EXPRESSCLUSTER® X

for Windows SAP NetWeaver

Configuration Example

April 17, 2018
1st Edition

Revision History

Edition	Revised Date	Description
1st	Apr 17, 2018	New guide

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Table of Contents

Preface

This Guide: Building the cluster system in the “EXPRESSCLUSTER X for Windows SAP NetWeaver System Configuration Guide”, and giving the example of setting for actuate.

Who Should Use This Guide

This Guide is intended for administrators who want to build a cluster system, system engineers who want to provide user support, and maintenance personnel.
This Guide introduces software whose operation in an EXPRESSCLUSTER environment has been checked. The software and setup examples introduced here are for reference only. They are not meant to guarantee the operation of each software product.

The introduced software and the example of setting in this document are just reference information. There are not warranty of the each software’s behaviour.

How This Guide is Organized

This Guide consist of the following two guides.

“EXPRESSCLUSTER X for Windows SAP NetWeaver System Configuration Guide”
“EXPRESSCLUSTER X for Windows SAP NetWeaver Configuration Example”

Conventions

In this guide, **Note**, **Important**, **Related Information** are used as follows:

Note:
Used when the information given is important, but not related to the data loss and damage to the system and machine

Important:
Used when the information given is necessary to avoid the data loss and damage to the system and machine.

Related Information:
Used to describe the location of the information given at the reference destination.

The following conventions are used in this guide.

Convention	Usage	Example
Bold	Indicates graphical objects, such as fields, list boxes, menu selections, buttons, labels, icons, etc.	In **User Name**, type your name. On the **File** menu, click **Open Database**.
Angled bracket within the command line	Indicates that the value specified inside of the angled bracket can be omitted.	`clpstat -s [-h host_name]`
Monospace (courier)	Indicates path names, commands, system output (message, prompt, etc), directory, file names, functions and parameters.	`c:\Program files\EXPRESSCLUSTER`
Monospace bold (courier)	Indicates the value that a user actually enters from a command line.	Enter the following: **`# clpcl -s -a`**
Monospace italic (courier)	Indicates that users should replace italicized part with values that they are actually working with.	`clpstat -s [-h host_name]`

Related documents

EXPRESSCLUSTER X Documentation Set

The EXPRESSCLUSTER X manuals consist of the following four guides. The title and purpose of each guide is described below:

EXPRESSCLUSTER X Getting Started Guide
This guide is intended for all users. The guide covers topics such as product overview, system requirements, and known problems.

EXPRESSCLUSTER X Installation and Configuration Guide
This guide is intended for system engineers and administrators who want to build, operate, and maintain a cluster system. Instructions for designing, installing, and configuring a cluster system with EXPRESSCLUSTER are covered in this guide.

EXPRESSCLUSTER X Reference Guide
This guide is intended for system administrators. The guide covers topics such as how to operate EXPRESSCLUSTER, function of each module, maintenance-related information, and troubleshooting. The guide is supplement to the Installation and Configuration Guide.

EXPRESSCLUSTER X Integrated WebManager Administrator's Guide
This guide is intended for system administrators who manage cluster systems using EXPRESSCLUSTER with Integrated WebManager, and also intended for system engineers who introduce Integrated WebManager. This guide describes detailed issues necessary for introducing Integrated WebManager in the actual procedures.

SAP NetWeaver documents

For details of SAP NetWeaver please refer to the official SAP documentation available at

http://service.sap.com/installnw74/
http://service.sap.com/installnw75/

Make sure to check the "Master Guide" and the "Installation Guide" for NetWeaver according to the database you are installing on.

SAP NOTE

```
#1680045: Release Note for Software Provisioning Manager 1.0
#1710950: Inst. SAP Systems Based on NW 7.1 and higher: Windows
#0066971: Supported SAP GUI platforms
#1732161: SAP Systems on Windows Server 2012 (R2)
#0019466: Downloading SAP kernel patches
#0174911: Determining the hardware key (customer key)
#0181543: License key for high availability environment
#0870871: License key installation
#1031096: Installing Package SAPHOSTAGENT
#1841837: Support details for NEC EXPRESSCLUSTER Support on SAP NetWeaver
Systems
#2182373: NEC EXPRESSCLUSTER X: Rolling Kernel Switch in HA environments
#2384179: SAP Systems on Windows Server 2016
```

Note:
Related documents and URL in this guide are subject to change without notice.

Terminology in this guide

Provides information of terminology used in this guide.

Terminology	Description
This product	EXPRESSCLUSTER X for Windows SAP NetWeaver
Configuration Guide	EXPRESSCLUSTER X for Windows SAP NetWeaver System Configuration Guide
Configuration Example	EXPRESSCLUSTER X for Windows SAP NetWeaver Configuration Example
Connecter for SAP	The connecter which links with SAP included in this product.
SAP NW	SAP NetWeaver
ASCS	ABAP SAP Central Services Instance
ERS	Enqueue Replication Server
PAS	Primary Application Server
AAS	Additional Application Server
DA	Diagnostics Agent
Exclusive	Failover group for exclusive control of ASCS/ERS instance

Section I Configuration example

Chapter 1 An example of setting environment on the SAP NW

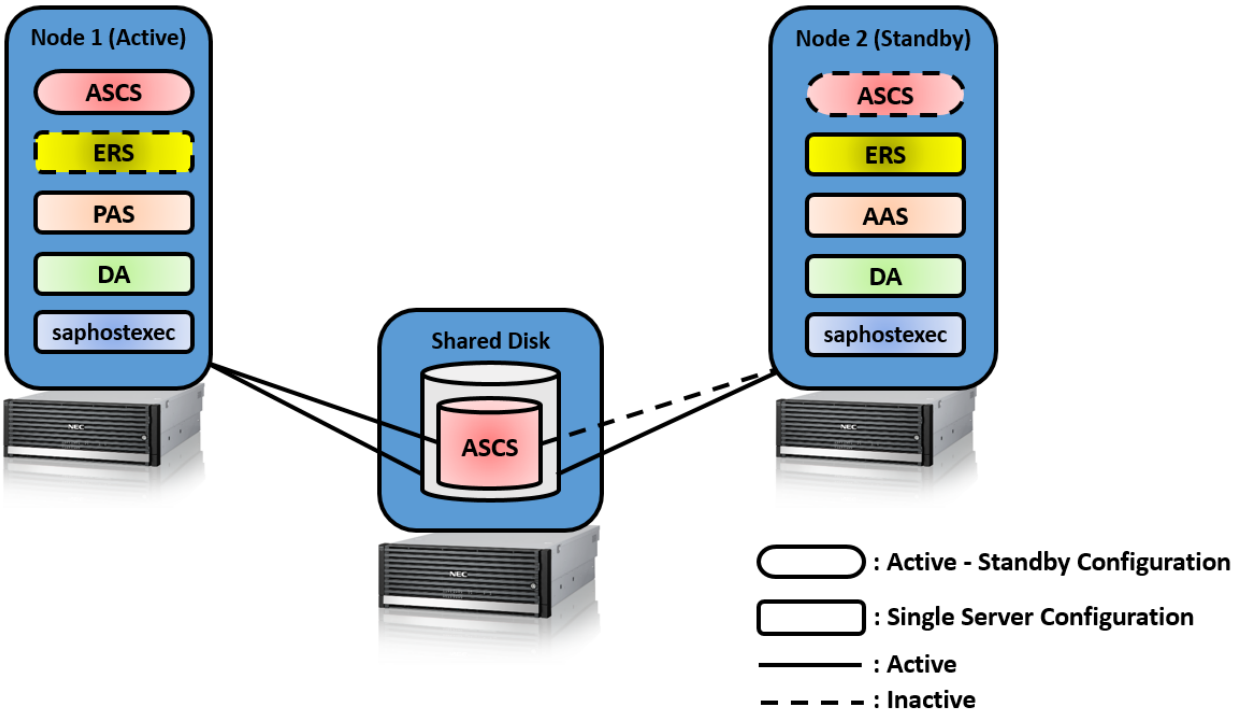
Terminology used in this chapter.

Terminology	Description
SID	SAP System ID
DASID	Diagnostics Agent SAP System ID
SAP_NEC_GlobalAdmin	Account automatically created for SAP NW Example: SAP_<SID>_GlobalAdmin
SAP_DAA_GlobalAdmin	Account automatically created for SAP NW Example: SAP_<DASID>_GlobalAdmin
SAP_LocalAdmin	Account automatically created for SAP NW

1.1. Shared Disk

An example of setting up the shared disk used in this manual from each node is shown below.

