

ETERNUS SF



ETERNUS SF Express V15/ ETERNUS SF Storage Cruiser V15/ ETERNUS SF AdvancedCopy Manager V15



FAQ

Third Edition
October 2012

Preface

Purpose

This book describes QA in installing and using ETERNUS SF.

Notation

The names, abbreviations, and symbols shown below are used in this manual.

Operating systems

Formal name	Abbreviation	
Microsoft(R) Windows Server(R) 2003, Standard Edition Microsoft(R) Windows Server(R) 2003, Standard x64 Edition Microsoft(R) Windows Server(R) 2003, Enterprise Edition Microsoft(R) Windows Server(R) 2003, Enterprise x64 Edition Microsoft(R) Windows Server(R) 2003 R2, Standard Edition Microsoft(R) Windows Server(R) 2003 R2, Standard x64 Edition Microsoft(R) Windows Server(R) 2003 R2, Enterprise Edition Microsoft(R) Windows Server(R) 2003 R2, Enterprise x64 Edition	Windows Server 2003	Windows
Microsoft(R) Windows Server(R) 2008 Standard (32-bit)(64-bit) Microsoft(R) Windows Server(R) 2008 Standard without Hyper-V(TM) (32-bit) (64-bit) Microsoft(R) Windows Server(R) 2008 Enterprise (32-bit)(64-bit) Microsoft(R) Windows Server(R) 2008 Enterprise without Hyper-V(TM) (32-bit) (64-bit) Microsoft(R) Windows Server(R) 2008 Datacenter (32-bit)(64-bit) Microsoft(R) Windows Server(R) 2008 Datacenter without Hyper-V(TM) (32-bit) (64-bit)	Windows Server 2008	
Microsoft(R) Windows Server(R) 2008 R2 Foundation Microsoft(R) Windows Server(R) 2008 R2 Standard Microsoft(R) Windows Server(R) 2008 R2 Enterprise Microsoft(R) Windows Server(R) 2008 R2 Datacenter	Windows Server 2008 R2	
Microsoft(R) Windows(R) XP Professional Edition Microsoft(R) Windows(R) XP Home Edition	Windows XP	
Windows Vista(R) Home Basic Windows Vista(R) Home Premium Windows Vista(R) Business Windows Vista(R) Enterprise Windows Vista(R) Ultimate	Windows Vista	
Windows(R) 7 Home Basic Windows(R) 7 Home Premium Windows(R) 7 Professional Windows(R) 7 Enterprise Windows(R) 7 Ultimate	Windows 7	
Solaris(TM) 9 Operating System	Solaris 9	Solaris or Solaris OS
Oracle Solaris 10	Solaris 10	
Oracle Solaris 11	Solaris 11	
Red Hat(R) Enterprise Linux(R) AS (v.4 for x86) Red Hat(R) Enterprise Linux(R) AS (v.4 for EM64T)	RHEL-AS4	RHEL
Red Hat(R) Enterprise Linux(R) ES (v.4 for x86) Red Hat(R) Enterprise Linux(R) ES (v.4 for EM64T)	RHEL-ES4	

Formal name	Abbreviation	
Red Hat(R) Enterprise Linux(R) 5 (for x86) Red Hat(R) Enterprise Linux(R) 5 (for Intel64)	RHEL5	
Red Hat(R) Enterprise Linux(R) 6 (for x86) Red Hat(R) Enterprise Linux(R) 6 (for Intel64)	RHEL6	
SUSE(R) Linux Enterprise Server 11 (for x86) SUSE(R) Linux Enterprise Server 11 (for EM64T)	SUSE	
HP-UX 11.0 HP-UX 11i HP-UX 11i v2 HP-UX 11i v3	HP-UX	
AIX 5L(TM) V5.1 AIX 5L(TM) V5.2 AIX 5L(TM) V5.3 AIX(R) V6.1 AIX(R) V7.1	AIX	
VMware(R) Infrastructure 3 Foundation VMware(R) Infrastructure 3 Standard VMware(R) Infrastructure 3 Enterprise VMware vSphere(R) 4 Essentials Kit VMware vSphere(R) 4 Essentials Plus Kit VMware vSphere(R) 4 Standard Edition(TM) VMware vSphere(R) 4 Standard Plus Data Recovery VMware vSphere(R) 4 Advanced Edition(TM) VMware vSphere(R) 4 Enterprise Edition(TM) VMware vSphere(R) 4 Enterprise Plus Edition(TM) VMware vSphere(R) 5 Essentials Kit VMware vSphere(R) 5 Essentials Plus Kit VMware vSphere(R) 5 Standard Edition(TM) VMware vSphere(R) 5 Standard Plus Data Recovery VMware vSphere(R) 5 Enterprise Edition(TM) VMware vSphere(R) 5 Enterprise Plus Edition(TM)	VMware	

