

NWスイッチ コマンド リファレンス

NEC Scalable Modular Server

DX2000

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curl

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OpenSSH

\$OpenBSD: sshd.c,v 1.367 2009/05/28 16:50:16 andreas Exp \$

Author: Tatu Ylonen <ylo@cs.hut.fi>

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This program is the ssh daemon. It listens for connections from clients, and performs authentication, executes user commands or shell, and forwards information to/from the application to the user client over an encrypted connection. This can also handle forwarding of X11, TCP/IP, and authentication agent connections.

As far as I am concerned, the code I have written for this software can be used freely for any purpose. Any derived versions of this software must be clearly marked as such, and if the derived work is incompatible with the protocol description in the RFC file, it must be called by a name other than "ssh" or "Secure Shell".

SSH2 implementation:

Privilege Separation:

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shadow

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xinetd

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Sensor Addition

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So, if you want, you may use any 2.N.* (N >= 3) version string for future xinetd versions that you release. Note that I am excluding the 2.2.* line; using that would only create confusion. Naming the next release 2.3.0 would put to rest the confusion about 2.2.1 and 2.1.8.*.

Zlib

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ISC DHCP	http://ftp.isc.org/isc/dhcp/	ISC	https://www.isc.org/downloads/software-support-policy/isc-license/
gdb	http://ftp.gnu.org/gnu/gdb/	GPLv3	http://www.gnu.org/licenses/gpl-3.0.en.html
grep	http://ftp.gnu.org/gnu/grep/	GPLv3	http://www.gnu.org/licenses/gpl-3.0.en.html
iana-etc	http://sethwicklein.net/iana-etc	OSL v3.0	http://opensource.org/licenses/OSL-3.0
kernel	https://www.kernel.org/	GPLv2	https://www.kernel.org/
libssh2	http://www.libssh2.org/	BSD	http://www.libssh2.org/license.html
Linux-PAM	http://www.linux-pam.org/	BSD	http://www.linux-pam.org/
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1. 概要

1.1 コマンドラインインターフェース 概要

コマンドラインインターフェース（CLI）は、テキストベースのユーザインタフェースです。各 CLI コマンドにより、NW スイッチモジュールの各機能の設定等を行います。

1.1.1 コマンドラインインターフェースのヘルプ機能

コマンドの全て、もしくは、一部とともに「？」を入力することでヘルプメッセージが表示されます。ヘルプ機能では、簡単な説明とともにコマンドのキーワードやパラメータが表示されます。

例として、CLI プロンプトにおいて、下記を入力します。:

```
Switch > show ?
```

簡単な説明とともにキーワードの一覧が表示されます。:

```
ZebOS-XP# show
aaa                AAA Model
access-lists       List IP access lists
arp                 IP ARP table
banner              Show current motd banner message
bridge              bridge protocol
class-map           Class map entry
cli                 Show CLI tree of current mode
debug               Show debug information
debugging            Debugging functions (see also 'undebug')
drop-counter        various drop-counter values
etherchannel         LACP etherchannel
flowcontrol          IEEE 802.3x Flow Control
hostname             Hostname
hosts                DNS client and Host information
interface            Interface status and configuration
```

「？」をキーワードの途中で入力した場合、そのキーワードを含むもののみが表示されます。

```
Switch>show br?
bridge  bridge protocol
<cr>
```

「？」をキーワードの途中で入力した場合において、そのキーワードを含むものが複数存在する場合は、キーワードを含むもの全てが表示されます。

```
Switch>show l?
lACP          LACP commands
lACP-counter  LACP commands
ldap-server    Displays LDAP configuration
list           Show command lists
lldp           LLDP
logging         Logging control
```

1.1.2 コマンドの補完

コマンド、または、パラメータの入力中にタブキーを押下することにより、コマンドおよびパラメータが補完されます。

例として、CLI において「sh」を入力した状態において、

```
Switch>sh
```

タブキーを押下すると、下記のように表示されます。

```
Switch>show
```

途中まで入力したコマンドやパラメータで複数の候補がある場合、CLI には、候補が表示されます。「show i」と入力し、タブキーを押下すると、下記の様に表示されます。:

```
Switch>show i
interface ip          ipv6
Switch>show i
```