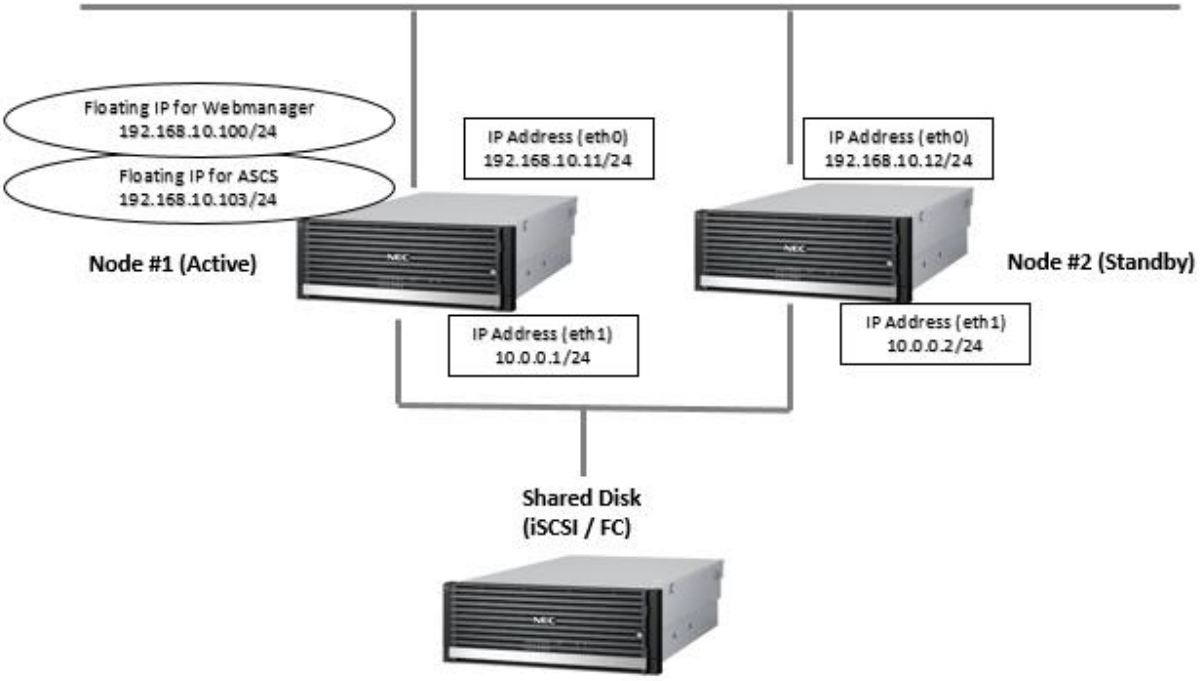
Drive letter Node#1 / Node#2	Usage	Connection method
S:	ASCS	iSCSI



1.2. Floating IP

The static and floating IPs in the following table have been used for this configuration:

Host Name	Node#1	Node#2
	sap1	*sap2*
Inter connect IP	*192.168.10.11/24* *10.0.0.1/24*	*192.168.10.12/24* *10.0.0.2/24*
Floating IP	*managesv* *SAPNEC*	*192.168.10.100/24* (For WebManager) *192.168.10.103/24* (For ASCS)



1.3. OS Setting Example

A setting example in this manual is shown below. (Windows Server 2012)

<table>
<tr><td colspan="2">Node addition to hosts</td><td colspan="3">> %windir%\System32\Drivers\Etc\hosts

192.168.10.103 SAPNEC</td></tr>
<tr><td colspan="2" rowspan="2">Shared disk Drive letter</td><td>Drive Letter</td><td colspan="2">Owned by Cluster Group</td></tr>
<tr><td>S:</td><td colspan="2">ASCS</td></tr>
<tr><td colspan="2">File sharing</td><td>Shared name</td><td>Path</td><td>Access Permission</td></tr>
<tr><td rowspan="5"></td><td rowspan="2">CIFS Resource</td><td rowspan="2">sapmnt</td><td rowspan="2">S:\usr\sap</td><td>Access permission: Full Control
Administrators
SAP_LocalAdmin
SAP_NEC_GlobalAdmin</td></tr>
<tr><td>NTFS Permission
Administrators
SAP_LocalAdmin
SAP_NEC_GlobalAdmin</td></tr>
<tr><td rowspan="2">Node#1</td><td rowspan="2">saploc</td><td rowspan="2">C:\usr\sap</td><td>Access permission: Full Control
SAP_LocalAdmin(SAP1\SAP_LocalAdmin)</td></tr>
<tr><td>NTFS Permission
SAP_LocalAdmin(SAP1\SAP_LocalAdmin)
SAP_DAA_GlobalAdmin(SAP1\SAP_DAA_Global Admin)</td></tr>
<tr><td rowspan="2">Node#2</td><td rowspan="2">saploc</td><td rowspan="2">C:\usr\sap</td><td>Access permission: Full Control
SAP_LocalAdmin(SAP2\SAP_LocalAdmin)</td></tr>
<tr><td>NTFS Permission
SAP_LocalAdmin(SAP2\SAP_LocalAdmin)
SAP_DAA_GlobalAdmin(SAP2\SAP_DAA_Global Admin)</td></tr>
<tr><td colspan="2" rowspan="2">Symbolic link (Node#1 / Node#2)</td><td colspan="3">Format:
mklink /d <<i>localdisk</i>>:\usr\sap\<<i>SID</i>>\SYS
\\<<i>sapglobalhost</i>>\sapmnt\<<i>SID</i>>\SYS

Example:
mklink /d <i>C</i>:\usr\sap\<i>NEC</i>\SYS \\<i>SAPNEC</i>\sapmnt\<i>NEC</i>\SYS</td></tr>
<tr><td colspan="3">Format:
mklink /d <localdisk>:\usr\sap\trans
\\<trans_dir_host>\sapmnt\trans

Example:
mklink /d C:\usr\sap\trans \\SAPNEC\sapmnt\trans</td></tr>
</table>

1.4. An example of setting the SAP NW

An example for “host name”, “instance name” and “instance number” settings for SAP NW used in this manual is listed below.

Host Name	Floating IP Address	Note
managesv	*192.168.10.100*	For EXPRESSCLUSTER Management Group
SAPNEC	*192.168.10.103*	For ASCS

Instance	Parameter name	Value of the setting
SAP NW	SID	*NEC*
ASCS	The instance number	*10*
	The instance name	ASCS*10*
	Host name	*SAPNEC*
ERS1	The instance number	*21*
	The instance name	ERS*21*
ERS2	The instance number	*22*
	The instance name	ERS*22*
PAS	The instance number	*31*
	The instance name	DVEBMGS*31*
AAS	The instance number	*32*
	The instance name	D*32*
DA1	The instance number	*97*
	The instance name	SMDA*97*
DA2	The instance number	*96*
	The instance name	SMDA*96*

Chapter 2 EXPRESSCLUSTER setting

2.1. An example of setting EXPRESSCLUSTER

An example of setting EXPRESSCLUSTER used in this manual is listed below.

The following table will be the setting for creating a cluster environment of SAP NW.

2.1.1. Configuration example for failover groups

	Parameter name	Value of the setting
Cluster configuration	Cluster name	cluster
	The number of servers	2
	The number of failover groups	11
	The number of monitor resources	28
Heartbeat	Lankhb	2
Node#1 (Server of master)	Server name	sap1
	IP address of interconnect (Kernel Mode, Priority1)	192.168.10.11
	IP address of interconnect (Kernel Mode, Priority2)	10.0.0.1
Node#2	Server name	sap2
	IP address of interconnect (Kernel Mode, Priority1)	192.168.10.12
	IP address of interconnect (Kernel Mode, Priority2)	10.0.0.2
NP Resolution	Type	Ping
	Ping Target	192.168.10.10
1st group (for WebManager)	Type	failover
	Group name	Management Group
	Server group of run	Failover is possible on all servers
	The number of group resources	1
1st group resource	Type	floating ip resource
	Group resource name	Management IP
	IP Address	192.168.10.100
	Run ping	On
2nd group (for ASCS)	Type	failover
	Group name	ASCS-Group
	Startup Server	Failover is possible on all servers
	Startup Attribute	Auto Startup
	Failover Attribute	Auto Failover Use the startup server settings
	Failback Attribute	Manual Failback
	Failover Exclusive Attribute	Normal exclusion
	Start Dependent group	none
	Stop Dependent group	ERS1-Group PAS-Group

	Parameter name	Value of the setting
		ERS2-Group AAS-Group
		Wait the Dependent Groups when a Cluster Stops Wait the Dependent Groups when a Server Stops
	The number of group resources	5
1st group resource Depth 0	Type	floating ip resource
	Dependent Resources	Follow the default dependency
	Group resource name	fip-ASCS
	Recovery Operation at Activity Failure Detection	Retry Count 0
		Failover Target Server Maximum Priority Server
		Failover Threshold Number of Servers
		No operation (not activate next resource)
	Recovery Operation at Deactivity Failure Detection	Retry Count at Deactivation 0
		Stop the cluster service and shutdown OS
	IP Address	192.168.10.103
	Run ping	On
2nd group resource Depth 1	Type	disk resource
	Group resource name	sd-ASCS
	Dependent Resources	Follow the default dependency
	Recovery Operation at Activity Failure Detection	Retry Count 0
		Failover Target Server Maximum Priority Server
		Failover Threshold Number of Servers
		No operation (not activate next resource)
	Recovery Operation at Deactivity Failure Detection	Retry Count at Deactivation 0
		Stop the cluster service and shutdown OS
	Drive Letter	S:
	Servers that can run the group	sap1 sap2
3rd group resource Depth 1	Type	cifs resource
	Group resource name	cifs-ASCS
	Dependent Resources	sd-ASCS
	Recovery Operation at Activity Failure Detection	Retry Count 0
		Failover Target Server Maximum Priority Server
		Failover Threshold Number of Servers
		No operation (not activate next resource)
	Recovery Operation at Deactivity Failure Detection	Retry Count at Deactivation 0
		Stop the cluster service and shutdown OS
	Execute the automatic saving of shared configuration of drive.	Off

		Parameter name	Value of the setting
		Shared Name	sapmnt
		Folder	S:\usr\sap
		Comment	Used by SAP server to access system specific information for system <SID>
		When folder is shared not as activity failure	On
		Allow Caching	On
		Caching Settings	Manual Caching
		User limit	No limitation
		Permissions	Administrators Full Control
			SAP_NEC_GlobalAdmin Full Control
			SAP_LocalAdmin Full Control
	4th group resource Depth 2	Type	script resource
		Group resource name	script-ASCS-SAP-instance_NEC_10
		Dependent Resources	Follow the default dependency
		Recovery Operation at Activity Failure Detection	Retry Count 0
			Failover Target Server Maximum Priority Server
			Failover Threshold Number of Servers
			No operation (not activate next resource)
		Recovery Operation at Deactivity Failure Detection	Retry Count at Deactivation 0
			Stop the cluster service and shutdown OS
		Details	Script created with this product Start script: start.bat Stop script: stop.bat User script: setting.bat User script: ascs-post-handler.bat
		[Start] Type	Synchronous
		[Start] Timeout (seconds)	1800 sec
		Normal Return Value	0
		[Stop] Type	Synchronous
		[Stop] Timeout (seconds)	1800 sec
		Normal Return Value	0
		Allow to Interact with Desktop	Off
	5th group resource Depth 2	Type	script resource
		Group resource name	script-ASCS-SAP-service_NEC_10
		Dependent Resources	Follow the default dependency
		Recovery Operation at Activity Failure Detection	Retry Count 0
			Failover Target Server Maximum Priority Server
			Failover Threshold Number of Servers
			No operation (not activate next resource)
		Recovery Operation at Deactivity Failure Detection	Retry Count at Deactivation 0
			Stop the cluster service and shutdown OS

