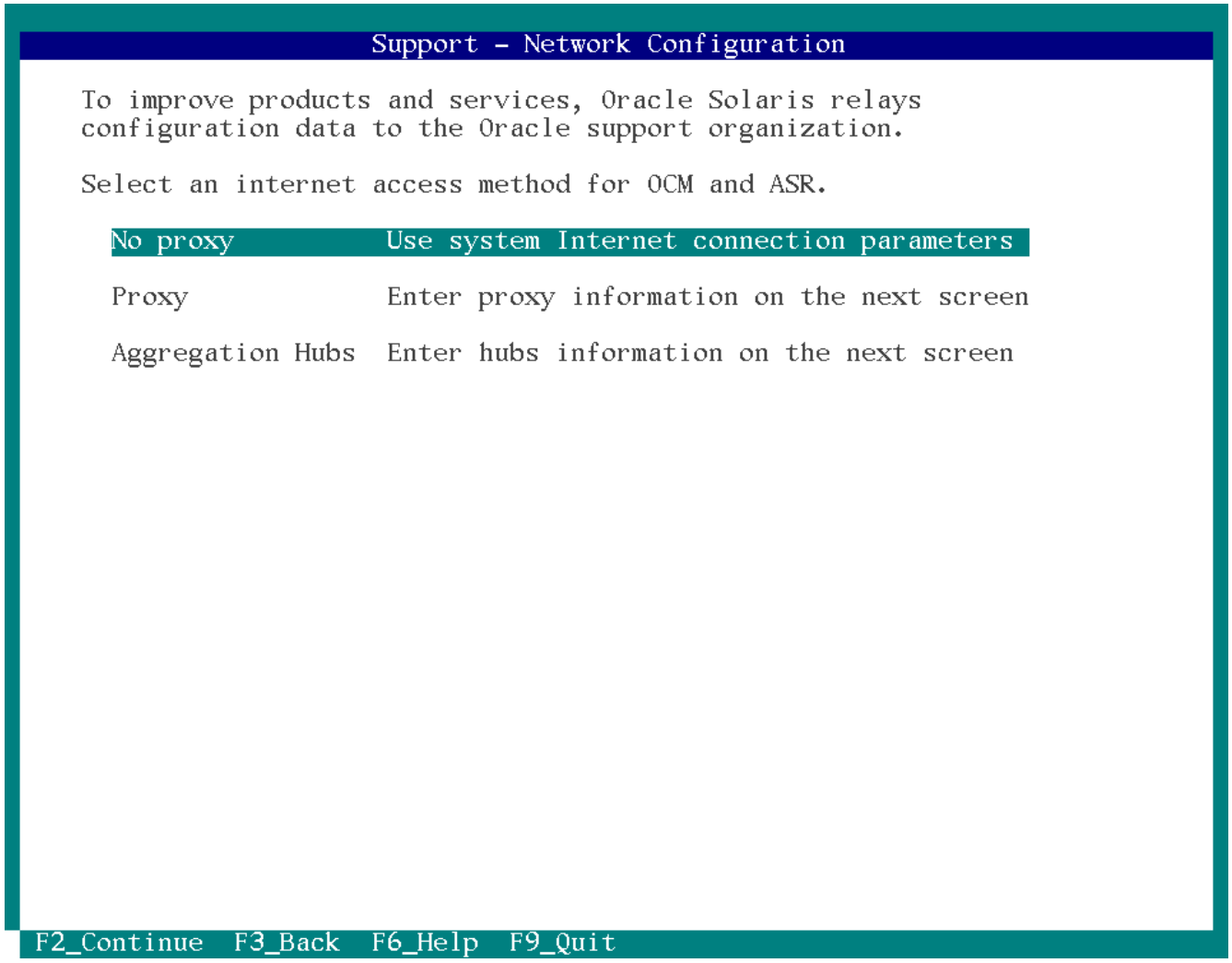
Providing User Information



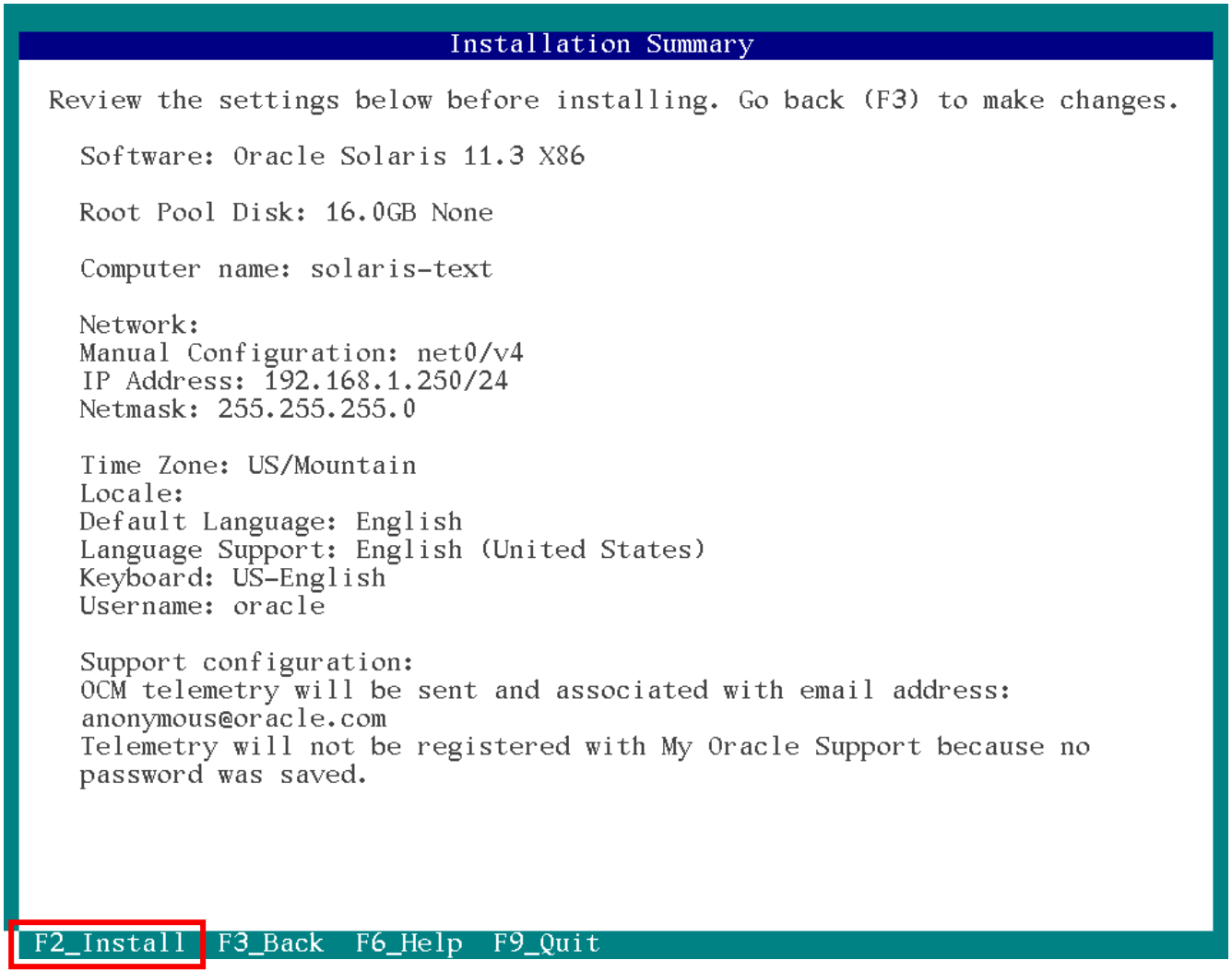