Oracle Solaris might be described as Solaris, Solaris Operating System, or Solaris OS.

Related products with Fujitsu Storage System ETERNUS and Storage Management Software ETERNUS SF

Formal name	Abbreviation		
ETERNUS DX60/DX60 S2 ETERNUS DX80/DX80 S2 ETERNUS DX90/DX90 S2	-		ETERNUS DX series ETERNUS Disk storage system
ETERNUS DX410 ETERNUS DX440	ETERNUS DX400 series	ETERNUS DX400/ DX400 S2 series	
ETERNUS DX410 S2 ETERNUS DX440 S2	ETERNUS DX400 S2 series		
ETERNUS DX8100 ETERNUS DX8400 ETERNUS DX8700	ETERNUS DX8000 series	ETERNUS DX8000/DX8000 S2 series	
ETERNUS DX8100 S2 ETERNUS DX8700 S2	ETERNUS DX8000 S2 series		
ETERNUS2000 ETERNUS4000 ETERNUS8000	-		

Formal name	Abbreviation
Web GUI of ETERNUS DX series	ETERNUS Web GUI
ETERNUSmgr	

Software products

Formal name	Abbreviation
Microsoft(R) Internet Explorer(R)	Internet Explorer
Mozilla(R) Firefox(R)	Firefox
Microsoft(R) Cluster Service	MSCS
Microsoft(R) Windows Server(R) Failover Clustering	WSFC
Microsoft(R) Exchange Server	Exchange Server
Microsoft(R) SQL Server(TM)	SQL Server
PRIMECLUSTER Global Disk Services	GDS
PRIMECLUSTER Global File Services	GFS
Symfoware Server Enterprise Extended Edition Symfoware Server Enterprise Edition	Symfoware
HITACHI JP1/HiCommand Dynamic Link Manager	HDLM

ETERNUS SF versions

Formal name	Abbreviation	
ETERNUS SF Express V15.0 ETERNUS SF Express V15.0B ETERNUS SF Express V15.1	ETERNUS SF Express V15	ETERNUS SF V15
ETERNUS SF Storage Cruiser V15.0 ETERNUS SF Storage Cruiser V15.0B ETERNUS SF Storage Cruiser V15.1	ETERNUS SF Storage Cruiser V15	
ETERNUS SF AdvancedCopy Manager V15.0 ETERNUS SF AdvancedCopy Manager V15.0B ETERNUS SF AdvancedCopy Manager V15.1	ETERNUS SF AdvancedCopy Manager V15	
ETERNUS SF Express V14.1 ETERNUS SF Express V14.1A ETERNUS SF Express V14.2 ETERNUS SF Express V14.2A	ETERNUS SF Express V14	ETERNUS SF V14
ETERNUS SF Storage Cruiser V14.0 ETERNUS SF Storage Cruiser V14.1 ETERNUS SF Storage Cruiser V14.2 ETERNUS SF Storage Cruiser V14.2A	ETERNUS SF Storage Cruiser V14	
ETERNUS SF AdvancedCopy Manager V14.0 ETERNUS SF AdvancedCopy Manager V14.1 ETERNUS SF AdvancedCopy Manager V14.2 ETERNUS SF AdvancedCopy Manager V14.2A	ETERNUS SF AdvancedCopy Manager V14	
ETERNUS SF Storage Cruiser V13.0 ETERNUS SF Storage Cruiser V13.1 ETERNUS SF Storage Cruiser V13.2 ETERNUS SF Storage Cruiser V13.3 ETERNUS SF Storage Cruiser V13.3A ETERNUS SF Storage Cruiser V13.4	ETERNUS SF Storage Cruiser V13	ETERNUS SF V13