続いて「n」を入力し、タブキーを押下すると、下記の様に表示されます。:

```
Switch>show interface
```

ここで、「?」を入力すると、「show interface」コマンドのパラメーター一覧が表示されます。

```
Switch>show interface ?
IFNAME      Interface name
counters    Counters
description  Description of the Interface
|           Output modifiers
>           Output redirection
<cr>
```

(1) コマンドの省略

CLI は省略されたコマンド形態でも入力が可能です。

例えば、「sh in d」と入力すると、「show interface description」の省略形として解釈されます。

```
sh in d
```

(2) コマンドの誤入力

コマンドを誤って入力した状態で「?」を入力すると、「Unrecognized command」が表示されます。また、誤ったコマンドを入力してエンターキーを押下した場合は、エラーとともに誤った最初の文字に「^」が表示されます。:

```
Switch>show intt
                ^
% Invalid input detected at '^' marker.
```

パラメータ不足など不完全なコマンドを入力した場合は、「Incomplete command.」エラーが表示されます。:

```
Switch>show
% Incomplete command.
```

1.2 コマンドモード

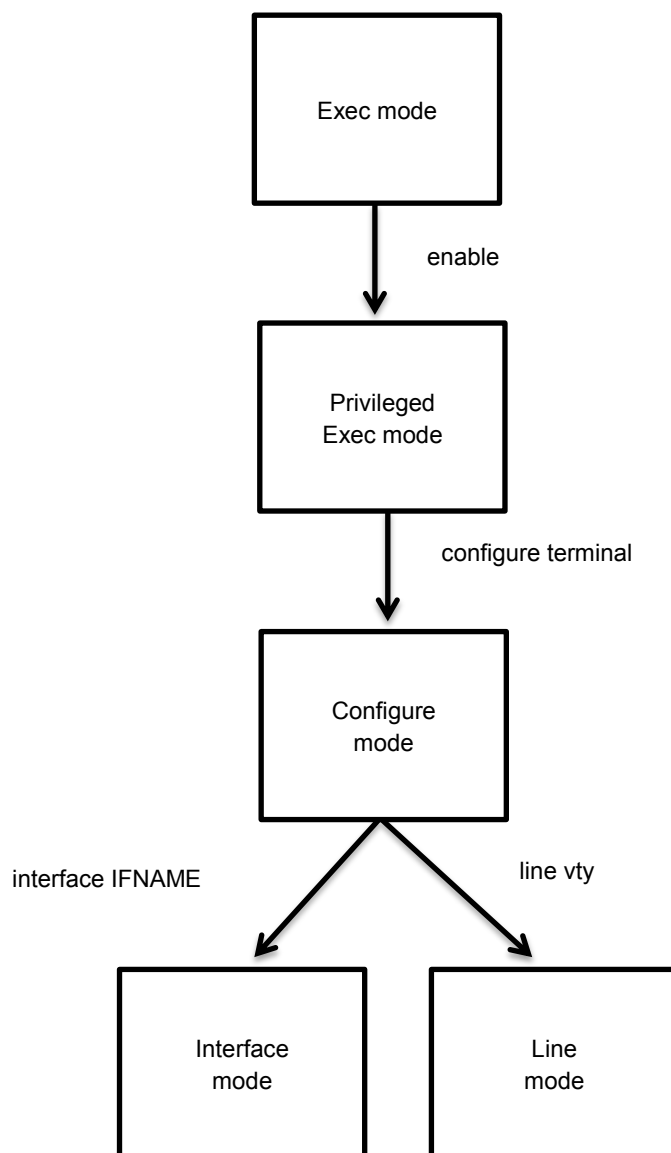
CLIには、階層構造化された複数の入力モードがあり、各入力モードで利用できるコマンドが異なります。

下記のリストは、コマンドモードとその説明です。

Name	Description
Exec Mode	ログイン直後に表示されるモードです。本モードでは、「show」や「exit」、「quit」、「enable」など基本的なコマンドが入力可能です。
Privileged Exec Mode	Enable Modeとも呼ばれる本モードでは、「copy」、「write」、「show」コマンドなどが入力可能です。
Configure Mode	本モードでは、設定コマンドが入力可能です。また、インターフェースモード、ラインモードへ移行する場合には、一度、設定モードに移行する必要があります。
Interface Mode	インターフェース単位で設定を行うコマンドを実行するモードです。
Line Mode	ターミナルに関する設定を行うモードです。