Registering to My Oracle Support



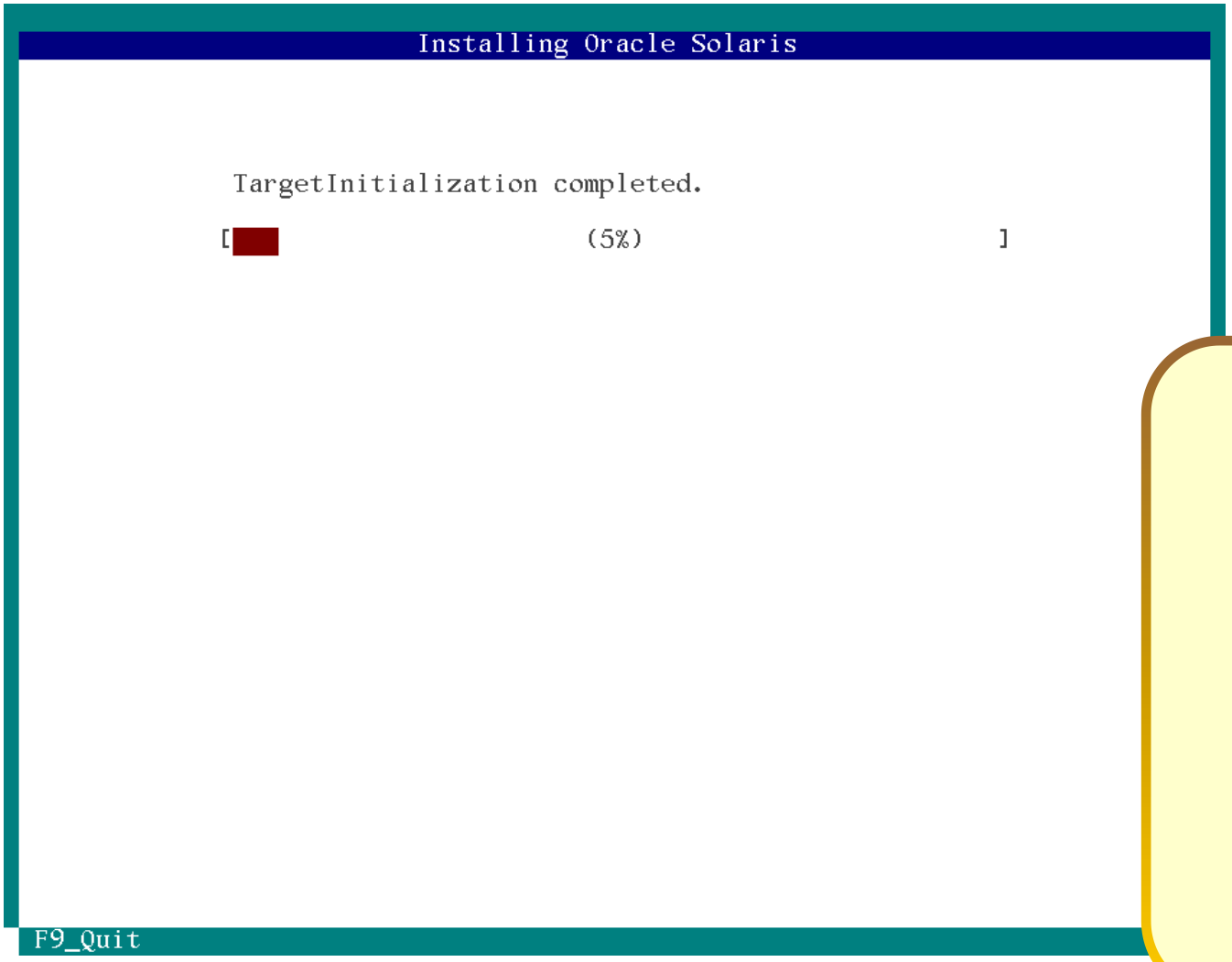
Support Network Configuration