Formal name	Abbreviation	
ETERNUS SF AdvancedCopy Manager V13.0 ETERNUS SF AdvancedCopy Manager V13.1 ETERNUS SF AdvancedCopy Manager V13.2 ETERNUS SF AdvancedCopy Manager V13.3 ETERNUS SF AdvancedCopy Manager V13.3A ETERNUS SF AdvancedCopy Manager V13.4 ETERNUS SF AdvancedCopy Manager V13.4.1	ETERNUS SF AdvancedCopy Manager V13	

Manuals

Formal name	Abbreviation
ETERNUS SF Express / ETERNUS SF Storage Cruiser / ETERNUS SF AdvancedCopy Manager Installation and Setup Guide	ETERNUS SF Installation and Setup Guide
ETERNUS SF Express / ETERNUS SF Storage Cruiser / ETERNUS SF AdvancedCopy Manager Migration Guide	ETERNUS SF Migration Guide
ETERNUS SF Express / ETERNUS SF Storage Cruiser / ETERNUS SF AdvancedCopy Manager Web Console Guide	ETERNUS SF Web Console Guide
ETERNUS SF Express / ETERNUS SF AdvancedCopy Manager Operation Guide for Copy Control Module	ETERNUS SF Operation Guide for Copy Control Module
ETERNUS SF Storage Cruiser / ETERNUS SF AdvancedCopy Manager Cluster Environment Setup Guide	ETERNUS SF Cluster Environment Setup Guide
ETERNUS SF Express / ETERNUS SF Storage Cruiser / ETERNUS SF AdvancedCopy Manager Messages	ETERNUS SF Messages
ETERNUS SF Express / ETERNUS SF Storage Cruiser Event Guide	ETERNUS SF Event Guide
ETERNUS SF Express / ETERNUS SF Storage Cruiser / ETERNUS SF AdvancedCopy Manager Glossary	ETERNUS SF Glossary

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Revision	date	Content of update
1	June 2012	-
2	September 2012	The reply to "Is it possible to allocate ETERNUS SF AdvancedCopy Manager V15 manager and ETERNUS SF Storage Cruiser V15 manager on separate servers?" was modified.
3	October 2012	FAQ of Automated Storage Tiering function was added to " Chapter 3 ETERNUS SF Storage Cruiser".

Notes

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Chapter 1 General Overview

1.1 Environment



I would like to know supported operating systems and supported devices.



Please refer to the Data Sheet for the relevant product.

Data sheet

http://www.fujitsu.com/global/services/computing/storage/eternus/documentation/#iddatasheets_brochures

It is in "Storage Management Software" of "Data sheets and Brochures".



Show us the ETERNUS port numbers required for ETERNUS SF V15.



They are as follows:

Product	Target device	Port No	Communication path M: ETERNUS SF Manager System: ETERNUS Disk storage system	Application
ETERNUS SF Express	ETERNUS DX80 S2 ETERNUS DX90 S2	22/tcp	M->System	Configuration management, Performance management, Copy
		23/tcp	M->System	Configuration management, Copy
		161/udp	M->System	Configuration management, Performance management, Polling monitoring
		162/udp	System->M	Failure management
		1372/tcp	M->System	Performance management, Copy
		1999/tcp	M->System	Configuration management
		50002/tcp	M->System	Copy via LAN
	ETERNUS DX60/DX60 S2 ETERNUS DX80/DX90	23/tcp	M->System	Configuration management
		161/udp	M->System	Configuration management, Performance management, Polling monitoring
		162/udp	System->M	Failure management
		1999/tcp	M->System	Configuration management, Copy