1.3 コマンドモードの移行

下図は、各コマンドモード間の移行をします。



1.4 CLI へのアクセス

CLI へアクセスするには、シリアルコンソール、telnet、または、SSH で接続し、ログインプロンプトにおいて admin/admin（デフォルトユーザ、および、パスワード）を入力します。

```
Linux 3.2.40 (Switch) (0)

login: admin
Password:

ZebOS-XP version 1.2.0 IPIRouter 11/20/15 18:06:09
Switch>
```

1.5 コンソールポート

NW スイッチモジュールのコンソールポートにアクセスする場合、ターミナルは以下に設定します。

- Baud rate: 115200
- Data bits: 8
- Stop bits: 1
- Parity: none
- Flow control: none

1.6 IP アドレスの設定

デフォルトでは、NW スイッチモジュール管理インターフェースの IP アドレスは DHCP により取得されます。NW スイッチモジュール管理インターフェースの IP アドレスにスタティックアドレスを設定するには、下記の手順を実施します。

1. シリアルコンソールでログインします。

2. 下記のコマンドを実行し、管理LANを設定します。

```
Switch>enable
Switch#configure terminal
Enter configuration commands, one per line. End with CNTL/Z.
Switch(config)#interface mgmt
Switch(config-if)#ip address A.B.C.D/M (A.B.C.D は IP アドレス、M はサブネット長)
```

3. 下記コマンドを実行し、デフォルトゲートウェイを設定します。

```
Switch(config-if)#exit
Switch(config)#ip route 0.0.0.0 0.0.0.0 A.B.C.D
(A.B.C.D はゲートウェイの IP アドレス)
```

4. 設定を保存します。

```
Switch(config)#exit
Switch#write
```

2. Exec Mode コマンド

2.1 clear mac address-table

FDB(MAC アドレステーブル)を消去します。

(1) コマンドフォーマット

```
clear mac address-table (dynamic|static)
clear mac address-table (dynamic|static) (address MACADDR | interface IFNAME | vlan
VID)
```

(2) パラメータ

dynamic 動的に登録されたエントリを消去します。

static ユーザが登録したエントリを消去します。

address 指定した MAC アドレスのエントリを消去します。

interface 指定したインターフェースに登録されているエントリを消去します。

vlan 指定した VLAN に登録されているエントリを消去します。指定可能な範囲は、1~4094 です。

(3) コマンドモード

Exec mode and Privileged Exec mode

(4) 実行例

```
Switch#clear mac address-table static
```

2.2 configure terminal

Configure Mode へ移行します。

(1) コマンドフォーマット

```
configure terminal
```

(2) パラメータ

指定するパラメータありません

(3) コマンドモード

Privileged Exec mode

(4) 実行例

```
Switch#configure terminal
```

2.3 copy running-config tftp

現在の設定を TFTP サーバにエクスポートします。

(1) コマンドフォーマット

```
copy running-config tftp (TFTP-URL)
```

(2) パラメータ

TFTP-URL エクスポート先の IP アドレスおよびファイル名

(3) コマンドモード

Privileged Exec mode

(4) 実行例

```
Switch#copy running-config tftp tftp://A.B.C.D/running-config
Building configuration...
[OK]
Copy Success...
```

Note:

本コマンドで TFTP-URL を省略すると対話形式で設定入力することが可能です。

```
Switch#copy running-config tftp
Enter IP:A.B.C.D
Enter port [69]:
Enter filename: running-config
Building configuration...
[OK]
Copy Success...
```

2.4 copy startup-config tftp

保存されている設定を TFTP でエクスポートします。

(1) コマンドフォーマット

```
copy startup-config tftp (TFTP-URL)
```

(2) パラメータ

TFTP-URL エクスポート先の IP アドレスおよびファイル名

(3) コマンドモード

Privileged Exec mode

(4) 実行例

```
Switch#copy startup-config tftp tftp://A.B.C.D/startup-config
Building configuration...
[OK]
Copy Success...
```

Note:

本コマンドで TFTP-URL を省略すると対話形式で設定入力することが可能です。

```
Switch#copy start-config tftp
Enter IP:A.B.C.D
Enter port [69]:
Enter filename: startup-config
Building configuration...
[OK]
Copy Success...
```

2.5 copy tftp startup-config

TFTP サーバから設定ファイルをインポートします。

(1) コマンドフォーマット

```
copy tftp (TFTP-URL) startup-config
```

(2) パラメータ

TFTP-URL インポート元の IP アドレスとファイル名

(3) コマンドモード

Privileged Exec mode

(4) 実行例

```
Switch#copy tftp tftp://A.B.C.D/startup-config startup-config
Copy Success...
```

Note:

本コマンドで TFTP-URL を省略すると対話形式で設定入力することが可能です。

```
Switch#copy tftp start-config tftp
Enter IP:A.B.C.D
Enter port [69]:
Enter filename: startup-config
Copy Success...
```

2.6 disable

Privileged Exec モードから Exec モードに戻ります。なお、Privileged モードにおいて「exit」、または、「quit」コマンドを実行した場合は、Exec モードに戻らず、ログアウトします。

(1) コマンドフォーマット

disable

(2) パラメータ

指定するパラメータありません

(3) コマンドモード

Privileged Exec mode

(4) 実行例

```
Switch#disable
Switch>
```

2.7 enable

Privileged Exec モードに移行します。

(1) コマンドフォーマット

enable

(2) パラメータ

指定するパラメータありません

(3) コマンドモード

Exec mode

(4) 実行例

```
Switch>enable
```

2.8 end

Privileged mode に戻ります。

(1) コマンドフォーマット

end

(2) パラメータ

指定するパラメータありません

(3) コマンドモード

Exec mode 、Privileged mode 以外

(4) 実行例

```
Switch#configure terminal
Switch(config)#interface Port45
Switch(config-if)#end
Switch#
```

2.9 exit

一つ前のモードに戻ります。Exec モード、または、Privileged モードで実行した場合は、ログアウトします。

(1) コマンドフォーマット

exit

(2) パラメータ

指定するパラメータありません

(3) コマンドモード

全てのコマンドモード

(4) 実行例

The following example shows the use of `exit` command to exit Interface mode, and return to Configure mode.

```
Switch#configure terminal
Switch(config)#interface Port45
Switch(config-if) #exit
```

2.10 logout

ログアウトします。

(1) コマンドフォーマット

logout

(2) パラメータ

指定するパラメータありません

(3) コマンドモード

Exec mode and Privileged Exec mode

(4) 実行例

Switch>logout

2.11 reload

NW スイッチモジュールのリブートを行います。

(1) コマンドフォーマット

reload

(2) パラメータ

指定するパラメータありません

(3) コマンドモード

Privileged Exec mode

(4) 実行例

```
Switch> enable
Switch# reload
Reboot system? (y/n): y
The system is going down NOW !!
```

