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Enhanced Support Facility Technical Guide



FUJITSU



Preface

Purpose

This paper describes the security issues of Enhanced Support Facility, provided for the combination of SPARC Enterprise Server and Solaris 11 OS.

Intended Readers

This manual is intended for the following readers:

- System administrators who introduce and operate the Enhanced Support Facility.
- Technicians who maintain system hardware.

Organization

This manual is organized as follows:

Chapter1: Before reading this guide

The outline of this manual is explained.

Chapter2: About packages

The structure of packages included in Enhanced Support Facility is explained.

Chapter3: System

System used in Enhanced Support Facility is explained.

Chapter4: Network

Network used in Enhanced Support Facility is explained.

Chapter5: Virtualization technology

Virtualization technology used in Enhanced Support Facility is explained.

Notation

- Oracle Solaris might be described as Solaris, Solaris Operating System, or Solaris OS.
- Oracle VM Server for SPARC might be described as Logical Domains, or LDoms.

The following names, abbreviated expressions, and symbols are used in this manual:

Manual names

- This manual itself is referred to as "this manual."
- Any manual for this product is sometimes referred to by omitting "Enhanced Support Facility" at beginning of the formal name and supported server models at the end of the formal name. "User's Guide for Machine Administration," or "User's Guide for REMCS" is one of such examples.




Example: Enhanced Support Facility User's Guide for Machine Administration
-> User's Guide for Machine Administration

Abbreviation

In this manual, abbreviated names are used for each model name supported by Enhanced Support Facility. Regarding the relation table between model name and uname(1), please refer to "Chapter 1: Before reading this guide".

Marks

In this manual, the marks below are used for cautionary messages and reference information.

Mark	Description
 Note	Contains a warning or cautionary message. Make sure you read it carefully.
 Point	Contains reference information that you will find useful.
 See	Provides reference information. Refer to the information when necessary.

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Chapter 1 Before reading this guide

Enhanced Support Facility provides the enough safety in respect to security at a usual installation. However, among those who are responsible for system security, there is a request that they want to have information about daemons started or INET ports used. They want to facilitate the management on security in the case of building a system environment like the ISP (Internet Service Providers) in which computers are directly connected to the Internet. With the same reason, they want to restrict the number of daemons or INET ports and also limit software packages to be installed as little as possible. This document describes the information about the SPARC-version Enhanced Support Facility required to establish a sophisticated security system to meet the above requests.

The verification is not done for the settings in all environments and combinations. We can not guarantee that you can change any setting. You can change the setting only when you have full knowledge on the security of the Solaris OS and enough skill in troubleshooting by yourself.

In this book, the following abbreviations are used for each model name supported by Enhanced Support Facility. The relation between the abbreviation name and uname(1) is as follows.

Model name		Abbreviation
SPARC T3-1/T3-2/T3-4	*4	LE
SPARC Enterprise T1000/T2000/T5120/T5220	*1	
SPARC Enterprise T5140/T5240	*2	
SPARC Enterprise T5440	*3	
SPARC Enterprise M3000	*3	CW
SPARC Enterprise M4000/M5000/M8000/M9000	*1	

*1. SPARC Enterprise T1000/T2000/T5120/T5220/M4000/M5000/M8000/M9000 are supported from Enhanced Support Facility 3.0.

*2. SPARC Enterprise T5140/T5240 are supported from Enhanced Support Facility 3.0.1.

*3. SPARC Enterprise T5440/M3000 are supported from Enhanced Support Facility 3.1.

*4. SPARC T3-1/T3-2/T3-4 are supported from Enhanced Support Facility 3.2.

- Enhanced Support Facility 3.0 or newer supports SPARC Enterprise Server.
- The version number of the Enhanced Support Facility installed in your system can be confirmed by getting that of FJSVbse package with the pkgparam(1M) command.
pkgparam FJSVbse VERSION

Chapter 2 About packages

2.1 About packages

Components and packages contained in the Enhanced Support Facility are shown in the table below. Packages which are actually installed vary depending upon the hardware platforms or the revision of Solaris OS. Please refer to Enhanced Support Facility 4.0 Installation Guide of each version for more details.

Enhanced Support Facility Package list.