Product	Target device	Port No	Communication path M: ETERNUS SF Manager System: ETERNUS Disk storage system	Application
ETERNUS SF Storage Cruiser	ETERNUS DX80 S2 ETERNUS DX90 S2 ETERNUS DX400 S2 series	22/tcp	M->System	Configuration management, Performance management
		23/tcp	M->System	Configuration management
		161/udp	M->System	Configuration management, Performance management, Polling monitoring
		162/udp	System->M	Failure management
		1372/tcp	M->System	Performance management
		1999/tcp	M->System	Configuration management
	ETERNUS DX60/DX60 S2 ETERNUS DX80/DX90 ETERNUS DX400 series ETERNUS DX8000 series ETERNUS2000 ETERNUS4000 ETERNUS8000	23/tcp	M->System	Configuration management ((For ETERNUS DX60/DX60 S2/ DX80/DX90)
		161/udp	M->System	Configuration management, Performance management, Polling monitoring
		162/udp	System->M	Failure management
		1999/tcp	M->System	Configuration management
ETERNUS SF AdvancedCopy Manager	ETERNUS DX80 S2 ETERNUS DX90 S2 ETERNUS DX400 S2 series	22/tcp	M->System	Copy
		23/tcp	M->System	Copy
		1372/tcp	M->System	Copy
		50002/tcp	M->System	Copy via LAN
	ETERNUS DX60/DX60 S2 ETERNUS DX80/DX90 ETERNUS DX400 series ETERNUS DX8000 series ETERNUS2000 ETERNUS4000 ETERNUS8000	1999/tcp	M->System	Copy
ETERNUS SF AdvancedCopy Manager CCM	ETERNUS DX80 S2 ETERNUS DX90 S2 ETERNUS DX400 S2 series	22/tcp	M->System	Copy
		23/tcp	M->System	Copy
		1372/tcp	M->System	Copy
		50002/tcp	M->System	Copy via LAN
	ETERNUS DX60/DX60 S2 ETERNUS DX80/DX90 ETERNUS DX400 series ETERNUS DX8000 series ETERNUS2000 ETERNUS4000 ETERNUS8000	1999/tcp	M->System	Copy

1.2 Configuration



In the environment using both ETERNUS SF AdvancedCopy Manager V14 and ETERNUS SF Storage Cruiser V14, if one product is upgraded to V15, is the other product available as it is in V14?



No, it is not. It is required that all the products must be upgraded to V15.



Is it possible to allocate ETERNUS SF AdvancedCopy Manager V15 manager and ETERNUS SF Storage Cruiser V15 manager on separate servers?



Both managers can be installed in separate servers.

However, take note of the following points:

- Management Server where Storage Cruiser's manager is installed:
 - Register only the Storage Cruiser license.
 - AdvancedCopy Manager's agent cannot be installed on the Management Server.
 - ETERNUS SF Manager is an integrated product that enables daemons/services for AdvancedCopy Manager's manager to run.
 - Check the [SNMP Trap Setting] checkbox when registering an ETERNUS Disk storage system if necessary.
 - When registering servers, register them as Managed Servers where Storage Cruiser's agent is used.
- Management Servers where AdvancedCopy Manager's manager is installed:
 - Register only the AdvancedCopy Manager license.
 - ETERNUS SF Manager is an integrated product that enables daemons/services for Storage Cruiser's manager to run.
 - Do not check the [SNMP Trap Setting] checkbox when registering an ETERNUS Disk storage system.
 - When registering servers, register them as Managed Servers where AdvancedCopy Manager's agent is used.



If manager is V15, is it available in combination with V13 or V14 agent?



It is available along with ETERNUS SF AdvancedCopy Manager and ETERNUS SF Storage Cruiser.



Show us how the cluster system is supported by ETERNUS SF V15 in the Windows environment.



It is shown as follows:

		Windows Server 2003 (MSCS)	Windows Server 2008 (WSFC)
Manager	ETERNUS SF AdvancedCopy Manager	Not support	support
	ETERNUS SF Storage Cruiser	Not support	support
	Both	Not support	support
Agent	ETERNUS SF AdvancedCopy Manager	support	support
	ETERNUS SF Storage Cruiser	N/A(*)	N/A(*)

(*) As the object to be monitored by ETERNUS SF Storage Cruiser is a physical server, there is no dependency on cluster configuration.



Show us how Active Directory is supported in the Windows environment.



It is shown as follows:

		Manager	Agent
Domain server	ETERNUS SF AdvancedCopy Manager	support	Not support
	ETERNUS SF Storage Cruiser	support	support
	Both	support	Not support
Member server	ETERNUS SF AdvancedCopy Manager	support	support
	ETERNUS SF Storage Cruiser	support	support
	Both	support	support



Is it possible to coexist with System Center Virtual Machine Manager (SCVMM)?