2.12 show aaa accounting

AAA のアカウント設定を表示します。

(1) コマンドフォーマット

`show aaa accounting`

(2) パラメータ

指定するパラメータありません

(3) コマンドモード

Exec and Privileged Exec mode

(4) 実行例

`Switch#show aaa accounting`

2.13 show aaa authentication

AAA の認証設定を表示します。

(1) コマンドフォーマット

`show aaa authentication`

(2) パラメータ

指定するパラメータありません

(3) コマンドモード

Exec mode and Privileged Exec mode

(4) 実行例

`Switch#show aaa authentication`

2.14 show aaa authentication login error-enable

ログインに関する AAA 認証設定を表示します。

(1) コマンドフォーマット

```
show aaa authentication login error-enable
```

(2) パラメータ

指定するパラメータありません

(3) コマンドモード

Exec mode and Privileged Exec mode

(4) 実行例

```
Switch#show aaa authentication login error-enable
```

2.15 show aaa groups

AAA サーバグループに関する設定を表示します。

(1) コマンドフォーマット

```
show aaa groups
```

(2) パラメータ

指定するパラメータありません

(3) コマンドモード

Exec mode and Privileged Exec mode

(4) 実行例

```
Switch#show aaa user groups
```

2.16 show access-lists

Access List の一覧を表示します。

(1) コマンドフォーマット

```
show access-lists
```

(2) パラメータ

指定するパラメータありません

(3) コマンドモード

Exec mode and Privileged Exec mode

(4) 実行例

```
Switch#show access-lists
Standard IP access list 13
permit any
Standard IP access list 67
deny 1.1.1.0, wildcard bits 0.0.0.255
Extended IP access list 134
deny ip 1.1.1.0 0.0.0.255 any
ZebOS IP access list 1111
deny 1.1.1.1/1 exact-match
Standard IP access list 1340
deny 1.1.1.0, wildcard bits 0.0.0.255
Extended IP access list 2001
deny ip 1.1.1.0 0.0.0.255 any
ZebOS extended IP access list TK
deny tcp 2.2.2.3/24 eq 14 3.3.3.4/24 lt 12 log
ZebOS IP access list mylist
deny 10.10.0.72/24 exact-match
permit any
ZebOS extended IP access list new
deny icmp any any
ZebOS extended IP access list tk
deny tcp 2.2.2.3/24 eq 14 3.3.3.4/24 lt 12 log
Switch#
```

2.17 show bridge

FDB（MAC アドレステーブル）を表示します。

(1) コマンドフォーマット

```
show bridge
```

(2) パラメータ

指定するパラメータありません

(3) コマンドモード

Exec mode and Privileged Exec mode

(4) 実行例

```
Switch#show bridge
Ageing Timeout :300
```

Bridge	VLAN	Port	MAC Address	FWD	Type
default	1	Port35	fcaa.147b.1dbb	1	Dynamic

2.18 show etherchannel

リンクアグリゲーションの設定を表示します。

(1) コマンドフォーマット

```
show etherchannel
show etherchannel <1-65535>
show etherchannel detail
show etherchannel summary
```

(2) パラメータ

<1-65535> チャンネルグループ番号を指定します。

detail 詳細情報を表示します。

summary サマリ情報を表示します。

(3) コマンドモード

Exec mode and Privileged Exec mode

(4) 実行例

```
Switch#show etherchannel
% LACP Aggregator: poll
% Member:
  Port49
  Port53
```


2.19 show flowcontrol

フロー制御の設定を表示します。

(1) コマンドフォーマット

```
show flowcontrol
show flowcontrol interface IFNAME
```

(2) パラメータ

IFNAME 表示するインタフェースを指定します。

(3) コマンドモード

Exec mode and Privileged Exec mode

(4) 実行例

```
Switch#show flowcontrol
Port      Send FlowControl      Receive FlowControl
          admin   oper      admin   oper
-----
Port1     on      off      on      off
Port2     on      off      on      off
Port3     on      off      on      off
Port4     on      off      on      off
Port5     on      off      on      off
:         :         :         :         :
```

2.20 show interface

各インタフェースの設定、状態を表示します。

(1) コマンドフォーマット

```
show interface (IFNAME)
```

(2) パラメータ

IFNAME 表示するインタフェースを指定します。

(3) コマンドモード

Exec mode and Privileged Exec mode

(4) 実行例

```
Switch>show interface Port5
Interface Port5
  Scope: both
  Hardware is Ethernet Current HW addr: 0011.2233.4405
  Physical:0011.2233.4405 Logical:(not set)
  index 5005 metric 1 mtu 9750 duplex-full
  Port Mode is trunk
  <UP,BROADCAST,RUNNING,ALLMULTI,MULTICAST>
  VRF Binding: Not bound
  Bandwidth 10g
  DHCP client is disabled.
input packets 011287, bytes 02067862,
multicast packets 07040 broadcast packets 04247
      FCS error 00 UndersizeErrors 00 OverSizeErrors 00
output packets 00, bytes 00,
multicast packets 00 broadcast packets 00
```

2.21 show interface description

全インタフェースの状態を表示します。

(1) コマンドフォーマット

```
show interface description
```

(2) パラメータ

指定するパラメータありません

(3) コマンドモード

Exec mode and Privileged Exec mode

(4) 実行例

```
Switch#show interface description
Interface          Status          Protocol        Description
internal           up              up
lo                 up              up
mgmt               up              up
Port1              up              up
Port2              up              up
...
...
vlan0.1            up              up
vlan0.4092         up              up
```