No.	Components	Abbreviation	Package name	Features
1	Enhanced Support Facility information management	Common to all types	FJSVbse	Enhanced Support Facility Information Management
				Effective from Enhanced Support Facility 4.0 or later
2	SCF/SCSI fault LED support option	CW	FJSVscfsc	SCF/SCSI fault LED support option
				Effective from Enhanced Support Facility 4.0 or later
3	Machine Administration	LE	FJSVmadm	Machine Administration common
				Enhanced Support Facility 4.0 or later
		CW	FJSVamadm FJSVamcl	Machine Admin
				Enhanced Support Facility 4.0 or later
		LE	FJSVamle	Machine Admin
				Enhanced Support Facility 4.0 or later
4	Remote Support	LE	FJSVrlib FJSVragt FJSVrmaos	REMCS Common Library
				REMCS Auto Application Support
				REMCS System Monitor Agent
				Enhanced Support Facility 4.0 or later
		LE	FJSVrrda FJSVracm	REMCS Resource Delivery Agent
				Enhanced Support Facility 4.0 or later
				REMCS Advanced Agent Installer
		Enhanced Support Facility 4.0 or later		
		Common to all types	FJSVsirms	Software REMCS
				Enhanced Support Facility 4.0 or later
CW	FJSVamrm	REMCS		
		Enhanced Support Facility 4.0 or later		
LE	FJSVlrm	REMCS		
		Enhanced Support Facility 4.0 or later		
5	Automatic Power Control	CW	FJSVapcs	Auto Power Control System
				Enhanced Support Facility 4.0 or later
6	Server Default Configuration	Common to all types	FJSVssf	Server Support Feature
				Enhanced Support Facility 4.0 or later
7	System Data Output Tool	Common to all types	FJSVsnap	System Data Output Tool
				Enhanced Support Facility 4.0 or later
8	Crash Dump Assistant	Common to all types	FJSVdmp	Crash Dump Assistant
				Enhanced Support Facility 4.0 or later
9	Auto Dump Analyze Tool	Common to all types	FJSVana	Auto Dump Analyze Tool
				Enhanced Support Facility 4.0 or later
10	Tape Driver Configuration Tool	Common to all types	FJSVdenf	Set the driver definition of the tape device automatically.

No.	Components	Abbreviation	Package name	Features
				Enhanced Support Facility 4.0 or later

Note: The following are the names used for remote maintenance function.
Name of service: SupportDesk (name of product)
Tool that provides service: REMCS (name of tool)

2.2 Packages needed at installation

There is no other necessary software than Solaris 11 OS for Enhanced Support Facility 4.0.

2.3 About an installation specifying the component group and an individual installation

The Enhanced Support Facility is designed on the premise that all of its packages prepared for an object system are installed.

A minimum level of security is kept in the Enhanced Support Facility 1.5. However, there are those who want to install only the minimum number of packages to establish a high-level security system. Two or more installation patterns of the package defined in the component group are offered in Enhanced Support Facility 2.3 or newer to meet such a demand. The package installed by specifying the component group which matches it to the requirement for the system when installing it can be limited.

This section explains about how to install Enhanced Support Facility by specifying the component group and how to install each package of it individually. Also some notes on the latter installation is given here.

Accordingly, there are neither restrictions nor notices in particular when packages of Enhanced Support Facility are individually installed.

Notes:

- When the installation which specifies the component group is done, a part of component offered as a function of this software is not installed. Therefore, a part of user command and an online manual cannot be used.
- The perfect verification of individual installation is not done. Some combinations in arbitrary environments and combinations are not tested. Due to applied packages or specific operating environments, you may face trivial problems even if it's not fatal problems such as a system failure or damage to user files.

If you face problem, please install appropriate packages.

- Fujitsu cannot assure that you can install partial package of Enhanced Support Facility. Fujitsu strongly recommends that only an engineer, who has a full range of knowledge on security matters with regard to Solaris OS and is able to troubleshoot on his/her own, must do this installation.

2.3 About an installation specifying the component group and an individual installation

No.	Components	Abbreviation	Package name	<ul style="list-style-type: none"> • Installation • Effects without an installation
1	Enhanced Support Facility information management	Common to all types	FJSVbse	<ul style="list-style-type: none"> • Mandatory • Fail to install or delete the Enhanced Support Facility
2	SCF/SCSI Fault LED support option	CW	FJSVscfsc	<ul style="list-style-type: none"> • Mandatory • Cannot access the eXtended System Control Facility (XCF) and RCI (Remote Cabinet Interface) which are provided in high-end models and midrange models of SPARC Enterprise Server. In addition, SCSI disk drive hot swapping function of Machine Administration doesn't work.
3	Machine Administration	Common to all types	FJSVmadm	<ul style="list-style-type: none"> • Mandatory • You are unable to perform hardware maintenance.
		CW	FJSVamadm FJSVamcl	<ul style="list-style-type: none"> • Mandatory • You are unable to perform hardware maintenance.
		LE	FJSVamle	<ul style="list-style-type: none"> • Mandatory • You are unable to perform hardware maintenance.
4	Remote Support	LE	FJSVrlib FJSVragt FJSVrmaos	<ul style="list-style-type: none"> • Recommended • You are unable to make use of Support Desk services, such as a remote report and firmware downloading.
		Common to all types	FJSVrrda FJSVracm FJSVsirms	
		CW	FJSVammr	
		LE	FJSVlmmr	
5	Automatic Power Control	CW	FJSVapcs	<ul style="list-style-type: none"> • Not required • You are unable to use the Automatic Power Control features.
6	Server Default Configuration	Common to all types	FJSVssf	<ul style="list-style-type: none"> • Recommended • You may find a difficulty in software troubleshooting due to because the function of acquiring the information necessary for troubleshooting does not work.