	Parameter name	Value of the setting
	Details	Script created with this product Start script: start.bat Stop script: stop.bat User script: setting.bat
	[Start] Type	Synchronous
	[Start] Timeout (seconds)	1800 sec
	Normal Return Value	0
	[Stop] Type	Synchronous
	[Stop] Timeout (seconds)	1800 sec
	Normal Return Value	0
	Allow to Interact with Desktop	Off
3rd group (for ERS1)	Type	failover
	Group name	ERS1-Group
	Startup Server	sap1
	Startup Attribute	Manual Startup
	Failover Attribute	Auto Failover Use the startup server settings
	Failback Attribute	Auto Failback
	Failover Exclusive Attribute	Off
	Start Dependent group	ASCS-Group
	Stop Dependent group	----------
		Wait the Dependent Group when a Cluster Stops
	The number of group resources	2
1st group resource Depth 0	Type	script resource
	Group resource name	script-ERS1-SAP-instance_NEC_21
	Dependent Resources	Follow the default dependency
	Recovery Operation at Activity Failure Detection	Retry Count 0
		Failover Target Server Stable Server
		Failover Threshold Number of Servers
		No operation (not activate next resource)
	Recovery Operation at Deactivity Failure Detection	Retry Count at Deactivation 0
		Stop the cluster service and shutdown OS
	Details	Script created with this product Start script: start.bat Stop script: stop.bat User script: setting.bat User script: exclusive-control.bat
	[Start] Type	Synchronous
	[Start] Timeout (seconds)	1800 sec
	Normal Return Value	0
	[Stop] Type	Synchronous
	[Stop] Timeout (seconds)	1800 sec
	Normal Return Value	0

		Parameter name	Value of the setting
		Allow to Interact with Desktop	Off
	2nd group resource Depth 0	Type	script resource
		Group resource name	script-ERS1-SAP-service_NEC_21
		Dependent Resources	Follow the default dependency
		Recovery Operation at Activity Failure Detection	Retry Count 0
			Failover Target Server Stable Server
			Failover Threshold Number of Servers
			No operation (not activate next resource)
		Recovery Operation at Deactivity Failure Detection	Retry Count at Deactivation 0
			Stop the cluster service and shutdown OS
		Details	Script created with this product Start script: start.bat Stop script: stop.bat User script: setting.bat
		[Start] Type	Synchronous
		[Start] Timeout (seconds)	1800 sec
		Normal Return Value	0
		[Stop] Type	Synchronous
		[Stop] Timeout (seconds)	1800 sec
		Normal Return Value	0
		Allow to Interact with Desktop	Off
4th group (for PAS)		Type	failover
		Group name	PAS-Group
		Startup Server	sap1
		Startup Attribute	Auto Startup
		Failover Attribute	Auto Failover Use the startup server settings
		Failback Attribute	Auto Failback
		Failover Exclusive Attribute	Off
		Start Dependent group	ASCS-Group
		Stop Dependent group	----------
			Wait the Dependent Groups when a Cluster Stops Wait the Dependent Groups when a Server Stops
		The number of group resources	2
	1st group resource Depth 0	Type	script resource
		Group resource name	script-PAS-SAP-instance_NEC_31
		Dependent Resources	Follow the default dependency
		Recovery Operation at Activity Failure Detection	Retry Count 0
			Failover Target Server Stable Server
			Failover Threshold Number of Servers

		Parameter name	Value of the setting
			No operation (not activate next resource)
		Recovery Operation at Deactivity Failure Detection	Retry Count at Deactivation 0
			Stop the cluster service and shutdown OS
		Details	Script created with this product Start script: start.bat Stop script: stop.bat User script: setting.bat
		[Start] Type	Synchronous
		[Start] Timeout (seconds)	1800 sec
		Normal Return Value	0
		[Stop] Type	Synchronous
		[Stop] Timeout (seconds)	1800 sec
		Normal Return Value	0
		Allow to Interact with Desktop	Off
	2nd group resource Depth 0	Type	script resource
		Group resource name	script-PAS-SAP-service_NEC_31
		Dependent Resources	Follow the default dependency
		Recovery Operation at Activity Failure Detection	Retry Count 0
			Failover Target Server Stable Server
			Failover Threshold Number of Servers
			No operation (not activate next resource)
		Recovery Operation at Deactivity Failure Detection	Retry Count at Deactivation 0
			Stop the cluster service and shutdown OS
		Details	Script created with this product Start script: start.bat Stop script: stop.bat User script: setting.bat
		[Start] Type	Synchronous
		[Start] Timeout (seconds)	1800 sec
		Normal Return Value	0
		[Stop] Type	Synchronous
		[Stop] Timeout (seconds)	1800 sec
		Normal Return Value	0
		Allow to Interact with Desktop	Off
5th group (for ERS2)		Type	failover
		Group name	ERS2-Group
		Startup Server	sap2
		Startup Attribute	Manual Startup
		Failover Attribute	Auto Failover Use the startup server settings
		Failback Attribute	Auto Failback
		Failover Exclusive Attribute	Off
		Start Dependent group	ASCS-Group

	Parameter name	Value of the setting
	Stop Dependent group	----------
		Wait the Dependent Groups when a Cluster Stops
	The number of group resources	2
1st group resource Depth 0	Type	script resource
	Group resource name	script-ERS2-SAP-instance_NEC_22
	Dependent Resources	Follow the default dependency
	Recovery Operation at Activity Failure Detection	Retry Count 0
		Failover Target Server Stable Server
		Failover Threshold Number of Servers
		No operation (not activate next resource)
	Recovery Operation at Deactivity Failure Detection	Retry Count at Deactivation 0
		Stop the cluster service and shutdown OS
	Details	Script created with this product Start script: start.bat Stop script: stop.bat User script: setting.bat User script: exclusive-control.bat
	[Start] Type	Synchronous
	[Start] Timeout (seconds)	1800 sec
	Normal Return Value	0
	[Stop] Type	Synchronous
	[Stop] Timeout (seconds)	1800 sec
	Normal Return Value	0
	Allow to Interact with Desktop	Off
2nd group resource Depth 0	Type	script resource
	Group resource name	script-ERS2-SAP-service_NEC_22
	Dependent Resources	Follow the default dependency
	Recovery Operation at Activity Failure Detection	Retry Count 0
		Failover Target Server Stable Server
		Failover Threshold Number of Servers
		No operation (not activate next resource)
	Recovery Operation at Deactivity Failure Detection	Retry Count at Deactivation 0
		Stop the cluster service and shutdown OS
	Details	Script created with this product Start script: start.bat Stop script: stop.bat User script: setting.bat
	[Start] Type	Synchronous
	[Start] Timeout (seconds)	1800 sec
	Normal Return Value	0
	[Stop] Type	Synchronous
	[Stop] Timeout (seconds)	1800 sec

	Parameter name	Value of the setting
	Normal Return Value	0
	Allow to Interact with Desktop	Off
6th group (for AAS)	Type	failover
	Group name	AAS-Group
	Startup Server	sap2
	Startup Attribute	Auto Startup
	Failover Attribute	Auto Failover Use the startup server settings
	Failback Attribute	Auto Failback
	Failover Exclusive Attribute	Off
	Start Dependent group	ASCS-Group
	Stop Dependent group	----------
		Wait the Dependent Groups when a Cluster Stops
	The number of group resources	2
1st group resource Depth 0	Type	script resource
	Group resource name	script-AAS-SAP-instance_NEC_32
	Dependent Resources	Follow the default dependency
	Recovery Operation at Activity Failure Detection	Retry Count 0
		Failover Target Server Stable Server
		Failover Threshold Number of Servers
		No operation (not activate next resource)
	Recovery Operation at Deactivity Failure Detection	Retry Count at Deactivation 0
		Stop the cluster service and shutdown OS
	Details	Script created with this product Start script: start.bat Stop script: stop.bat User script: setting.bat
	[Start] Type	Synchronous
	[Start] Timeout (seconds)	1800 sec
	Normal Return Value	0
	[Stop] Type	Synchronous
	[Stop] Timeout (seconds)	1800 sec
	Normal Return Value	0
	Allow to Interact with Desktop	Off
2nd group resource Depth 0	Type	script resource
	Group resource name	script-AAS-SAP-service_NEC_32
	Dependent Resources	Follow the default dependency
	Recovery Operation at Activity Failure Detection	Retry Count 0
		Failover Target Server Stable Server
		Failover Threshold Number of Servers
		No operation (not activate next resource)