“Status” は、下記のインタフェース状態を示します。

up	: 通常状態
down	: TFO もしくは BPDU-Guard 機能によりインタフェース停止
administratively down	: shutdown コマンドによりインタフェース停止

“Protocol” は、下記のリンク状態を示します。

up	: リンクアップ
down	: リンクダウン

2.22 show lacp sys-id

LACP のシステム ID とプライオリティを表示します。

(1) コマンドフォーマット

```
show lacp sys-id
```

(2) パラメータ

指定するパラメータありません

(3) コマンドモード

Exec mode and Privileged Exec mode

(4) 実行例

```
Switch#show lacp sys-id
% System 8000,00-0e-0c-83-37-27
```

2.23 show lldp

LLDP 情報を表示します。

(1) コマンドフォーマット

```
show lldp interface IFNAME
```

(2) パラメータ

IFNAME 表示するインタフェースを指定します。

(3) コマンドモード

Exec mode and Privileged Exec mode

(4) 実行例

```
Switch#show lldp interface Port45
```

```
Agent Mode : Nearest bridge
Enable (tx/rx): N/N
MED Enabled :N
Device Type: NOT_DEFINED
LLDP Agent traffic statistics:
Total frames transmitted: 0
Total entries aged: 0
Total frames received: 0
Total frames received in error: 0
Total frames discarded: 0
Total discarded TLVs: 0
Total unrecognised TLVs: 0
```

2.24 show lldp neighbor

隣接スイッチの LLDP 情報を表示します。

(1) コマンドフォーマット

```
show lldp interface IFNAME neighbor
```

(2) パラメータ

IFNAME 表示するインタフェースを指定します。

(3) コマンドモード

Exec mode and Privileged Exec mode

(4) 実行例

```
Switch#show lldp interface Port45 neighbor
  Nearest bridge Neighbors
System Name       : switch
System Description :
Port Description  :
TTL               : 120
System Capabilities : L2 Switching
Mandatory TLVs   :
  CHASSIS ID TYPE :
    Chassis MAC Address: 885a.92ec.e9b8
  PORT ID TYPE   :
    INTERFACE NAME : Ethernet1/49
8021 ORIGIN SPECIFIC TLV
Port Vlan id      :0
PP Vlan id        :0
Remote Protocols Advertised :
Remote VID Usage Digest  : 0
Remote Management Vlan   : 0
Link Aggregation Status  : Disabled
Link Aggregation Port ID : 0
```

2.25 show logging logfile

イベントログを表示します。

(1) コマンドフォーマット

```
show logging logfile
```

(2) パラメータ

指定するパラメータありません

(3) コマンドモード

Exec mode and Privileged Exec mode

(4) 実行例

```
Switch#show logging logfile
```

2.26 show mirror

ミラーポートの設定を表示します。

(1) コマンドフォーマット

```
show mirror
show mirror interface IFNAME
```

(2) パラメータ

interface IFNAME 表示するインタフェースを指定します。

(3) コマンドモード

Exec mode and Privileged Exec mode

(4) 実行例

```
Switch#show mirror
Mirror Test Port Name: Port45
Mirror option: Enabled
Mirror direction: both
Monitored Port Name: Port49
```