No.	Components	Abbreviation	Package name	<ul style="list-style-type: none">• Installation• Effects without an installation
7	System Data Output Tool	Common to all types	FJSVsnap	<ul style="list-style-type: none">• Recommended• You may find a difficulty in software troubleshooting because you are unable to collect the system information required for troubleshooting at a time.
8	Crash Dump Assistant	Common to all types	FJSVdmp	<ul style="list-style-type: none">• Recommended• You may find a difficulty in software troubleshooting since the system information is not automatically collected with the fjsnap command after a system panic.
9	Auto Dump Analyze Tool	Common to all types	FJSVana	<ul style="list-style-type: none">• Recommended• You are unable to use the feature of gathering core dump related files.
10	Tape Driver Configuration Tool	Common to all type	FJSVdcnf	<ul style="list-style-type: none">• Recommended• The driver's definition of a tape device is not given automatically, so you need to give it manually.

2.3.1 Installation by Component group

2.3.1.1 component group

The installed component is decided by specifying the component group. The following two component groups are offered in this software.

BASIC : Indispensable package and recommended package of the above-mentioned list

CORE : Only an indispensable package of the above-mentioned list.
Only a at least necessary for work the main body device component is installed.

Refer to Section 6.4, "Specifying a Component Group for Installation" in the Enhanced Support Facility 4.0 Installation Guide for the package applied in each main body device and Solaris OS, the installation method, and notes.

2.3.2 About an individual installation

2.3.2.1 Packages required

The following component packages are indispensable to install for hardware maintenance.

- Machine Administration

2.3.2.2 How to install specific packages

- Install the software by following the procedure given in Refer to Chapter 5, "Installation" in the Enhanced Support Facility 4.0 Installation Guide.
- Out of the packages mentioned in Chapter 1, "Program Components" in the Enhanced Support Facility 4.0 Installation Guide, select the packages to be deleted.
- Move to a directory which contains packages of Enhanced Support Facility arranged for your platform and Solaris OS release. The directory exists within Enhanced Support Facility CD-ROM.
The directory name is different depending on the revision of Enhanced Support Facility, type of platform and revision of Solaris OS. Refer to the table in Appendix A, "Command Reference," in the Enhanced Support Facility 4.0 Installation Guide to find an appropriate directory name.

Example) For Enhanced Support Facility 4.0, CW and Solaris 11 OS
`# cd <mount_point>/Platform/CW/11`

- Refer to the ".eorder" file in the current directory defined in step (c). Delete the packages selected in step (b) in reverse order of the sequence defined in the ".eorder" file.

Example) For Enhanced Support Facility 4.0, CW and Solaris 11 OS

If you delete the FJSVapcs, FJSVssf, and FJSVdcnf packages, delete them in the following sequence:

1st. FJSVdcnf

2nd. FJSVssf

3rd. FJSVapcs

Specify them as follows:

```
# pkgrm FJSVdcnf
```

```
# pkgrm FJSVssf
```

```
# pkgrm FJSVapcs
```

Notes:

- Do not delete the FJSVbse package.
- The ".eorder" file exists in the directory stipulated for Enhanced Support Facility packages for each platform and Solaris OS release.
- Do not create any program that expects ".eorder" as a file name or some specific its contents because they are subject to change in the future releases of the Enhanced Support Facility.

2.3.2.3 Notices after an installation

- At the time of deleting the Enhanced Support Facility
You can use the esfrm command to delete the Enhanced Support Facility even when part of Enhanced Support Facility packages are installed in above-mentioned way.

Chapter 3 System

3. 1 Daemon Program

3. 1. 1 SMF (Service Management Facility)

This chapter explains the services in Service Management Facility registered by Enhanced Support Facility.

[Suppressible] explained here means whether or not the service can be disabled by deleting it.

Besides [Effect of suppression] explains about the influence caused by disabling the service by deleting it.