Reviewing the Installation Summary



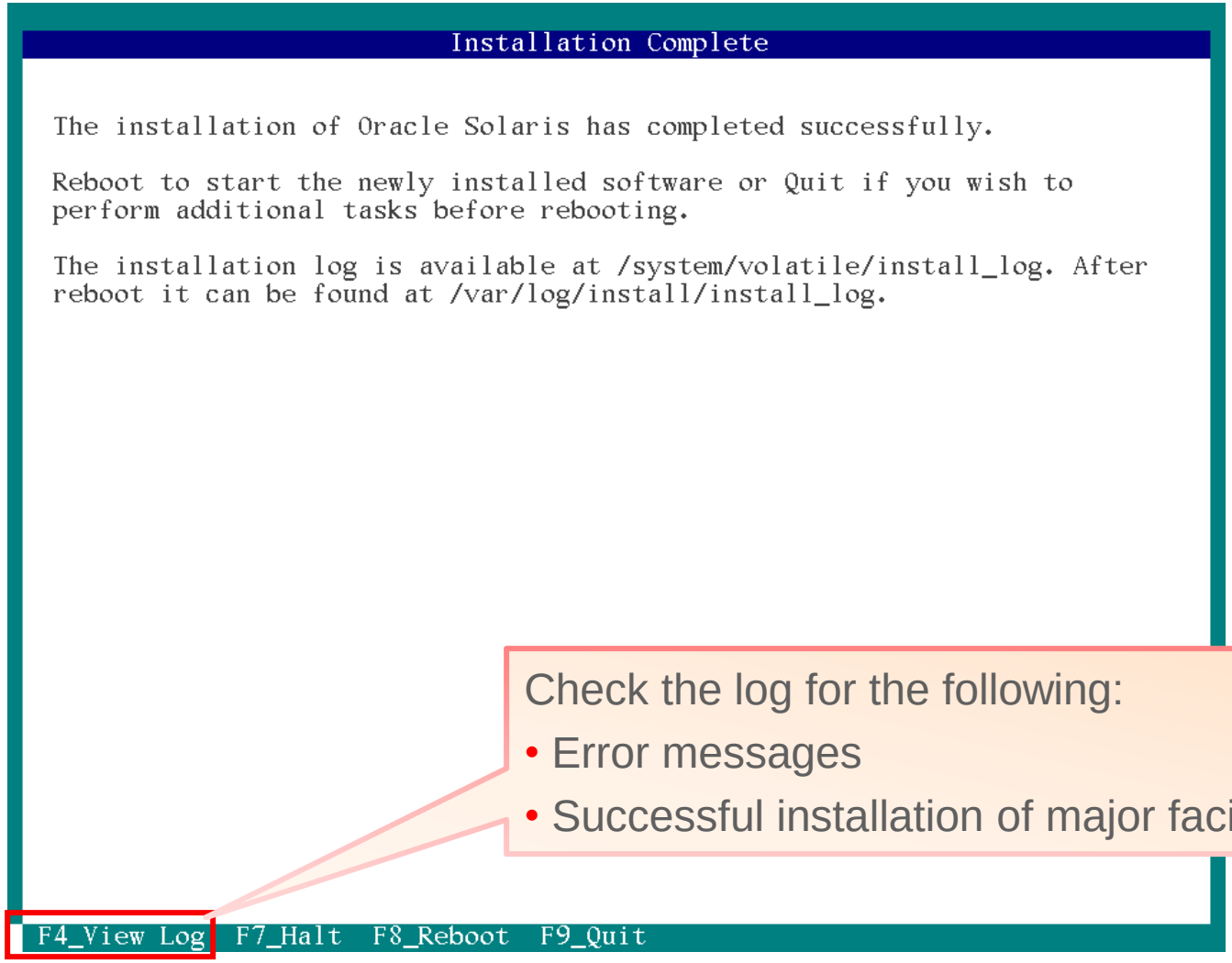
Monitoring the Installation



Caution:

After the installation starts, do not interrupt it. An incomplete installation can leave a disk in an indeterminate state.