	Parameter name	Value of the setting
	Recovery Operation at Deactivity Failure Detection	Retry Count at Deactivation 0
		Stop the cluster service and shutdown OS
	Details	Script created with this product Start script: start.bat Stop script: stop.bat User script: setting.bat
	[Start] Type	Synchronous
	[Start] Timeout (seconds)	1800 sec
	Normal Return Value	0
	[Stop] Type	Synchronous
	[Stop] Timeout (seconds)	1800 sec
	Normal Return Value	0
	Allow to Interact with Desktop	Off
7th group (for DA1)	Type	failover
	Group name	DA1-Group
	Startup Server	sap1
	Startup Attribute	Auto Startup
	Failover Attribute	Auto Failover Use the startup server settings
	Failback Attribute	Auto Failback
	Failover Exclusive Attribute	Off
	Start Dependent group	----------
	Stop Dependent group	----------
		Wait the Dependent Groups when a Cluster Stops
	The number of group resources	2
1st group resource Depth 0	Type	script resource
	Group resource name	script-DA1-instance_DAA_97
	Dependent Resources	Follow the default dependency
	Recovery Operation at Activity Failure Detection	Retry Count 0
		Failover Target Server Stable Server
		Failover Threshold Number of Servers
		No operation (not activate next resource)
	Recovery Operation at Deactivity Failure Detection	Retry Count at Deactivation 0
		Stop the cluster service and shutdown OS
	Details	Script created with this product Start script: start.bat Stop script: stop.bat User script: setting.bat
	[Start] Type	Synchronous
	[Start] Timeout (seconds)	1800 sec
	Normal Return Value	0
	[Stop] Type	Synchronous

		Parameter name	Value of the setting
		[Stop] Timeout (seconds)	1800 sec
		Normal Return Value	0
		Allow to Interact with Desktop	Off
	2nd group resource Depth 0	Type	script resource
		Group resource name	script-DA1-service_DAA_97
		Dependent Resources	Follow the default dependency
		Recovery Operation at Activity Failure Detection	Retry Count 0
			Failover Target Server Stable Server
			Failover Threshold Number of Servers
			No operation (not activate next resource)
		Recovery Operation at Deactivity Failure Detection	Retry Count at Deactivation 0
			Stop the cluster service and shutdown OS
		Details	Script created with this product Start script: start.bat Stop script: stop.bat User script: setting.bat
		[Start] Type	Synchronous
		[Start] Timeout (seconds)	1800 sec
		Normal Return Value	0
		[Stop] Type	Synchronous
		[Stop] Timeout (seconds)	1800 sec
		Normal Return Value	0
		Allow to Interact with Desktop	Off
	8th group (for DA2)	Type	failover
		Group name	DA2-Group
		Startup Server	sap2
		Startup Attribute	Auto Startup
		Failover Attribute	Auto Failover Use the startup server settings
		Failback Attribute	Auto Failback
		Failover Exclusive Attribute	Off
		Start Dependent group	----------
		Stop Dependent group	----------
			Wait the Dependent Groups when a Cluster Stops
		The number of group resources	2
	1st group resource Depth 0	Type	script resource
		Group resource name	script-DA2-instance_DAA_96
		Dependent Resources	Follow the default dependency
		Recovery Operation at Activity Failure Detection	Retry Count 0
			Failover Target Server Stable Server
			Failover Threshold Number of Servers

		Parameter name	Value of the setting
			No operation (not activate next resource)
		Recovery Operation at Deactivity Failure Detection	Retry Count at Deactivation 0
			Stop the cluster service and shutdown OS
		Details	Script created with this product Start script: start.bat Stop script: stop.bat User script: setting.bat
		[Start] Type	Synchronous
		[Start] Timeout (seconds)	1800 sec
		Normal Return Value	0
		[Stop] Type	Synchronous
		[Stop] Timeout (seconds)	1800 sec
		Normal Return Value	0
		Allow to Interact with Desktop	Off
	2nd group resource Depth 0	Type	script resource
		Group resource name	script-DA2-service_DAA_96
		Dependent Resources	Follow the default dependency
		Recovery Operation at Activity Failure Detection	Retry Count 0
			Failover Target Server Stable Server
			Failover Threshold Number of Servers
			No operation (not activate next resource)
		Recovery Operation at Deactivity Failure Detection	Retry Count at Deactivation 0
			Stop the cluster service and shutdown OS
		Details	Script created with this product Start script: start.bat Stop script: stop.bat User script: setting.bat
		[Start] Type	Synchronous
		[Start] Timeout (seconds)	1800 sec
		Normal Return Value	0
		[Stop] Type	Synchronous
		[Stop] Timeout (seconds)	1800 sec
		Normal Return Value	0
		Allow to Interact with Desktop	Off
9th group (for hostexec1)		Type	failover
		Group name	hostexec1-Group
		Startup Server	sap1
		Startup Attribute	Auto Startup
		Failover Attribute	Auto Failover Use the startup server settings
		Failback Attribute	Auto Failback
		Failover Exclusive Attribute	Off
		Start Dependent group	----------

	Parameter name	Value of the setting
	Stop Dependent group	----------
		Wait the Dependent Groups when a Cluster Stops
	The number of group resources	1
1st group resource Depth 0	Type	script resource
	Group resource name	script-hostexec1
	Dependent Resources	Follow the default dependency
	Recovery Operation at Activity Failure Detection	Retry Count 0
		Failover Target Server Stable Server
		Failover Threshold Number of Servers
		No operation (not activate next resource)
	Recovery Operation at Deactivity Failure Detection	Retry Count at Deactivation 0
		Stop the cluster service and shutdown OS
	Details	Script created with this product Start script: start.bat Stop script: stop.bat User script: setting.bat
	[Start] Type	Synchronous
	[Start] Timeout (seconds)	1800 sec
	Normal Return Value	0
	[Stop] Type	Synchronous
	[Stop] Timeout (seconds)	1800 sec
	Normal Return Value	0
	Allow to Interact with Desktop	Off
10th group (for hostexec2)	Type	failover
	Group name	hostexec2-Group
	Startup Server	sap2
	Startup Attribute	Auto Startup
	Failover Attribute	Auto Failover Use the startup server settings
	Failback Attribute	Auto Failback
	Failover Exclusive Attribute	Off
	Start Dependent group	----------
	Stop Dependent group	----------
		Wait the Dependent Groups when a Cluster Stops
	The number of group resources	1
1st group resource Depth 0	Type	script resource
	Group resource name	script-hostexec2
	Dependent Resources	Follow the default dependency
	Recovery Operation at Activity Failure Detection	Retry Count 0
		Failover Target Server Stable Server
		Failover Threshold Number of Servers

	Parameter name	Value of the setting
		No operation (not activate next resource)
	Recovery Operation at Deactivity Failure Detection	Retry Count at Deactivation 0
		Stop the cluster service and shutdown OS
	Details	Script created with this product Start script: start.bat Stop script: stop.bat User script: setting.bat
	[Start] Type	Synchronous
	[Start] Timeout (seconds)	1800 sec
	Normal Return Value	0
	[Stop] Type	Synchronous
	[Stop] Timeout (seconds)	1800 sec
	Normal Return Value	0
	Allow to Interact with Desktop	Off
11th Group (For Exclusive1)	Type	failover
	Group name	Exclusive-Group1
	Startup Server	sap1
	Startup Attribute	Auto Startup
	Failover Attribute	Auto Failover Use the startup server settings
	Failback Attribute	Auto Failback
	Failover Exclusive Attribute	Normal exclusion
	Start Dependent group	----------
	Stop Dependent group	----------
		Wait the Dependent Groups when a Cluster Stops
	The number of group resources	0
12th Group (For Exclusive2)	Type	failover
	Group name	Exclusive-Group2
	Startup Server	sap2
	Startup Attribute	Auto Startup
	Failover Attribute	Auto Failover Use the startup server settings
	Failback Attribute	Auto Failback
	Failover Exclusive Attribute	Normal exclusion
	Start Dependent group	----------
	Stop Dependent group	----------
		Wait the Dependent Groups when a Cluster Stops
	The number of group resources	0

2.1.2. Example configuration of the Monitor Resources

	Parameter name	Value of the setting
1st monitor resource (For floating ip resource)	Type	floating ip monitor
	Monitor resource name	fipw1
	Interval	60 sec
	Timeout	60 sec
	Retry Count	1 time
	Wait Time to Start Monitoring	0 sec
	Monitor Timing	Active ManagementIP
	Monitor NIC Link Up/Down	On
	Recovery Action	Custom settings
	Recovery Target	ManagementIP
	Recovery Script Execution Count	0 time
	Maximum Reactivation Count	3 time
	Final Action	No operation
2nd monitor resource (For floating ip resource)	Type	floating ip monitor
	Monitor resource name	fipw2
	Interval	60 sec
	Timeout	60 sec
	Retry Count	1 time
	Wait Time to Start Monitoring	0 sec
	Monitor Timing	Active fip-ASCS
	Monitor NIC Link Up/Down	On
	Recovery Action	Custom settings
	Recovery Target	fip-ASCS
	Recovery Script Execution Count	0 time
	Maximum Reactivation Count	3 time
	Failover Target Server	Maximum Priority Server
	Maximum Failover Count	Set as much as the number of the servers
	Final Action	No operation
3rd monitor resource (For Disk resource)	Type	sdw (disk TUR monitor)
	Monitor resource name	sdw1
	Interval	30 sec
	Timeout	300 sec
	Retry Count	1 time
	Wait Time to Start Monitoring	0 sec
	Monitor Timing	Always
	Disk Resource	sd-ASCS
	Recovery Action	Custom settings
	Recovery Target	sd-ASCS
	Recovery Script Execution Count	0 time
	Maximum Reactivation Count	0 time
	Failover Target Server	Maximum Priority Server
	Maximum Failover Count	Set as much as the number of the servers
	Final Action	No operation