It is shown as follows:

	Manager	Agent
ETERNUS SF AdvancedCopy Manager	No	No
ETERNUS SF Storage Cruiser	No	Yes
Both	No	No

1.3 Installation



Though I tried to download SNIA HBA API Library for RHEL6, "HBAnyware" from the PRIMERGY download site, the relevant library did not exist.



Since Emulex has renamed "HBAnyware" to "One Command Manager" from RHEL6, you are requested to download "One Command Manager".



Though I tried to download SNIA HBA API Library for RHEL5.7/ RHEL 6.1 from the PRIMERGY download site, the relevant library did not exist.



Please download SNIA HBA API Library for RHEL5.6. Though only RHEL5.6 is described as required environment in the README for SNIA HBA API Library, it is available for RHEL5.7/ RHEL6.1, as well.

1.4 License



How and where can I find description or explanation of ETERNUS SF products?



Please refer to the ETERNUS SF purchase guide:

<https://partners.ts.fujitsu.com/sites/primeweb/services/storage/eternus/document/Pages/dc-sp-guide.aspx>



When customer uses Thin Provisioning function of ETERNUS DX series, is ETERNUS SF Storage Cruiser license required?



ETERNUS SF Storage Cruiser is not a mandatory software for Thin Provisioning, but ETERNUS SF Storage Cruiser is very useful software to prevent exhaustion of physical space by displaying historical usage information of physical capacity by graph style and alerting by threshold configuration.

ETENRUS SF Storage Cruiser V15 Basic License and V15 Standard License has same functional level for Thin Provisioning management.

Chapter 2 ETERNUS SF Express



Is it possible to install ETERNUS SF Express onto a guest operating system on VMware 4.1 update1 to make it run?



Yes, it is.



Is it possible to install ETERNUS SF Express onto a guest operating system on vSphere5 to make it run?



Yes, it is.



Is ETERNUS SF Express available in the environment using RedHat Device Mapper, as well?



Yes, it is.

Chapter 3 ETERNUS SF Storage Cruiser



Is it possible to install ETERNUS SF Storage Cruiser onto a guest operating system on vSphere5 to make it run?



Manager can run on a guest operating system on vSphere5. In addition, it is possible to monitor the VMware environment in combination with vCenter or ESX5i without installing agent.



Is the Oracle Solaris UTF-8 locale supported?



Manager does not support it. Agent supports it.



Is the multipath driver using RHEL and SUSE Device Mapper supported?



Yes, supports. However, only status information is displayed.



What are the licenses required to use the Automated Storage Tiering function?



To use the Automated Storage Tiering function, purchase the following software and storage device licenses:

- Software
 - ETERNUS SF Storage Cruiser Standard Edition 15
 - ETERNUS SF Storage Cruiser Optimization Option 15
- ETERNUS storage device
 - Thin Provisioning mechanism

One license is required per storage device.



On a per what basis does the Automated Storage Tiering function move data?



The Automated Storage Tiering function moves data on a per physical volume allocation (1,344MB) basis. The unit of physical allocation is fixed and unchangeable.



Is volume reallocation by the Automated Storage Tiering function done all automatically?



There are auto and manual modes to execute the Automated Storage Tiering function. There are three types of execution modes as follows:

- Auto
Collection/evaluation of performance data required for volume reallocation through execution of volume reallocation is all automatically done according to the Tiering policy.
- Semi-Auto
Collection/evaluation of performance data required for volume reallocation is automatically done according to the Tiering policy, but volume reallocation is done by manual.
- Manual
Collection/evaluation of performance data required for volume reallocation through execution of volume reallocation is done by manual.



Under what conditions and timing is volume reallocation done by the Automated Storage Tiering function?



The Automated Storage Tiering function executes performance data collection/evaluation and volume reallocation according to the "Execution mode", "Evaluation period", "Reference value" and "Execution time" specified for the policy.

If the execution mode is Auto, a target of reallocation is determined based on the access frequency and reference value during evaluation period, and reallocation is started at the specified execution time.

Select Evaluation period from 4, 6, 8, 12 hours and 1 to 31 days to make the performance data collected during the above period an evaluation target. For Reference value, specify access frequency (IOPS peak value) on a per physical volume allocation. For Execution time, any time from 00:00-23:59 is specifiable.

When the execution mode is Semi-Auto, up to collection/evaluation of performance data is automatically performed, but for Manual, nothing is automatically done.