- **svc:/system/fjsvmadm-main:default**

Component	Machine Administration
Package name	FJSVamadm
Support Solaris OS	Solaris 11 OS or later
Support models	CW
Support Enhanced Support Facility	Enhanced Support Facility 4.0 or later
Function	Information of the Machine Administration is initialized.
Daemon started	None
Port used	None
Suppressible	No
Effect of suppression	The Machine Administration is not started.
Remarks	

- **svc:/system/fjsvmadm-evhandsd:default**

Component	Machine Administration
Package name	FJSVamadm, FJSVmadm
Support Solaris OS	Solaris 11 OS or later
Support models	Common to all types
Support Enhanced Support Facility	Enhanced Support Facility 4.0 or later
Function	Alerts hardware errors through monitoring syslog messages
Daemon started	evhandsd: Extracts messages to be monitored in syslog messages. evmond: Alerts an abnormality based on the messages extracted.
Port used	None
Suppressible	No
Effect of suppression	You may be unable to recognize hardware failures.
Remarks	

- **svc:/system/fjsvmadm-hardmond:default**

Component	Machine Administration
Package name	FJSVamadm
Support Solaris OS	Solaris 11 OS or later
Support models	CW
Support Enhanced Support Facility	Enhanced Support Facility 4.0 or later
Function	The daemon which monitors hardware error is started.
Daemon started	hardmond : Monitors hardware errors based on any other information than syslog messages. (ex. monitoring of disk devices)
Port used	None
Suppressible	No
Effect of suppression	Monitoring the failure of disk or extension file unit is not done. Also an alarm message may not be sent normally.
Remarks	

- **svc:/system/fjsvmadm-hrdconf:default**

Component	Machine Administration
Package name	FJSVamadm
Support Solaris OS	Solaris 11 OS or later
Support models	CW
Support Enhanced Support Facility	Enhanced Support Facility 4.0 or later
Function	Hardware configuration information is made.
Daemon started	None
Port used	None
Suppressible	No
Effect of suppression	Hardware configuration information is not correctly made.
Remarks	

- **svc:/system/fjsvmadm-scfeventd:default**

Component	Machine Administration
Package name	FJSVamadm
Support Solaris OS	Solaris 11 OS or later
Support models	CW
Support Enhanced Support Facility	Enhanced Support Facility 4.0 or later
Function	The daemon which extracts message in SCF event is started.
Daemon started	scfeventd : Extracts messages to be monitored in SCF events.
Port used	None
Suppressible	No
Effect of suppression	When DR/PHP is executed, configuration information is not automatically updated.
Remarks	

- **svc:/system/fjsvdmpsnap:default**

Component	Crash Dump Assistant
Package name	FJSVdmp
Support Solaris OS	Solaris 11 OS or later
Support models	Common to all types
Support Enhanced Support Facility	Enhanced Support Facility 4.0 or later.
Function	In saving "crash dump" information after a system panic, the system information, which is output with the fjsnap command, is stored into "/var/crash".
Daemon started	None
Port used	None
Suppressible	Yes
Effect of suppression	You may have a difficulty in software maintenance. Immediately after a system panic, the system information in such a file as "/var/adm/message," which is required to analyze a panic cause, is not automatically output.
Remarks	If you suppress this service, you must also suppress "svc:/system/fjsvdmpadm:default".

- **svc:/system/fjsvdmpadm:default**

Component	Crash Dump Assistant
Package name	FJSVdmp
Support Solaris OS	Solaris 11 OS or later
Support models	Common to all types
Support Enhanced Support Facility	Enhanced Support Facility 4.0 or later.
Function	The system information, which is output with the fjsnap command, is saved into "/var/crash" at the time of storing the crash-dump information after a panic.
Daemon started	None
Port used	None
Suppressible	Yes
Effect of suppression	You may have a difficulty in software maintenance. Immediately after a system panic, the system information in such a file as "/var/adm/messages," which is required to analyze a panic cause, is not automatically output.
Remarks	If you suppress this service, you must also suppress "svc:/system/fjsvdmpsnap:default".

3.1.2 The rc scripts and daemons

The rc scripts registered and the daemon processes started in the Enhanced Support Facility are explained here. Only start-up scripts are described.

In the following tables, "Suppressible" indicates whether the script can be disabled (for example, by removing the file). "Effect of suppression" explains the impacts by the script being disabled.

3.1.2.1 /etc/rcS.d

• S50FJSVmadmclr

Component	Machine Administration
Package name	FJSVmadm
Support Solaris OS	Solaris 11 OS or later
Support models	LE
Support Enhanced Support Facility	Enhanced Support Facility 4.0 or later
Function	Delete temporary files that Machine Administration uses.
Daemon started	None
Port used	None
Suppressible	No
Effect of suppression	You may be unable to recognize hardware failures.
Remarks	The following are the same. One of them works depending on how to start. /etc/rcS.d/S50FJSVmadmclr /etc/rc1.d/S50FJSVmadmclr

3.1.2.2 /etc/rc1.d

• S50FJSVmadmclr

Component	Machine Administration
Package name	FJSVmadm
Support Solaris OS	Solaris 11 OS or later
Support models	LE
Support Enhanced Support Facility	Enhanced Support Facility 4.0 or later
Function	Delete temporary files that Machine Administration uses.
Daemon started	None
Port used	None
Suppressible	No
Effect of suppression	You may be unable to recognize hardware failures.
Remarks	The following are the same. One of them works depending on how to start. /etc/rcS.d/S50FJSVmadmclr /etc/rc1.d/S50FJSVmadmclr