	Parameter name	Value of the setting
4th monitor resource (For CIFS monitor resource)	Type	cifsw (cifs monitor)
	Monitor resource name	cifsw1
	Interval	60 sec
	Timeout	60 sec
	Retry Count	1 time
	Wait Time to Start Monitoring	0 sec
	Monitor Timing	Active cifs-ASCS
	Access Check	Disable
	Recovery Action	Custom settings
	Recovery Target	cifs-ASCS
	Recovery Script Execution Count	0 time
	Maximum Reactivation Count	3 time
	Failover Target Server	Maximum Priority Server
	Maximum Failover Count	Set as much as the number of the servers
	Final Action	No operation
5th monitor resource (For ASCS instance ENQ)	Type	custom monitor
	Monitor resource name	genw-ASCS-instance-ENQ
	Interval	30 sec
	Timeout	120 sec
	Retry Count	2 time
	Wait Time to Start Monitoring	30 sec
	Monitor Timing	Active script-ASCS-SAP-instance_NEC_10
	Script created with this product	genw.bat
	Monitor Type	Synchronous
	Normal Return Value	0
	Recovery Action	Custom settings
	Recovery Target	script-ASCS-SAP-instance_NEC_10
	Recovery Script Execution Count	0 time
	Maximum Reactivation Count	0 time
	Maximum Failover Count	1 time
	Failover Target Server	Maximum Priority Server
	Maximum Failover Count	Set as much as the number of the servers
	Final Action	Stop the cluster service and shutdown OS
6th monitor resource (For ASCS instance MSG)	Type	custom monitor
	Monitor resource name	genw-ASCS-instance-MSG
	Interval	30 sec
	Timeout	120 sec
	Retry Count	2 time
	Wait Time to Start Monitoring	30 sec
	Monitor Timing	Active script-ASCS-SAP-instance_NEC_10
	Script created with this product	genw.bat
	Monitor Type	Synchronous
	Normal Return Value	0
	Recovery Action	Custom settings

	Parameter name	Value of the setting
	Recovery Target	script-ascs-SAP-instance_NEC_10
	Recovery Script Execution Count	0 time
	Maximum Reactivation Count	0 time
	Maximum Failover Count	1 time
	Failover Target Server	Maximum Priority Server
	Maximum Failover Count	Set as much as the number of the servers
	Final Action	No operation
7th monitor resource (For ASCS service)	Type	custom monitor
	Monitor resource name	genw-ASCS-service
	Interval	15 sec
	Timeout	60 sec
	Retry Count	1 time
	Wait Time to Start Monitoring	30 sec
	Monitor Timing	Active script-ascs-SAP-service_NEC_10
	Script created with this product	genw.bat
	Monitor Type	Synchronous
	Normal Return Value	0
	Recovery Action	Custom settings
	Recovery Target	script-ASCS-SAP-service_NEC_10
	Recovery Script Execution Count	0 time
	Maximum Reactivation Count	3 time
	Maximum Failover Count	1 time
	Final Action	No operation
8th monitor resource (For ERS1 instance)	Type	custom monitor
	Monitor resource name	genw-ERS1-instance
	Interval	30 sec
	Timeout	120 sec
	Retry Count	2 time
	Wait Time to Start Monitoring	30 sec
	Monitor Timing	Active script-ERS1-SAP-instance_NEC_21
	Script created with this product	genw.bat
	Monitor Type	Synchronous
	Normal Return Value	0
	Recovery Action	Custom settings
	Recovery Target	script-ERS1-SAP-instance_NEC_21
	Recovery Script Execution Count	1 time
	Maximum Reactivation Count	0 time
	Maximum Failover Count	0 time
	Execute Script before Final Action	On
	Final Action	No operation
	Script created with this product [Recovery Script]	preaction.bat
	Timeout [Recovery Script]	600 sec
9th monitor resource	Type	custom monitor

	Parameter name	Value of the setting
(For ERS1 service)	Monitor resource name	genw-ERS1-service
	Interval	15 sec
	Timeout	60 sec
	Retry Count	1 time
	Wait Time to Start Monitoring	30 sec
	Monitor Timing	Active script-ERS1-SAP-service_NEC_21
	Script created with this product	genw.bat
	Monitor Type	Synchronous
	Normal Return Value	0
	Recovery Action	Custom settings
	Recovery Target	script-ERS1-SAP-service_NEC_21
	Recovery Script Execution Count	0 time
	Maximum Reactivation Count	3 time
	Maximum Failover Count	0 time
	Final Action	No operation
10th monitor resource (For ERS2 instance)	Type	custom monitor
	Monitor resource name	genw-ERS2-instance
	Interval	30 sec
	Timeout	120 sec
	Retry Count	2 time
	Wait Time to Start Monitoring	30 sec
	Monitor Timing	Active script-ERS2-SAP-instance_NEC_22
	Script created with this product	genw.bat
	Monitor Type	Synchronous
	Normal Return Value	0
	Recovery Action	Custom settings
	Recovery Target	script-ERS2-SAP-instance_NEC_22
	Recovery Script Execution Count	1 time
	Maximum Reactivation Count	0 time
	Maximum Failover Count	0 time
	Execute Script before Final Action	On
	Final Action	No operation
	Script created with this product [Recovery Script]	preaction.bat
	Timeout [Recovery Script]	600 sec
11th monitor resource (For ERS2 service)	Type	custom monitor
	Monitor resource name	genw-ERS2-service
	Interval	15 sec
	Timeout	60 sec
	Retry Count	1 time
	Wait Time to Start Monitoring	30 sec
	Monitor Timing	Active script-ERS2-SAP-service_NEC_22
	Script created with this product	genw.bat
	Monitor Type	Synchronous

	Parameter name	Value of the setting
	Normal Return Value	0
	Recovery Action	Custom settings
	Recovery Target	script-ERS2-SAP-service_NEC_22
	Recovery Script Execution Count	0 time
	Maximum Reactivation Count	3 time
	Maximum Failover Count	0 time
	Final Action	No operation
12th monitor resource (For PAS instance-DISP)	Type	custom monitor
	Monitor resource name	genw-PAS-instance-DISP
	Interval	30 sec
	Timeout	120 sec
	Retry Count	2 time
	Wait Time to Start Monitoring	30 sec
	Monitor Timing	Active script-PAS-SAP-instance_NEC_31
	Script created with this product	genw.bat
	Monitor Type	Synchronous
	Normal Return Value	0
	Recovery Action	Custom settings
	Recovery Target	script-PAS-SAP-instance_NEC_31
	Recovery Script Execution Count	0 time
	Maximum Reactivation Count	3 time
	Maximum Failover Count	0 time
	Final Action	No operation
13th monitor resource (For PAS instance-IGS)	Type	custom monitor
	Monitor resource name	genw-PAS-instance-IGS
	Interval	30 sec
	Timeout	120 sec
	Retry Count	2 time
	Wait Time to Start Monitoring	30 sec
	Monitor Timing	Active script-PAS-SAP-instance_NEC_31
	Script created with this product	genw.bat
	Monitor Type	Synchronous
	Normal Return Value	0
	Recovery Action	Custom settings
	Recovery Target	script-PAS-SAP-instance_NEC_31
	Recovery Script Execution Count	0 time
	Maximum Reactivation Count	3 time
	Maximum Failover Count	0 time
	Final Action	No operation
14th monitor resource (For PAS service)	Type	custom monitor
	Monitor resource name	genw-PAS-service
	Interval	15 sec
	Timeout	60 sec
	Retry Count	1 time

	Parameter name	Value of the setting
	Wait Time to Start Monitoring	30 sec
	Monitor Timing	Active script-PAS-SAP-service_NEC_31
	Script created with this product	genw.bat
	Monitor Type	Synchronous
	Normal Return Value	0
	Recovery Action	Custom settings
	Recovery Target	script-PAS-SAP-service_NEC_31
	Recovery Script Execution Count	0 time
	Maximum Reactivation Count	3 time
	Maximum Failover Count	0 time
	Final Action	No operation
15th monitor resource (For AAS instance-DISP)	Type	custom monitor
	Monitor resource name	genw-AAS-instance-DISP
	Interval	30 sec
	Timeout	120 sec
	Retry Count	2 time
	Wait Time to Start Monitoring	30 sec
	Monitor Timing	Active script-AAS-SAP-instance_NEC_32
	Script created with this product	genw.bat
	Monitor Type	Synchronous
	Normal Return Value	0
	Recovery Action	Custom settings
	Recovery Target	script-AAS-SAP-instance_NEC_32
	Recovery Script Execution Count	0 time
	Maximum Reactivation Count	3 time
	Maximum Failover Count	0 time
	Final Action	No operation
16th monitor resource (For AAS instance-IGS)	Type	custom monitor
	Monitor resource name	genw-AAS-instance-IGS
	Interval	30 sec
	Timeout	120 sec
	Retry Count	2 time
	Wait Time to Start Monitoring	30 sec
	Monitor Timing	Active script-AAS-SAP-instance_NEC_32
	Script created with this product	genw.bat
	Monitor Type	Synchronous
	Normal Return Value	0
	Recovery Action	Custom settings
	Recovery Target	script-AAS-SAP-instance_NEC_32
	Recovery Script Execution Count	0 time
	Maximum Reactivation Count	3 time
	Maximum Failover Count	0 time
	Final Action	No operation
17th monitor resource	Type	custom monitor

	Parameter name	Value of the setting
(For AAS service)	Monitor resource name	genw-AAS-service
	Interval	15 sec
	Timeout	60sec
	Retry Count	1 time
	Wait Time to Start Monitoring	30 sec
	Monitor Timing	Active script-AAS-SAP-service_NEC_32
	Script created with this product	genw.bat
	Monitor Type	Synchronous
	Normal Return Value	0
	Recovery Action	Custom settings
	Recovery Target	script-AAS-SAP-service_NEC_32
	Recovery Script Execution Count	0 time
	Maximum Reactivation Count	3 time
	Maximum Failover Count	0 time
	Final Action	No operation
18th monitor resource (For DA1 instance)	Type	custom monitor
	Monitor resource name	genw-DA1-instance
	Interval	30 sec
	Timeout	120 sec
	Retry Count	2 time
	Wait Time to Start Monitoring	30 sec
	Monitor Timing	Active script-DA1-instance_DAA_97
	Script created with this product	genw.bat
	Monitor Type	Synchronous
	Normal Return Value	0
	Recovery Action	Custom settings
	Recovery Target	script-DA1-instance_DAA_97
	Recovery Script Execution Count	0 time
	Maximum Reactivation Count	3 time
	Maximum Failover Count	0 time
	Final Action	No operation
19th monitor resource (For DA1 service)	Type	custom monitor
	Monitor resource name	genw-DA1-service
	Interval	15 sec
	Timeout	60 sec
	Retry Count	1 time
	Wait Time to Start Monitoring	30 sec
	Monitor Timing	Active script-DA1-service_DAA_97
	Script created with this product	genw.bat
	Monitor Type	Synchronous
	Normal Return Value	0
	Recovery Action	Custom settings
	Recovery Target	script-DA1-service_DAA_97
	Recovery Script Execution Count	0 time