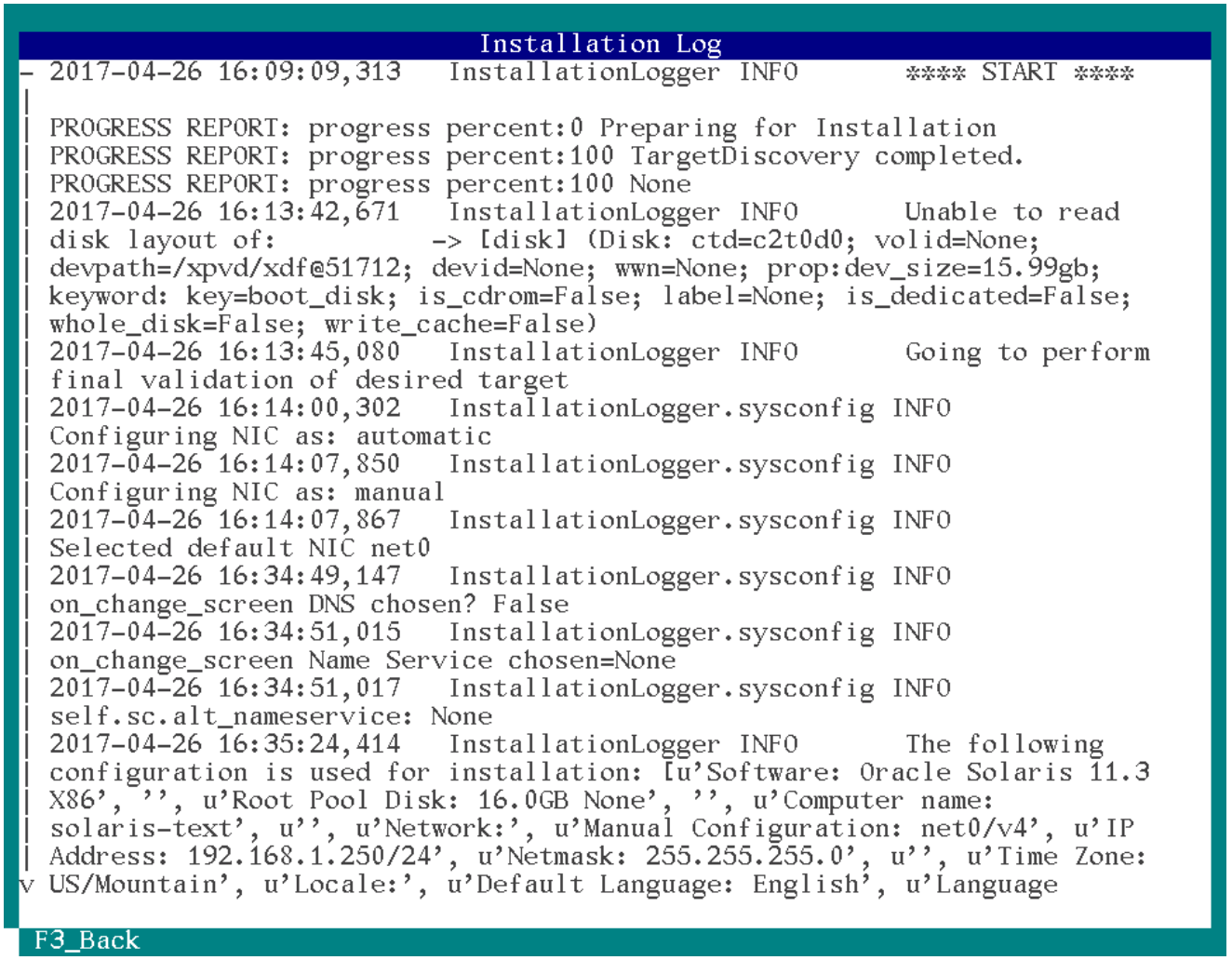
Verifying the Installation