3. 1. 2. 3 /etc/rc2. d

• S30FJSVmadmclr2

Component	Machine Administration
Package name	FJSVmadm
Support Solaris OS	Solaris 11 OS or later
Support models	LE
Support Enhanced Support Facility	Enhanced Support Facility 4.0 or later
Function	Delete temporary files that Machine Administration uses.
Daemon started	None
Port used	None
Suppressible	Yes
Effect of suppression	You may be unable to recognize hardware failures.
Remarks	This script terminates without doing anything on Solaris 11 OS.

• S39FJSVmarm

Component	Remote Support (REMCS)
Package name	FJSVmarm
Support Solaris OS	Solaris 11 OS or later
Support models	LE
Support Enhanced Support Facility	Enhanced Support Facility 4.0 or later
Function	Notification and connection services are given for the SupportDesk service
Daemon started	remotereportd : REMCS report is performed rsched : REMCS-regular-connection is managed pipeopener : supports the remotereportd
Port used	None
Suppressible	Yes (only when no SupportDesk service agreement is executed.)
Effect of suppression	You are unable to make use of the SupportDesk service
Remarks	

• S72SystemWalkerSSInit

Component	Remote Support (REMCS)
Package name	FJSVrmaos, FJSVragt
Support Solaris OS	Solaris 11 OS or later
Support models	LE
Support Enhanced Support Facility	Enhanced Support Facility 4.0 or later
Function	REMCS agent (reports a failure occurrence to Fujitsu support center)
Daemon started	None
Port used	None
Suppressible	Yes
Effect of suppression	You are unable to make use of the SupportDesk service.
Remarks	This script runs only when a registration for the SupportDesk service is made. Nothing is done without a registration.
Remarks	

• S90FJSVscfsc

Component	SCF/SCSI fault LED support option
Package name	FJSVscfsc
Support Solaris OS	Solaris 11 OS or later
Support models	CW
Support Enhanced Support Facility	Enhanced Support Facility 4.0 or later
Function	Notify the status of your system.
Daemon started	None
Port used	None
Suppressible	No
Effect of suppression	There is a possibility that a problem occurs in monitoring the status of your system by XSCF. Also RCI may stop notifying the status of your system and a switchover of a cluster system may be delayed.
Remarks	

• S91FJSVmand

Component	Machine Administration
Package name	FJSVamle
Support Solaris OS	Solaris 11 OS or later
Support models	LE
Support Enhanced Support Facility	Enhanced Support Facility 4.0 or later
Function	The removable disk such as CD-ROM and DVD is judged.
Daemon started	None
Port used	None
Suppressible	No
Effect of suppression	Machine Administration cannot correctly make hardware configuration data.
Remarks	

• S98FJSVmadm

Component	Machine Administration
Package name	FJSVamle
Support Solaris OS	Solaris 11 OS or later
Support models	LE
Support Enhanced Support Facility	Enhanced Support Facility 4.0 or later
Function	Monitors hardware errors and reports them.
Daemon started	hardmond: Monitors hardware errors based on information other than syslog messages. (ex. monitoring of cleaning tape devices)
Port used	None
Suppressible	No
Effect of suppression	You may be unable to recognize hardware failures.
Remarks	The number of resident processes hardmond: The number of processes: 1 (When each daemon produces child process, the number of processes may increase by one momentarily.)

- **S99apcs**

Component	Automatic Power Control
Package name	FJSVapcs
Support Solaris OS	Solaris 11 OS or later
Support models	CW
Support Enhanced Support Facility	Enhanced Support Facility 4.0 or later
Function	Registers power-off jobs or schedule-updating jobs using the Automatic Power Control into the cron.
Daemon started	The following daemon is started when you select the way of not using the cron. /opt/FJSVapcs/sbin/apcsat
Port used	None
Suppressible	Yes
Effect of suppression	Automatic Power Control is not used.
Remarks	You may specify with the apcschmod command whether you use either the cron or the apcsat daemon.

- **S99SystemWalkerSS**

Component	Remote Support (REMCS)
Package name	FJSVrmaos, FJSVragt
Support Solaris OS	Solaris 11 OS or later
Support models	LE
Support Enhanced Support Facility	Enhanced Support Facility 4.0 or later
Function	REMCS agent (reports a failure occurrence to Fujitsu support center)
Daemon started	None
Port used	None
Suppressible	Yes
Effect of suppression	You are unable to make use of the SupportDesk service.
Remarks	This script runs only when a registration for the SupportDesk service is made. Nothing is done without a registration.