	Parameter name	Value of the setting
	Maximum Reactivation Count	3 time
	Maximum Failover Count	0 time
	Final Action	No operation
20th monitor resource (For DA2 instance)	Type	custom monitor
	Monitor resource name	genw-DA2-instance
	Interval	30 sec
	Timeout	120 sec
	Retry Count	2 time
	Wait Time to Start Monitoring	30 sec
	Monitor Timing	Active script-DA2-instance_DAA_96
	Script created with this product	genw.bat
	Monitor Type	Synchronous
	Normal Return Value	0
	Recovery Action	Custom settings
	Recovery Target	script-DA2-instance_DAA_96
	Recovery Script Execution Count	0 time
	Maximum Reactivation Count	3 time
	Maximum Failover Count	0 time
	Final Action	No operation
21th monitor resource (For DA2 service)	Type	custom monitor
	Monitor resource name	genw-DA2-service
	Interval	15 sec
	Timeout	120 sec
	Retry Count	1 time
	Wait Time to Start Monitoring	30 sec
	Monitor Timing	Active script-DA2-service_DAA_96
	Script created with this product	genw.bat
	Monitor Type	Synchronous
	Normal Return Value	0
	Recovery Action	Custom settings
	Recovery Target	script-DA2-service_DAA_96
	Recovery Script Execution Count	0 time
	Maximum Reactivation Count	3 time
	Maximum Failover Count	0 time
	Final Action	No operation
22th monitor resource (For hostexec1)	Type	custom monitor
	Monitor resource name	genw-hostexec1
	Interval	30 sec
	Timeout	120 sec
	Retry Count	1 time
	Wait Time to Start Monitoring	30 sec
	Monitor Timing	Active script-hostexec1
	Script created with this product	genw.bat
	Monitor Type	Synchronous

	Parameter name	Value of the setting
	Normal Return Value	0
	Recovery Action	Custom settings
	Recovery Target	script-hostexec1
	Recovery Script Execution Count	0 time
	Maximum Reactivation Count	3 time
	Maximum Failover Count	0 time
	Final Action	No operation
23th monitor resource (For hostexec2)	Type	custom monitor
	Monitor resource name	genw-hostexec2
	Interval	30 sec
	Timeout	120 sec
	Retry Count	1 time
	Wait Time to Start Monitoring	30 sec
	Monitor Timing	Active script-hostexec2
	Script created with this product	genw.bat
	Monitor Type	Synchronous
	Normal Return Value	0
	Recovery Action	Custom settings
	Recovery Target	script-hostexec2
	Recovery Script Execution Count	0 time
	Maximum Reactivation Count	3 time
	Maximum Failover Count	0 time
	Final Action	No operation

Chapter 3 Bundled scripts

Terminology used in this chapter.

Terminology	Description
SID	SAP System ID
DASID	Diagnostics Agent SAP System ID
INAME	Instance name
start.bat	Sample script for starting the script resources
stop.bat	Sample script for stopping the script resources
setting.bat	start.bat/stop.bat setting script
ascs-post-handler.bat	User script for the script resource of ASCS instance
exclusive-control.bat	User script for the script resource of ERS instance
genw.bat	Sample script for custom monitor resources
ers-mon-preaction.bat	Recovery script for the custom monitor resource of ERS instance

The user scripts ascs-post-handler.bat, exclusive-control.bat and the recovery script ers-mon-preaction.bat are used for exclusive control of ASCS/ERS instance by EXPRESSCLUSTER.

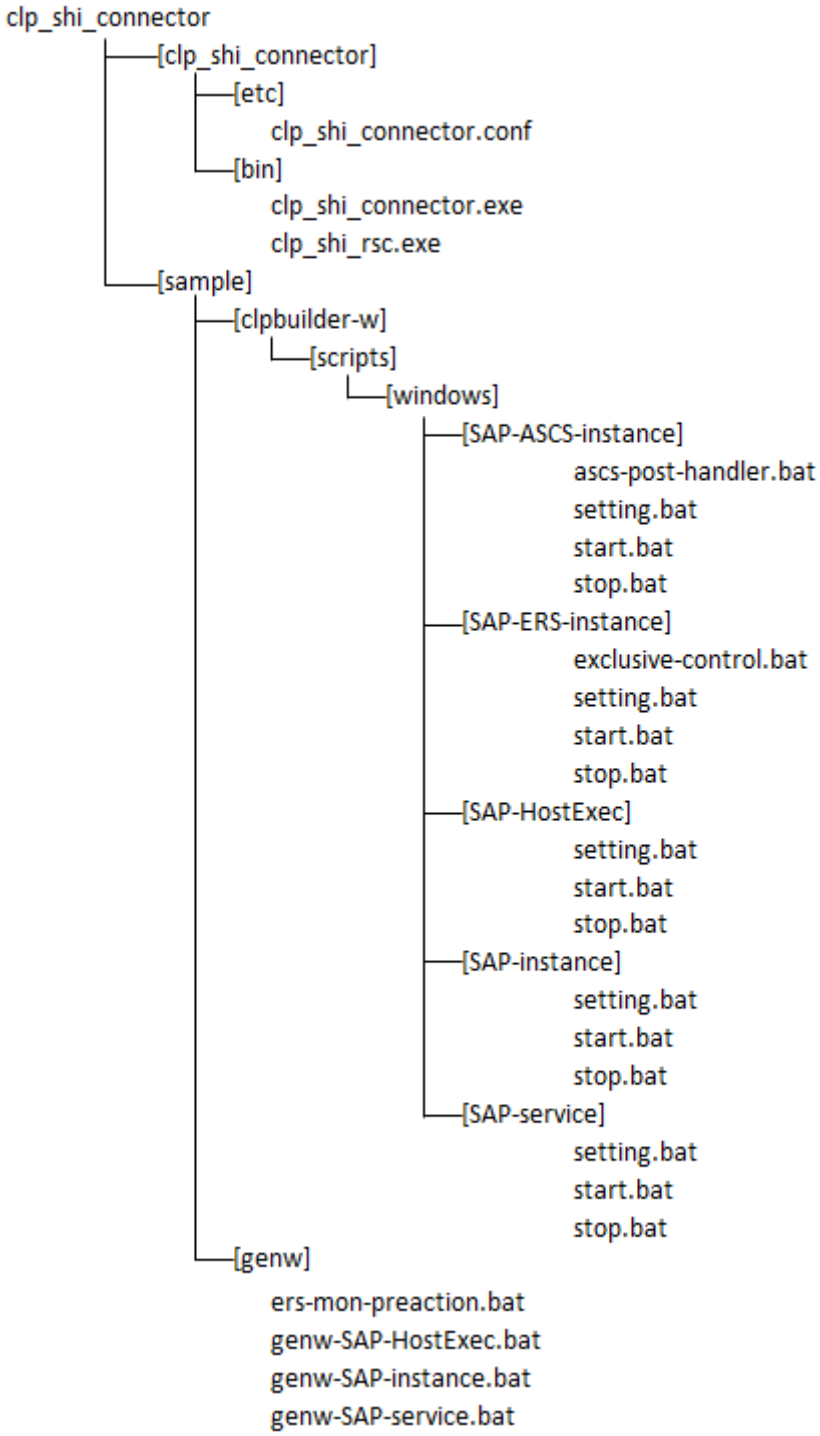
For the exclusive control of ASCS/ERS instance, Refer to the following document.

System Configuration Guide
"Section 1.1 Functional Overview"
"Illustration of exclusive control of ASCS/ERS instance by EXPRESSCLUSTER"

The bundled scripts in a media are stored in the following directory.
The above scripts are contained in the following file on the installation media.

```
<media>:\Windows\<Version of EXPRESSCLUSTER>\common\tools\x64\clp_shi_connector.zip
```

Extract the zip file in any folder. The file constitution of the zip file is shown below.



3.1. Script resources

Apply the following sample scripts contained in the media as script resources.
Bundled scripts are listed below.

Folder name	File name	Use
SAP-ASCS-instance	ascs-post-handler.bat	For exclusive control of ASCS/ERS instance
	setting.bat	Script setting file
	start.bat	For starting ASCS instance
	stop.bat	For stopping ASCS instance
SAP-ERS-instance	exclusive-control.bat	For exclusive control of ASCS/ERS instance
	setting.bat	Script setting file
	start.bat	For starting ERS instance
	stop.bat	For stopping ERS instance
SAP-HostExec	setting.bat	Script setting file
	start.bat	For starting SapHostExec
	stop.bat	For stopping SapHostExec
SAP-Instance	setting.bat	Script setting file
	start.bat	For starting instance
	stop.bat	For stopping instance
SAP-Service	setting.bat	Script setting file
	service_start.bat	For starting service
	service_stop.bat	For stopping service

Scripts in SAP-Instance folder are sample scripts for monitoring the PAS instance, the AAS instance and the DA instance.
Scripts in SAP-Service folder are sample scripts for monitoring all SAP instance services.

In the WebManager/Builder apply each sample script to the relevant script resource by using the add function and the replace function of a script.