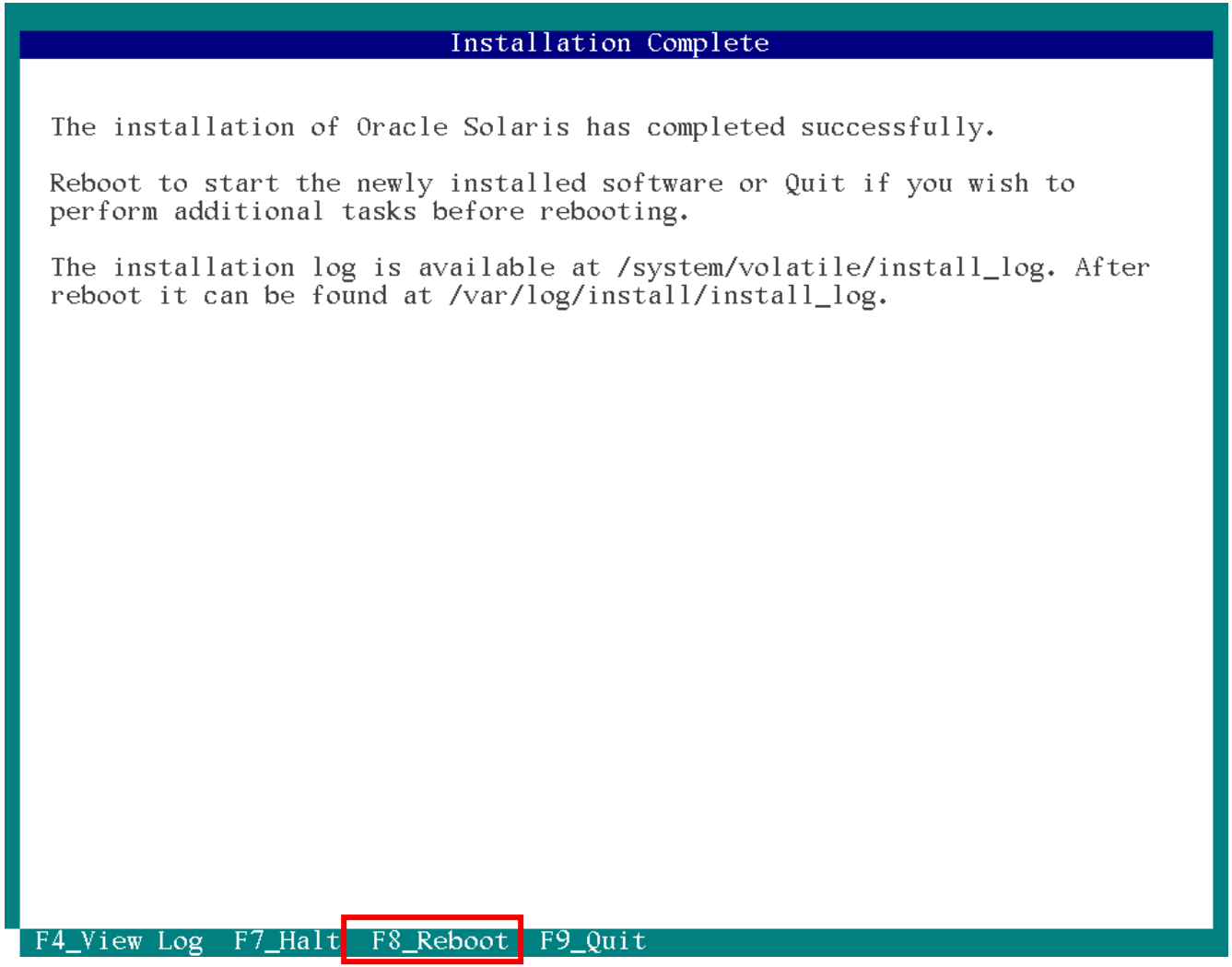
Check the log for the following:

- Error messages
- Successful installation of major facilities

Reviewing the Installation Log



Rebooting the System



Login Screen

```
SunOS Release 5.11 Version 11.3 64-bit
Copyright (c) 1983, 2015, Oracle and/or its affiliates.
    All rights reserved.
Loading smf(5) service descriptions: 219/219
Configuring devices.
Hostname: solaris-text

solaris-text console login: _
```

Agenda

- Introduction to the Oracle Solaris 11 OS
- Planning for an Oracle Solaris 11 OS Installation
- Installing the Oracle Solaris 11 OS by Using the Live Media Installer
- Installing the Oracle Solaris 11 OS by Using the Text Installer
- **Verifying the OS Installation**

Verifying the Operating System Installation

- Verifying login information
- Using first time login assistant
- Verifying the system's host name and host ID
- Displaying basic system information
- Displaying a system's release information
- Displaying disk configuration information
- Displaying the installed memory size
- Displaying disk space information
- Displaying information about network services
- Displaying network interface information

Verifying the Login Username

Live Media

Text Installation

```
solaris-text console login:
```

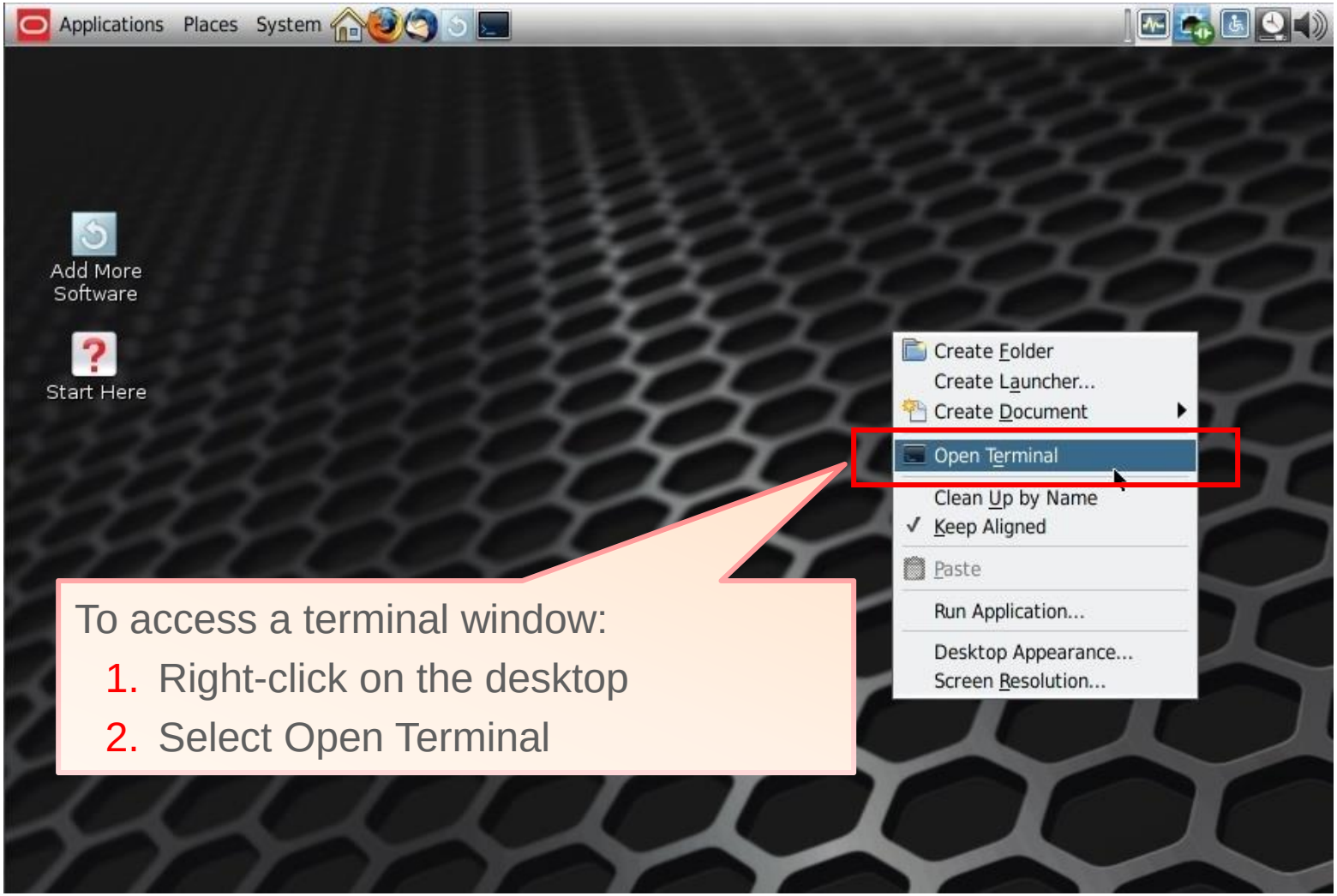
Verifying the Login Password

Live Media

Text Installation

```
Password:
Oracle Corporation  SunOS 5.11  11.3  September 2015
oracle@solaris-text:~$
```

Live Media GUI: Accessing a Terminal Window from Gnome



Verifying the Host Name and Host ID

To display the host name, use the `hostname` command.

```
$ hostname
solaris-live
```

Note: The host name should match the computer name that you provided during installation.

To display the host ID, use the `hostid` command.

```
$ hostid
00063ab1
```

The `hostid` command prints the identifier of the current host in hexadecimal.

Displaying Basic System Information

To display basic information about the system, run `uname -a`

```
$ uname -a
SunOS solaris-live 5.11 11.3 i86pc i386 i86pc
```

This system's basic information is as follows:

- Operating system: `SunOS`
- Hostname: `solaris-live`
- Release: `5.11`
- Version: `11.3`
- Node name: `i86pc`
- Hardware name: `i386`
- Processor type: `i86pc`

Displaying a System's Release Information

To display the operating system's release information, run `cat /etc/release`.

```
$ cat /etc/release
                        Oracle Solaris 11.3 X86
          Copyright (c) 1983, 2015, Oracle and/or its affiliates.
                           All rights reserved.
                        Assembled 06 October 2015
```

Displaying Disk Configuration Information

To display disk information, switch to superuser and run `format`.

```
$ su -
Password:
# format
Searching for disks...done

AVAILABLE DISK SELECTIONS:
0. c1t0d0 <Unknown-Unknown-0001-16.00GB>
          /pvd/xdf@51712
Specify disk (enter its number): 0
selecting c1t0d0
 [disk formatted]
/dev/dsk/c1t0d0s1 is part of active ZFS pool rpool. Please see zpool(1M).

<continued on next page>
```

Note: The `format` utility requires `root` role privileges.