3. 1. 2. 4 /etc/rc3.d**• S99FJSVmarm2**

Component	Remote Support (REMCS)
Package name	FJSVlmm
Support Solaris OS	Solaris 11 OS or later
Support models	LE
Support Enhanced Support Facility	Enhanced Support Facility 4.0 or later
Function	The power on/off event (PON/POFF event) is transmitted to REMCS Center when starting the system is stopped.
Daemon started	None
Port used	None
Suppressible	Yes (only when no SupportDesk service agreement is executed)
Effect of suppression	You are unable to make use of the SupportDesk service.
Remarks	

3.2 Files to be added or changed

This section explains the files that may be changed, and the rc scripts that are added, by Enhanced Support Facility.

For more information about the system files that are changed, refer to the respective installation guide.

3.2.1 Files that are changed or added by Enhanced Support Facility

- 1) Files that may be changed

- `/etc/syslog.conf`
 - `/etc/system`
 - `/etc/inet/services*`
 - `/etc/devlink.tab`

- 2) Files (rc scripts*) that are added

- `/etc/init.d/FJSVdmpadm`
 - `/etc/init.d/FJSVdmprsnap`
 - `/etc/init.d/FJSVinetinit`
 - `/etc/init.d/FJSVmadm`
 - `/etc/init.d/FJSVscfsc`
 - `/etc/init.d/FJSVsirmsctl`
 - rc script: Initialization at reboot, and processing for starting daemons

3.2.2 Details of the Files Changed by Enhanced Support Facility

• Changes in /etc/syslog.conf setting file

Component	Machine Administration
Package name	FJSVamle FJSVamadm
Support Solaris OS	Solaris 11 OS or later
Support models	Common to all types
Support Enhanced Support Facility	Enhanced Support Facility 4.0 or later
Reason for change	Settings are changed so that a message on the same level as the message output to /var/adm/messages is output to another file in order to enable monitoring of syslog messages.
Change	# FJSVmadm : This is setting of Machine Administration. # FJSVmadm : Don't delete the following lines. # FJSVmadm : Because the message cannot be observed. *.err;kern.debug;daemon.notice /var/opt/FJSVmadm/evh/evh_pipe
Remarks	The following line is added by esfadd and deleted by esfrm.

• Changes in the /etc/system setting file

Component	Server Default Configuration
Package name	FJSVssf
Support Solaris OS	Solaris 11 OS or later
Support models	Common to all types
Support Enhanced Support Facility	Enhanced Support Facility 4.0 or later
Reason for change	To enable the trace information collection function to improve system maintainability
Change	* Begin FJSVssf (do not edit) set ftrace_atboot = 1 set kmem_flags = 0x100 set kmem_lite_maxalign = 8192 * End FJSVssf (do not edit)
Remarks	

- **Changes in the `/etc/devlink.tab` definition file**

Component	SCF/SCSI fault LED support option
Package name	FJSVscfsc
Support Solaris OS	Solaris 11 OS or later
Support models	CW
Support Enhanced Support Facility	Enhanced Support Facility 4.0 or later
Reason for change	To add SCF driver entries
Change	<pre>type=ddi_pseudo;name=scfd;minor=pwrctl FJSVhwr\M0 type=ddi_pseudo;name=scfd;minor=rcictl FJSVhwr\M0 type=ddi_pseudo;name=scfd;minor=rasctl FJSVhwr\M0 type=ddi_pseudo;name=FJSVsflcd;minor=0 FJSVhwr/sflcd\N0</pre>
Remarks	

3.3 About /etc/dfs/dfstab

To set the security mode to NFS according to security requirements, arrange the name service so that the domain name can be obtained from the operating system on the system console or the partition. Then, change the "/etc/dfs/dfstab" file as follows:

```
share -F nfs -o secure,ro=<system-console-host-name>,root=<systemconsole-host-name>,anon=0 /var/opt/FJSVdmp/dashare
```

```
/usr/sbin/share -F nfs -o secure,ro=< system-console-host-name >,anon=0 -d  
'FJSVmadm' /var/opt/FJSVmadm/export #FJSVmadm
```

Note that the above FJSVdmp-related definition must be changed again if `fjdmadm` of the crash dump assistant (FJSVdmp) is executed or the system console name is changed.

3.4 About various log files

The log files generated by Enhanced Support Facility are listed below.

For more information such as information on disk space requirements, refer to the Enhanced Support Facility 4.0 Installation Guide for the corresponding version of Enhanced Support Facility.