For details, refer to the following document:
"Reference Guide"
"Understanding script resources"
"Displaying and/or changing the script resource script created by the Builder"

3.1.1. How to use the script

The table configuration indicates the following:

Failover group name		
	Exec resource name	
		Description

ASCS-Group		
	script-ascs-SAP-instance_NEC_10	

		Modify the "SID" variable in setting.bat to the SID set in *System Configuration Guide* - "Section 5.4."
		Modify the “SAP_ERS_INO” to the sequence of ERS1 instance INO and ERS2 instance INO set in *System Configuration Guide* - "Section 5.6." Use a space for delimiter. Modify "INAME" to the ASCS instance name set in *System Configuration Guide* - "Section 5.4."
		
		Example in this manual
		`set SID=NEC`
		`set SAP_ERS_INO=21 22`
		`set INAME=ASCS10`
		
		Note:
		If any failover group of ERS instances is not working, the failover group of the ERS instance is started automatically when the administrator starts or moves the ASCS instance manually. For disabling the auto startup of ERS instance failover groups, change the value of "ENABLED" in the script setting file (setting.bat) of the ASCS instance to 0, upload the setting through the WebManager, and then start or move ASCS instance manually.

	script-ascs-SAP-service_NEC_10	

		Modify the "INSTANCE_RESOURCE_NAME" variable in setting.bat to the resource name set in *System Configuration Guide* - "Section 6.1.1."
		Modify "SID" to the SID set in *System Configuration Guide* - "Section 5.4."
		Modify "INAME" to the ASCS instance name set in *System Configuration Guide* - "Section 5.4."
		J drive is specified for "PATH" in this manual. Set an appropriate drive letter to your configuration.
		Modify "TIMEOUT" to the time in seconds until ASCS instance starts or stops.
		The script confirms whether the instance has started (stopped) or not every "DELAY" seconds until the elapsed time reaches "TIMEOUT".
		
		Example in this manual
		`set INSTANCE_RESOURCE_NAME=script-ASCS-SAP-instance_NEC_10`
		`set SID=NEC`
		`set INAME=ASCS10`
		`set PATH=%PATH%;J:\usr\sap\%SID%\%INAME%\exe`
		`set TIMEOUT=600`
		`set DELAY=5`
		
		Note:
		To estimate the necessary time to start or stop the group resource of ASCS instance, start or stop the group resource with "`DELAY=1`", and then check alerts using the WebManager.

ERS1-Group		
	script-ERS1-SAP-instance_NEC_21	
		Modify the "SID" variable in setting.bat to the SID set in *System Configuration Guide* - "Section 5.6." Modify the “SAP_ERS_INO” to the sequence of ERS1 instance INO and ERS2 instance INO set in *System Configuration Guide* - "Section 5.6." Use a space for delimiter. Modify "INAME" to the ERS1 instance name set in *System Configuration Guide* - "Section 5.6." Modify the “EXCLUSIVE_GROUP” to the common failover group name among the failover groups for exclusive control set in *System Configuration Guide* - "Section 4.4." Example in this manual

```
set SID=NEC
set SAP_ERS_INO=21 22
set INAME=ERS21
set EXCLUSIVE_GROUP=Exclusive-Group
```

script-ERS1-SAP-service_NEC_21

Modify the "INSTANCE_RESOURCE_NAME" variable in setting.bat to the resource name set in *System Configuration Guide* - "Section 6.1.2."
Modify "SID" to the SID set in *System Configuration Guide* - "Section 5.6."
Modify "INAME" to the ERS1 instance name set in *System Configuration Guide* - "Section 5.6."
Modify "TIMEOUT" to the time in seconds until ERS1 instance starts or stops.
The script confirms whether the instance has started (stopped) or not every "DELAY" seconds until the elapsed time reaches "TIMEOUT".

Example in this manual

```
set INSTANCE_RESOURCE_NAME=script-ERS1-SAP-instance_NEC_21
set SID=NEC
set INAME=ERS21
set TIMEOUT=600
set DELAY=5
```

Note:
To estimate the necessary time to start or stop the group resource of ERS1 instance, start or stop the group resource with "`DELAY=1`", and then check alerts using the WebManager.

ERS2-Group

script-ERS2-SAP-instance_NEC_22

Modify the "SID" variable in setting.bat to the SID set in *System Configuration Guide* - "Section 5.6."
Modify the “SAP_ERS_INO” to the sequence of ERS1 instance INO and ERS2 instance INO set in *System Configuration Guide* - "Section 5.6." Use a space for delimiter. Modify "INAME" to the ERS2 instance name set in *System Configuration Guide* - "Section 5.6."
Modify the “EXCLUSIVE_GROUP” to the common failover group name among the failover groups for exclusive control set in *System Configuration Guide* - "Section 4.4."

Example in this manual

```
set SID=NEC
set SAP_ERS_INO=21 22
set INAME=ERS22
EXCLUSIVE_GROUP=Exclusive-Group
```

script-ERS2-SAP-service_NEC_22

Modify the "INSTANCE_RESOURCE_NAME" variable in setting.bat to the resource name set in *System Configuration Guide* - "Section 6.1.3."
Modify "SID" to the SID set in *System Configuration Guide* - "Section 5.6."
Modify "INAME" to the ERS2 instance name set in *System Configuration Guide* - "Section 5.6."
Modify "TIMEOUT" to the time in seconds until ERS2 instance starts or stops.
The script confirms whether the instance has started (stopped) or not every "DELAY" seconds until the elapsed time reaches "TIMEOUT".

Example in this manual

```
set INSTANCE_RESOURCE_NAME=script-ERS2-SAP-instance_NEC_22
set SID=NEC
set INAME=ERS22
set TIMEOUT=600
set DELAY=5
```

Note:
To estimate the necessary time to start or stop the group resource of ERS2 instance, start or stop the

group resource with "DELAY=1", and then check alerts using the WebManager.

PAS-Group

script-PAS-SAP-instance_NEC_31

Modify the "SID" variable in setting.bat to the SID set in *System Configuration Guide* - "Section 5.8."
Modify "INAME" to the PAS instance name set in *System Configuration Guide* - "Section 5.8."

Example in this manual

```
set SID=NEC
set INAME=DVEBMGS31
```

script-PAS-SAP-service_NEC_31

Modify the "INSTANCE_RESOURCE_NAME" variable in setting.bat to the resource name set in *System Configuration Guide* - "Section 6.1.4."
Modify "SID" to the SID set in *System Configuration Guide* - "Section 5.8."
Modify "INAME" to the PAS instance name set in *System Configuration Guide* - "Section 5.8."
Modify "TIMEOUT" to the time in seconds until PAS instance starts or stops.
The script confirms whether the instance has started (stopped) or not every "DELAY" seconds until the elapsed time reaches "TIMEOUT".

Example in this manual

```
set INSTANCE_RESOURCE_NAME=script-PAS-SAP-instance_NEC_31
set SID=NEC
set INAME=DVEBMGS31
set TIMEOUT=600
set DELAY=5
```

Note:
To estimate the necessary time to start or stop the group resource of PAS instance, start or stop the group resource with "DELAY=1", and then check alerts using the WebManager.

AAS-Group

script-AAS-SAP-instance_NEC_32

Modify the "SID" variable in setting.bat to the SID set in *System Configuration Guide* - "Section 5.9."
Modify "INAME" to the AAS instance name set in *System Configuration Guide* - "Section 5.9."

Example in this manual

```
set SID=NEC
set INAME=D32
```

script-AAS-SAP-service_NEC_32

Modify the "INSTANCE_RESOURCE_NAME" variable in setting.bat to the resource name set in *System Configuration Guide* - "Section 6.1.5."
Modify "SID" to the SID set in *System Configuration Guide* - "Section 5.9."
Modify "INAME" to the AAS instance name set in *System Configuration Guide* - "Section 5.9."
Modify "TIMEOUT" to the time in seconds until AAS instance starts or stops.
The script confirms whether the instance has started (stopped) or not every "DELAY" seconds until the elapsed time reaches "TIMEOUT".

Example in this manual

```
set INSTANCE_RESOURCE_NAME=script-AAS-SAP-instance_NEC_32
set SID=NEC
set INAME=D32
set TIMEOUT=600
set DELAY=5
```

Note:
To estimate the necessary time to start or stop the group resource of AAS instance, start or stop the group resource with "DELAY=1", and then check alerts using the WebManager.

DA1-Group

script-DA1-instance_NEC_97

Modify the "SID" variable in setting.bat to the SID set in *System Configuration Guide* - "Section 5.10."
Modify "INAME" to the DA1 instance name set in *System Configuration Guide* - "Section 5.10."

Example in this manual

```
set SID=DAA
set INAME=SMDA97
```

script-DA1-service_NEC_97

Modify the "INSTANCE_RESOURCE_NAME" variable in setting.bat to the resource name set in *System Configuration Guide* - "Section 6.1.6."
Modify "SID" to the SID set in *System Configuration Guide* - "Section 5.10."
Modify "INAME" to the instance name set in *System Configuration Guide* - "Section 5.10."
Modify "TIMEOUT" to the time in seconds until DA1 instance starts or stops.
The script confirms whether the instance has started (stopped) or not every "DELAY" seconds until the elapsed time reaches "TIMEOUT".

Example in this manual

```
set INSTANCE_RESOURCE_NAME=script-DA1-instance_DAA_97
set SID=DAA
set INAME=SMDA97
set TIMEOUT=600
set DELAY=5
```

Note:
To estimate the necessary time to start or stop the group resource of DA1 instance, start or stop the group resource with "DELAY=1", and then check alerts using the WebManager.

DA2-Group

script-DA2-instance_NEC_96

Modify the "SID" variable in setting.bat to the SID set in *System Configuration Guide* - "Section 5.10."
Modify "INAME" to the DA2 instance name set in *System Configuration Guide* - "Section 5.10."