Displaying Disk Configuration Information: Format Menu

To display disk partition information, select `verify`.

```
FORMAT MENU:
        disk        - select a disk
        type        - select (define) a disk type
        partition   - select (define) a partition table
        current     - describe the current disk
        format      - format and analyze the disk
        fdisk       - run the fdisk program
        repair      - repair a defective sector
        label       - write label to the disk
        analyze     - surface analysis
        defect      - defect list management
        backup      - search for backup labels
        verify      - read and display labels
        inquiry     - show vendor, product and revision
        volname     - set 8-character volume name
        !<cmd>      - execute <cmd>, then return
        quit
format> verify
<continued on next page>
```

Displaying Disk Configuration Information: Partition Table

```
Volume name = <        >
ascii name  = < Unknown-Unknown-0001-16.00GB >
bytes/sector = 512
sectors =33554431
accessible sectors = 33554398

Part       Tag    Flag  FIRST Sector      Size      Last Sector
  0  BIOS boot     wm              256    255.88MB      524287
  1         usr    wm           524288     15.74GB    33527295
  2 unassigned     wm                0        0           0
  3 unassigned     wm                0        0           0
  4 unassigned     wm                0        0           0
  5 unassigned     wm                0        0           0
  6 unassigned     wm                0        0           0
  8  reserved      wm         33537792     8.00MB    33554175
format> quit
#
```

Displaying Installed Memory Size

To display memory size, use the `prtconf | grep Memory` command.

```
# prtconf | grep Memory
Memory size: 2048 Megabytes
```

Displaying Disk Space Information

To display space utilization for the file system, use the `df -h` command.

```
# df -h
Filesystem             Size   Used  Available Capacity  Mounted on
rpool/ROOT/solaris      15G   4.7G       8.2G    37%    /
/devices                 0K     0K         0K     0%    /devices
/dev                     0K     0K         0K     0%    /dev
ctfs                     0K     0K         0K     0%    /system/contract
proc                     0K     0K         0K     0%    /proc
mnttab                   0K     0K         0K     0%    /etc/mnttab
swap                    1.2G   1.6M       1.2G     1%    /system/volatile
objfs                    0K     0K         0K     0%    /system/object
sharefs                  0K     0K         0K     0%
    /etc/dfs/sharetab
/usr/lib/libc/libc_hwcap1.so.1
                        13G   4.7G       8.2G    37%     /lib/libc.so.1
fd                       0K     0K         0K     0%    /dev/fd
...
(output truncated)
```

Displaying Information About Network Services

To display information about network connection configuration services, run `svcs network/physical`.

```
# svcs network/physical
STATE          STIME    FMRI
online         11:33:57 svc:/network/physical:upgrade
online         11:34:07 svc:/network/physical:default
```

Displaying Network Interface Information

To display network interface information, run `ipadm show-addr`.

```
# ipadm show-addr
ADDROBJ           TYPE         STATE    ADDR
lo0/v4            static       ok       127.0.0.1/8
net0/v4           dhcp         ok       192.168.1.250/24
lo0/v6            static       ok       ::1/128
net0/v6           addrconf     ok       fe80::a00:27ff:feee:2a1a/10
```

Baseline System Information Commands: Summary

System Information	Command
Host name	`hostname`
Host ID	`hostid`
Basic system information	`uname -a`
Operating system release information	`cat /etc/release`
Disk configuration	`format`
Installed memory	`prtconf | grep Memory`
Disk space information	`df -h`
Network services information	`svcs network/physical`
Network interface information	`ipadm show-addr`

Quiz

The Oracle Device Detection Tool can be used to determine whether:

a. The OS is installed correctly
b. There are errors on the internal or external hard disks
c. A device driver is available

Quiz

Live Media can be installed only on x86 (64-bit only) hardware.

a. True
b. False

Quiz

In the text installer, the root user _____.

a. Is always configured as a role
b. Might or might not be configured as a role
c. Is never configured as a role

Quiz

The text installer is used for SPARC-based systems only.

a. True
b. False

Summary

In this lesson, you should have learned how to:

- Describe the Oracle Solaris 11 OS
- Implement a plan for an Oracle Solaris 11 OS installation
- Install the Oracle Solaris 11 OS by using the Live Media installer
- Install the Oracle Solaris 11 OS by using the text installer
- Verify the installed OS

Practice 2: Overview

- 2-1: Installing Oracle Solaris 11 by Using the GUI Installer on Live Media
- 2-2: Installing Oracle Solaris 11 by Using the Text Installer
- 2-3: Verifying the Operating System Installation