- **No.1: Enhanced Support Facility information management**

Component	Enhanced Support Facility information management						
Package name	FJSVbse						
Support Solaris OS	Solaris 11 OS or later						
Support models	Common to all types						
Support Enhanced Support Facility	Enhanced Support Facility 4.0 or later						
Log file name	<table style="margin-left: auto; margin-right: auto;"> <tr> <td style="text-align: center;"><code>/opt/FJSVbse/etc/</code></td> <td style="text-align: center;"><code>esfinfo.data</code></td> <td style="text-align: center;">(Up to 2KB)</td> </tr> <tr> <td></td> <td style="text-align: center;"><code>install.log</code></td> <td style="text-align: center;">(Up to 2MB)</td> </tr> </table>	<code>/opt/FJSVbse/etc/</code>	<code>esfinfo.data</code>	(Up to 2KB)		<code>install.log</code>	(Up to 2MB)
<code>/opt/FJSVbse/etc/</code>	<code>esfinfo.data</code>	(Up to 2KB)					
	<code>install.log</code>	(Up to 2MB)					
File capacity	0byte to about 2MB (esfinfo.data 2KB/ install.log 2MB)						
Allocation timing	During Enhanced Support Facility installation						
Need for periodic deletion	No						
Remarks							

- **No.2: No log file is generated for the SCF/SCSI fault LED support option (component).**

• No.3: Machine Administration

Component	Machine Administration
Package name	FJSVmadm
Support Solaris OS	Solaris 11 OS or later
Support models	LE
Support Enhanced Support Facility	Enhanced Support Facility 4.0 or later
Log file name	<i>/var/opt/FJSVmadm/evh/evh_log</i>
File capacity	0byte to 500KB x 2 files
Allocation timing	Start of the system
Need for periodic deletion	No
Remarks	
Log file name	<i>/var/opt/FJSVmadm/log/madmtrcbase</i>
File capacity	0byte to 512KB x 2 files
Allocation timing	Start of the system
Need for periodic deletion	No
Remarks	

Component	Machine Administration
Package name	FJSVamle
Support Solaris OS	Solaris 11 OS or later
Support models	LE
Support Enhanced Support Facility	Enhanced Support Facility 4.0 or later
Log file name	<i>/var/opt/FJSVmadm/log/evmonlog</i>
File capacity	0byte to 512KB x 2 files
Allocation timing	Start of the system
Need for periodic deletion	No
Remarks	
Log file name	<i>/var/opt/FJSVmadm/log/madmtrc</i>
File capacity	0byte to 64KB x 3 files
Allocation timing	Start of the system
Need for periodic deletion	No
Remarks	
Log file name	<i>/var/opt/FJSVmadm/log/madmlog</i>
File capacity	0byte to 64KB x 3 files
Allocation timing	Start of the system
Need for periodic deletion	No
Remarks	

Component	Machine Administration
Package name	FJSVmadm
Support Solaris OS	Solaris 11 OS or later
Support models	CW
Support Enhanced Support Facility	Enhanced Support Facility 4.0 or later
Log file name	/var/opt/FJSVmadm/evh/evh_log
File capacity	Obyte to 500KB x 2 files
Allocation timing	Start of the system
Need for periodic deletion	No
Remarks	
Log file name	/var/opt/FJSVmadm/log/evmonlog
File capacity	Obyte to 512KB x 2 files
Allocation timing	Start of the system
Need for periodic deletion	No
Remarks	
Log file name	/var/opt/FJSVmadm/log/trace/cmdtrace
File capacity	Obyte to 512KB x 3 files
Allocation timing	Start of the system
Need for periodic deletion	No
Remarks	
Log file name	/var/opt/FJSVmadm/log/trace/matrace
File capacity	Obyte to 512KB x 3 files
Allocation timing	Start of the maintenance
Need for periodic deletion	No
Remarks	

• No.4: Remote Support

Component	Remote Support (REMCS)
Package name	FJSVrmaos
Support Solaris OS	Solaris 11 OS or later
Support models	LE
Support Enhanced Support Facility	Enhanced Support Facility 4.0 or later
Log file name	/var/opt/FJSVrmaos/tmp2/*. *.trc takes two forms: xxxxnnn-mm.trc xxxx: Character string consisting of 3 to 10 characters nnn: Numeral (0 to 4294967295) mm: Numeral (0 to 4294967295) xxxx.trc xxxx: Character string consisting of 3 to 19 alphanumeric characters
File capacity	0byte to 90KB (Remote maintenance is not used.) 0byte to 900KB (Remote maintenance is used.)
Allocation timing	Start of the system or communication for remote maintenance
Need for periodic deletion	No
Remarks	If remote maintenance is not used, data is logged in 0KB to 90KB. If remote maintenance is used, data is logged in 0KB to 900KB.