Example in this manual

```
set SID=DAA
set INAME=SMDA96
```

script-DA2-service_NEC_96

Modify the "INSTANCE_RESOURCE_NAME" variable in setting.bat to the resource name set in *System Configuration Guide* - "Section 6.1.7."
Modify "SID" to the SID set in *System Configuration Guide* - "Section 5.10."
Modify "INAME" to the instance name set in *System Configuration Guide* - "Section 5.10."
Modify "TIMEOUT" to the time in seconds until DA2 instance starts or stops.
The script confirms whether the instance has started (stopped) or not every "DELAY" seconds until the elapsed time reaches "TIMEOUT".

Example in this manual

```
set INSTANCE_RESOURCE_NAME=script-DA2-instance_DAA_96
set SID=DAA
set INAME=SMDA96
set TIMEOUT=600
set DELAY=5
```

Note:
To estimate the necessary time to start or stop the group resource of DA2 instance, start or stop the group resource with "DELAY=1", and then check alerts using the WebManager.

hostexec1-Group	
	script-hostexec1
	It is not necessary to edit setting.bat. The default service name is "SAPHostExec."
hostexec2-Group	
	script-hostexec2
	Same as script-hostexec1 above.

3.2. Custom monitor

Set the following bundled scripts in a media as custom monitor resources.

Bundled scripts are listed below.

File name	Use
ers-mon-preaction.bat	Recovery script for monitoring the ERS instance
genw-instance.bat	For monitoring the instance.
genw-service.bat	For monitoring the instance services.
genw-HostExec.bat	For monitoring SapHostExec.

On the WebManager/Builder apply each sample script to the relevant custom monitor resource by using the script replacement function.

For details, refer to the following document:

"Reference Guide"
    "Understanding custom monitor resources"
    "Replace"

On the WebManager/Builder apply the recovery script for monitoring the ERS instance to the ERS monitor resource by using the replace function of the recovery script.

For details, refer to the following document:

"Reference Guide"
    "Displaying and changing the settings of a monitor resource (common to monitor resources)"
    "Script Setting"
        "Replace"

3.2.1. Usage of the scripts

The construction of the table is as follows.

Custom monitor name
Description

genw-ASCS-instance-ENQ

Modify the "SID" variable in setting.bat to the SID set in *System Configuration Guide* - "Section 5.4."
Modify "INAME" to the ASCS instance name set in *System Configuration Guide* - "Section 5.4."
Although "PATH" is set to the J drive in this manual, set a drive letter appropriate to your configuration.
Modify "TARGET" to `enserver.EXE`.
 	
Example in this manual
`set SID=NEC`
`set INAME=ASCS10`
`set PATH=%PATH%;S:\usr\sap\%SID%\%INAME%\exe`
`set TARGET=enserver.EXE`

genw-ASCS-instance-MSG

Modify the "SID" variable in setting.bat to the SID set in *System Configuration Guide* - "Section 5.4."
Modify "INAME" to the ASCS instance name set in *System Configuration Guide* - "Section 5.4."
Although "PATH" is set to the J drive in this manual, set a drive letter appropriate to your configuration.
Modify "TARGET" to `msg_server.EXE`.
 	
Example in this manual
`set SID=NEC`
`set INAME=ASCS10`
`set PATH=%PATH%;S:\usr\sap\%SID%\%INAME%\exe`
`set TARGET=msg_server.EXE`

genw-ERS1-instance

Modify the "SID" variable in setting.bat to the SID set in *System Configuration Guide* - "Section 5.6."
Modify "INAME" to the ERS1 instance name set in *System Configuration Guide* - "Section 5.6."
Modify "TARGET" to `enrepserver.EXE`.
 	
Example in this manual
`set SID=NEC`
`set INAME=ERS21`
`set TARGET=enrepserver.EXE`

genw-ERS2-instance

Modify "SID" to the SID set in *System Configuration Guide* - "Section 5.6."
Modify "INAME" to the ERS2 instance name set in *System Configuration Guide* - "Section 5.6."
Modify "TARGET" to `enrepserver.EXE`.
 	
Example in this manual
`set SID=NEC`
`set INAME=ERS22`
`set TARGET=enrepserver.EXE`

genw-PAS-instance-DISP
Modify the "SID" variable in setting.bat to the SID set in *System Configuration Guide* - "Section 5.8." Modify "INAME" to the PAS instance name set in *System Configuration Guide* - "Section 5.8."

Modify "TARGET" to `disp+work.EXE`.

Example in this manual

```
set SID=NEC
set INAME=DVEBMGS31
set TARGET=disp+work.EXE
```

genw-PAS-instance-IGS

Modify the "SID" variable in setting.bat to the SID set in *System Configuration Guide* - "Section 5.8."
Modify "INAME" to the PAS instance name set in *System Configuration Guide* - "Section 5.8."
Modify "TARGET" to `igswd.EXE`.

Example in this manual

```
set SID=NEC
set INAME=DVEBMGS31
set TARGET=igswd.EXE
```

genw-AAS-instance-DISP

Modify the "SID" variable in setting.bat to the SID set in *System Configuration Guide* - "Section 5.9."
Modify "INAME" to the AAS instance name set in *System Configuration Guide* - "Section 5.9."
Modify "TARGET" to `disp+work.EXE`.

Example in this manual

```
set SID=NEC
set INAME=D32
set TARGET=disp+work.EXE
```

genw-AAS-instance-IGS

Modify the "SID" variable in setting.bat to the SID set in *System Configuration Guide* - "Section 5.9."
Modify "INAME" to the AAS instance name set in *System Configuration Guide* - "Section 5.9."
Modify "TARGET" to `igswd.EXE`.

Example in this manual

```
set SID=NEC
set INAME=D32
set TARGET=igswd.EXE
```

genw-DA1-instance

Modify "SID" to the SID set in *System Configuration Guide* - "Section 5.10."
Modify "INAME" to the DA1 instance name set in *System Configuration Guide* - "Section 5.10."
Modify "TARGET" to `jstart.EXE`.

Example in this manual

```
set SID=DAA
set INAME=SMDA97
set TARGET=jstart.EXE
```

genw-DA2-instance

Modify the "SID" variable in setting.bat to the SID set in *System Configuration Guide* - "Section 5.10."
Modify "INAME" to the DA2 instance name set in *System Configuration Guide* - "Section 5.10."
Modify "TARGET" to `jstart.EXE`.

Example in this manual

```
set SID=DAA
set INAME=SMDA96
```

```
set TARGET=jstart.EXE
```

genw-ASCS-service

Modify the "SID" variable in setting.bat to the SID set in *System Configuration Guide* - "Section 5.4."
Modify "INAME" to the ASCS instance name set in *System Configuration Guide* - "Section 5.4."
Although "PATH" is set to the J drive in this manual, set a drive letter appropriate to your configuration.

Example in this manual

```
set SID=NEC
set INAME=ASCS10
set PATH=%PATH%;S:\usr\sap\%SID%\%INAME%\exe
```

genw-ERS1-service

Modify the "SID" variable in setting.bat to the SID set in *System Configuration Guide* - "Section 5.6."
Modify "INAME" to the ERS1 instance name set in *System Configuration Guide* - "Section 5.6."

Example in this manual

```
set SID=NEC
set INAME=ERS21
```

genw-ERS2-service

Modify the "SID" variable in setting.bat to the SID set in *System Configuration Guide* - "Section 5.6."
Modify "INAME" to the ERS2 instance name set in *System Configuration Guide* - "Section 5.6."

Example in this manual

```
set SID=NEC
set INAME=ERS22
```

genw-PAS-service

Modify the "SID" variable in setting.bat to the SID set in *System Configuration Guide* - "Section 5.8."
Modify "INAME" to the PAS instance name set in *System Configuration Guide* - "Section 5.8."

Example in this manual

```
set SID=NEC
set INAME=DVEBMGS31
```

genw-AAS-service

Modify the "SID" variable in setting.bat to the SID set in *System Configuration Guide* - "Section 5.9."
Modify "INAME" to the AAS instance name set in *System Configuration Guide* - "Section 5.9."

Example in this manual

```
set SID=NEC
set INAME=D32
```

genw-DA1-service

Modify the "SID" variable in setting.bat to the SID set in *System Configuration Guide* - "Section 5.10."
Modify "INAME" to the DA1 instance name set in *System Configuration Guide* - "Section 5.10."

Example in this manual

```
set SID=DAA
set INAME=SMDA97
```

genw-DA2-service

Modify the "SID" variable in setting.bat to the SID set in *System Configuration Guide* - "Section 5.10."
Modify "INAME" to the DA2 instance name set in *System Configuration Guide* - "Section 5.10."

Example in this manual

```
set SID=DAA
set INAME=SMDA96
```

genw-hostexec1
genw-hostexec2

For SAPHOSTEXEC, use the default SAP NW path without modification.

3.2.2. Usage of the recovery scripts

The construction of the table is as follows.

Custom monitor name
Description

genw-ERS1-instance

Modify the "SID" variable in setting.bat to the SID set in *System Configuration Guide* - "Section 5.6."
Modify the “SAP_ASCS_INO” to ASCS instance INO set in *System Configuration Guide* - "Section 5.4."
Modify the “SAP_ERS_INO” to the sequence of ERS1 instance INO and ERS2 instance INO set in *System Configuration Guide* - "Section 5.6." Use a space for delimiter.
Example in this manual
`set SID=NEC`
`set SAP_ASCS_INO=10`
`set SAP_ERS_INO=21 22`

genw-ERS2-instance

Modify "SID" to the SID set in *System Configuration Guide* - "Section 5.6."
Modify the “SAP_ASCS_INO” to ASCS instance INO set in *System Configuration Guide* - "Section 5.4."
Modify the “SAP_ERS_INO” to the sequence of ERS1 instance INO and ERS2 instance INO set in *System Configuration Guide* - "Section 5.6." Use a space for delimiter.
Example in this manual
`set SID=NEC`
`set SAP_ASCS_INO=10`
`set SAP_ERS_INO=21 22`