2.27 show ntp peers

NTP ペアの情報を表示します。

(1) コマンドフォーマット

```
show ntp peers
```

(2) パラメータ

指定するパラメータありません

(3) コマンドモード

Exec mode and Privileged Exec mode

(4) 実行例

```
Switch#show ntp peers
```

2.28 show port etherchannel

指定したインタフェースの LACP 詳細情報を表示します。

(1) コマンドフォーマット

```
show port etherchannel IFNAME
```

(2) パラメータ

IFNAME 表示するインタフェースを指定します。

コマンドモード

Exec mode and Privileged Exec mode

(3) 実行例

```
ZebOS# show port etherchannel Port45
% LACP link info: Port45 - 4
% LAG ID: 0x8000,52-54-00-8d-bb-0b,0x0002
% Partner oper LAG ID: 0x0000,00-00-00-00-00-00,0x0000
% Actor priority: 0x8000 (32768)
% Admin key: 0x0002 (2) Oper key: 0x0002 (2)
% Physical admin key:(4)
% Receive machine state : Defaulted
% Periodic Transmission machine state : Slow periodic
% Mux machine state : Attached
% Oper state: ACT:1 TIM:0 AGG:1 SYN:1 COL:0 DIS:0 DEF:1 EXP:0
% Destination Mac: Customer-bridge-group-address [01-80-c2-00-00-00]
% Actor version: 2
% ActPar Sync: 1
% Long LACPDU Transmit: FALSE
% Partner oper state: ACT:0 TIM:0 AGG:1 SYN:0 COL:0 DIS:0 DEF:1 EXP:0
% Partner link info: admin port 0
% Partner oper port: 0
% Partner admin LAG ID: 0x0000-00:00:00:00:0000
% Admin state: ACT:1 TIM:0 AGG:1 SYN:0 COL:0 DIS:0 DEF:1 EXP:0
% Partner admin state: ACT:0 TIM:0 AGG:1 SYN:0 COL:0 DIS:0 DEF:1 EXP:0
% Partner version: 2
% Partner ActPar Sync:0
% Partner system priority - admin:0x0000 - oper:0x0000
% Partner port priority - admin:0x0000 - oper:0x0000
% Aggregator ID: 1000001
```

2.29 show running-config

現在の設定情報を表示します。

(1) コマンドフォーマット

`show running-config`

(2) パラメータ

指定するパラメータありません

(3) コマンドモード

Exec mode, Privileged Exec mode and Config mode

(4) 実行例

```
Switch>show running-config
!
no service password-encryption
!
ip domain-lookup
no ip icmp-broadcast
spanning-tree mode rstp-vlan-bridge
tfo Disable
feature telnet
feature ssh
no feature tacacs+
no feature ldap
snmp-server enable snmp
snmp-server view all .1 included
ntp enable
username-remote admin role network-admin
set lldp system-name DXSW
set lldp system-description NEC Micro Modular Server Switch
!
```

2.30 show snmp

SNMP の設定を表示します。

(1) コマンドフォーマット

`show snmp`

(2) パラメータ

指定するパラメータありません

(3) コマンドモード

Exec mode and Privileged Exec mode

(4) 実行例

```
Switch#show snmp
```

2.31 show snmp community

SNMP のコミュニティ設定を表示します。

(1) コマンドフォーマット

```
show snmp community
```

(2) パラメータ

指定するパラメータありません

(3) コマンドモード

Exec mode and Privileged Exec mode

(4) 実行例

```
Switch#show snmp community
```

2.32 show snmp group

SNMP のサーバグループの設定を表示します。

(1) コマンドフォーマット

```
show snmp group
```

(2) パラメータ

指定するパラメータありません

(3) コマンドモード

Exec mode and Privileged Exec mode

(4) 実行例

```
Switch#show snmp group
```

2.33 show snmp host

SNMP Trap のホストの設定を表示します。

(1) コマンドフォーマット

```
show snmp host
```

(2) パラメータ

指定するパラメータありません

(3) コマンドモード

Exec mode and Privileged Exec mode

(4) 実行例

```
Switch#show snmp host
```

2.34 show snmp user

SNMP のユーザおよび認証設定を表示します。

(1) コマンドフォーマット

```
show snmp user
```

(2) パラメータ

指定するパラメータありません

(3) コマンドモード

Exec mode and Privileged Exec mode

(4) 実行例

```
Switch#show snmp user
```

2.35 show spanning-tree

スパニングツリー設定を表示します。

(1) コマンドフォーマット

```
show spanning-tree
show spanning-tree interface IFNAME
show spanning-tree mst
show spanning-tree mst config
show spanning-tree mst interface IFNAME
show spanning-tree mst detail
show spanning-tree mst detail interface IFNAME
show spanning-tree mst instance <1-63> interface IFNAME
show spanning-tree statistics interface IFNAME
```

(2) パラメータ

interface	インタフェースの情報を表示します。
mst	MSTP の情報を表示します。
statistics	BPDU の統計情報を表示します。

(3) コマンドモード

Exec mode and Privilege Exec mode

(4) 実行例

```
Switch#show spanning-tree
% Default: Bridge up - Spanning Tree Disabled
% Default: Root Path Cost 0 - Root Port 0 - Bridge Priority 32768
% Default: Forward Delay 15 - Hello Time 2 - Max Age 20 - Transmit Hold Count 6
% Default: Root Id 8000000000000000
% Default: Bridge Id 8000000000000000
```