Component	Remote Support (REMCS)
Package name	FJSVsirms
Support Solaris OS	Solaris 11 OS or later
Support models	Common to all types
Support Enhanced Support Facility	Enhanced Support Facility 4.0 or later
Log file name	/var/opt/FJSVsirms/log / route.log (Up to 500KB) route.bak (Up to 500KB) sirms.log (Up to 500KB) sirms.bak (Up to 500KB) Err.log (Up to 500KB) Err.bak (Up to 500KB)
File capacity	0byte to 3000KB (up to 500KB each)
Allocation timing	Installation of Enhanced Support Facility Logging starts immediately after the system starts after Enhanced Support Facility (FJSVsirms package) is installed.
Need for periodic deletion	No
Remarks	When either log file exceeds 500KB, a .BAK file is created for cyclic operation.

- **No.5: Automatic Power Control**

Component	Automatic Power Control
Package name	FJSVapcs
Support Solaris OS	Solaris 11 OS or later
Support models	CW
Support Enhanced Support Facility	Enhanced Support Facility 4.0 or later
Log file name	<code>/var/opt/FJSVapcs/</code> apcstrc apcstrc.old apcstrc.err apcstrc.errold apcslog apcslog.old
File capacity	0byte to 840KB
Allocation timing	Node activation, node power-off, operation of automatic power control, power-on, or power-off according to the automatic power control schedule
Need for periodic deletion	No
Remarks	

- **No.6: No log file is generated for Server Default Configuration (component).**

- No.7: No log file is generated for System Data Output Tool (component).
- No.8: No log file is generated for Crash Dump Assistant (component).
- No.9: No log file is generated for Auto Dump Analyze Tool (component).
- No.10: Tape Driver Configuration Tool

Component	Tape Driver Configuration Tool
Package name	FJSVdcnf
Support Solaris OS	Solaris 11 OS or later
Support models	Common to all types
Support Enhanced Support Facility	Enhanced Support Facility 4.0 or later
Log file name	/var/opt/FJSVdcnf/log/st.log1 (Up to about 64KB) st.log2 (Up to about 64KB) pfca_conf_set.log1 (Up to about 64KB) pfca_conf_set.log2 (Up to about 64KB)
File capacity	Obyte to about 256KB
Allocation timing	When the Enhanced Support Facility is installed, when the fjenfset(1M) is executed.
Need for periodic deletion	No
Remarks	

3.5 About the setting of the kernel parameter "noexec_user_stack"

There are no packages in Enhanced Support Facility that are affected by the setting of the kernel parameter "noexec_user_stack."

Chapter 4 Network

4.1 About TCP/IP ports

4.1.1 Crash Dump Assistant (FJSVdmp)

The package does not use the TCP/UDP port directly, however, it uses the port indirectly because of its use of NFS.

4.2 Firewall/Gateway

The Enhanced Support Facility is designed on the premise that it is used in such environments as an intranet, the Internet, or a DMZ. There are, however, some notes and restrictions for the following components.

4.2.1 Restrictions

None.

4.2.2 Attentions

• Remote Support (REMCS) (LE)

To communicate with the Fujitsu support center, both the http and the SMTP protocols must be used for transmissions via the Internet from a server on which Enhanced Support Facility is installed.

Protocol	SMTP
Function	Reports trouble messages to Fujitsu support center
Transmission direction	From a server in which the Enhanced Support Facility is installed to Fujitsu support center
Encryption	Used
IP address translation	No problems (because of the SMTP protocol)
Gateway server	An existing SMTP server is allowed to use
Firewall policy	Conforms to a policy of E-Mail (SMTP)
Remarks	

Protocol	http
Function	Downloads firmware from Fujitsu support center.
Transmission direction	From a server in which the Enhanced Support Facility is installed to Fujitsu support center
Encryption	None
IP address translation	No problems (because of the http protocol)
Gateway server	An existing http server is allowed to use
Firewall policy	Conforms to a policy of WWW.
Remarks	

4.3 Configuration examples for the Internet or a DMZ environment

Here describes the example of an ordinary setting needed to install the Enhanced Support Facility in a system which is either connected to the Internet or placed in a DMZ.

- a) In order to use the Enhanced Support Facility, you should install the Solaris OS, with at least, SUNWbtool in addition to selecting "End User System Support."
- b) You should remove packages as few as possible after installation of Enhanced Support Facility with using esfadd.

Chapter 5 Virtualization technology

5.1 Oracle VM Server for SPARC/Logical Domains(LDoms)

- Overview of Oracle VM Server for SPARC/Logical Domains(LDoms)
Virtual technology provided by Oracle: The function enables you to run two or more different operating systems on one computer. For more information, please refer to "SPARC Enterprise Oracle VM Server for SPARC Guide".

Environment of Oracle VM Server for SPARC/Logical Domains(LDoms)

Affected by Oracle VM Server for SPARC/Logical Domains(LDoms). About the support for Enhanced Support Facility, please refer to "4.2 Notes on Oracle VM Server for SPARC/Logical Domains(LDoms)" in "Enhanced Support Facility User's Guide".