Perform the subsequent processes through the GUI.

Combining Execution time, Evaluation period and Execution mode (Auto, Semi-Auto, Manual) can configure a schedule for reallocation execution.



Can the Tiering policy of the Automated Storage Tiering function be changed when in use?



The Tiering policy in use cannot be changed.

When changing it, stop the Automated Storage Tiering function for the tier pool using the Tiering policy.



What configuration is supported by the Automated Storage Tiering function?



It supports the 2nd and 3rd tiers. Tiers can be categorized by disk type or by RAID type.



Is there any incompatible software when using the Automated Storage Tiering function?



The Automated Storage Tiering function serves as an ETERNUS SF Storage Cruiser option. Therefore, the incompatible software against the Automated Storage Tiering function is the same with ETERNUS SF Storage Cruiser manager as follows:

- Systemwalker Resource Coordinator
*Excluding Systemwalker Resource Coordinator Virtual server Edition
- SystemWalker/StorageMGR-M
- SystemWalker/StorageMGR-A
- Softek AdvancedCopy Manager-M
- Softek AdvancedCopy Manager-A
- Softek SANView
- Softek Storage Cruiser
- ETERNUS SF Quick Starter
- Product bundled with Symfoware Client alone
- Symfoware Client
- ETERNUS SF AdvancedCopy Manager agent



What are storage devices for which the Automated Storage Tiering function is available?



The following are the storage devices for which the Automated Storage Tiering function is available:

Supported device

- ETERNUS DX80 S2/DX90 S2
- ETERNUS DX400 S2 series
- ETERNUS DX8000 S2 series
*V10L20 or later firmware is required.

Also, to use the Automated Storage Tiering function, ETERNUS SF Storage Cruiser is required. For ETERNUS SF Storage Cruiser, manager needs to be installed to the Management server. For the operating system on which manager is running, see below:

<http://www.fujitsu.com/global/services/computing/storage/eternus/products/eternus-sf/cruiser/environment/>



For what system is the Automated Storage Tiering function effective?

A

This is effective for hardly accessed disk areas and services that come to access frequently special disk areas.
The effect varies depending on the system access trend. Consult with Fujitsu sales personnel.

Q

Can volume capacity be expanded when the Automated Storage Tiering function is in use?

A

Volume capacity can be expanded from the ETERNUS SF Web Console.

Q

Can disk be activated and increased in size when the Automated Storage Tiering function is in use?

A

Disk can be activated and increased in size from the ETERNUS Web GUI.

Chapter 4 ETERNUS SF AdvancedCopy Manager

4.1 Environment



Is it possible to install ETERNUS SF AdvancedCopy Manager onto a guest operating system on vSphere5 to make it run?



Both manager and agent can run on a guest operating system of vSphere5.



Is the Oracle Solaris UTF-8 locale supported?



Neither manager nor agent supports UTF-8.



Is the multipath driver using RHEL and SUSE Device Mapper supported?



Yes, it is. However, as available functions are limited, it is recommended to use ETERNUS Multipath Driver.

4.2 Configuration



Is it possible to perform replication operation between ETERNUS SF AdvancedCopy Manager V15 manager and ETERNUS SF AdvancedCopy Manager V15 agent?



Yes, it is.



Can ETERNUS SF AdvancedCopy Manager V15 manager coexist with S Symfoware Server Enterprise Edition V10?



Yes, it can. However, it is enabled under the following conditions:

- Symfoware Server EE V10 should be installed before ETERNUS SF AdvancedCopy Manager V15 manager.
- ETERNUS SF AdvancedCopy Manager that runs in the same bit mode as Symfoware Server (32 bit / 64 bit) should be installed. (64 bit-mode manager runs on RHEL5 only)

4.3 License



Tell us the license that should be purchased when performing remote copy (REC) operation between different models of ETERNUS Disk storage systems with the use of ETERNUS SF AdvancedCopy Manager.



License is required to support respective ETERNUS Disk storage systems as copy source and copy destination.

4.4 Functionalities



Is it possible to back up the Cluster Shared Volume (CSV) area on Hyper-V?



Yes, it is. However, you cannot separately back up and restore Volume Shadow Copy Service (VSS)-supported applications (data) in a guest operating system existing in the CSV area. (Backup and restore is performed on a per guest operating system basis)