2.36 show startup-config

保存されている設定情報を表示します。

(1) コマンドフォーマット

```
show startup-config
```

(2) パラメータ

指定するパラメータありません

(3) コマンドモード

Privileged Exec mode

(4) 実行例

```
Switch#show startup-config
Switch>show running-config
!
no service password-encryption
!
ip domain-lookup
no ip icmp-broadcast
spanning-tree mode rstp-vlan-bridge
tfo Disable
feature telnet
feature ssh
no feature tacacs+
no feature ldap
snmp-server enable snmp
snmp-server view all .1 included
ntp enable
username-remote admin role network-admin
set lldp system-name DXSW
set lldp system-description NEC Micro Modular Server Switch
!
```

2.37 show static-channel-group

静的リンクアグリゲーションの設定を表示します。

(1) コマンドフォーマット

```
show static-channel-group
```

(2) パラメータ

指定するパラメータありません

(3) コマンドモード

Exec mode and Privileged Exec mode

(4) 実行例

```
Switch#show static-channel-group
% Static Aggregator: sal
% Member:
    Port45
    Port49
    Port53
    Port57
```

2.38 show storm-control

Storm Control の設定を表示します。

(1) コマンドフォーマット

```
show storm-control (IFNAME|)
```

(2) パラメータ

IFNAME 表示するインタフェースを指定します。

(3) コマンドモード

Exec mode and Privileged Exec mode

(4) 実行例

```
Switch#show storm-control Port45
Port      BcastLevel    McastLevel    DlfLevel
Port45    100. 0%        100. 0%        100. 0%
```

2.39 show system information

システム情報を表示します。

(1) コマンドフォーマット

```
show system information
```

(2) パラメータ

指定するパラメータありません

(3) コマンドモード

Exec mode and Privileged Exec mode

(4) 実行例

```
Switch>show system information
Temperature of Lion and ArmadaXP
=====
core0 39 celcius
core1 38 celcius
core2 40 celcius
core3 37 celcius
core4 37 celcius
Average 40 celcius
ArmadaXP 34 celcius
System Information at Fri Jun 19 07:21:34 2015
Daylight Savings Time Status      : Disabled
Time zone                          : UTC
Switch has been up for 0 days, 22 hours, 43 minutes and 40 seconds.

MAC Addr                           : 00:11:22:33:44:55
Product Manufacturer Name          : NEC
Product Name                       : NW Switch Module
Product Part/Model No.             : [0123-456]
Product Version                    : FR1.0
Product Serial No.                 : 12345678901234
Mfg Date                           :
Board Manufacturer Name            : GIGABYTE
Board Product Name                  : GC-ACME1-NJ
Board Serial No.                    : 012345678901
Board Spare Part No.                : 856-123456-789
```

2.40 show tacacs-server

TACACS+サーバの設定を表示します。

(1) コマンドフォーマット

```
show tacacs-server (groups GROUP | sorted)
```

(2) パラメータ

groups グループ設定を表示する場合に入力します。

GROUP グループ名を指定します。

 グループ名の入力を省略すると全てのグループに関する設定を表示します。

sorted TACACS+サーバ名でソートします。

(3) コマンドモード

Exec mode and Privileged Exec mode

(4) 実行例

```
Switch#show tacacs-server
```

2.41 show tech-support dump

システムの状態と設定を表示します。

(1) コマンドフォーマット

```
show tech-support dump
```

(2) パラメータ

指定するパラメータありません

(3) コマンドモード

Exec mode and Privileged Exec mode

(4) 実行例

```
witch#show tech-support dump
```

2.42 show tfo

FOG (Fail Over Group) の設定を表示します。

(1) コマンドフォーマット

```
show tfo
```

(2) パラメータ

指定するパラメータありません

(3) コマンドモード

Exec mode and Privileged Exec mode

(4) 実行例

```
Switch>show tfo
```

```
Failover Group 1 : Enable
No. of links to trigger failover : 0
MPG Port          CPG Port
-----
    po10          Port1
No. of times MPG link failure : 0
No. of times MPG link recovered : 0
No. of times MPG link in blocking state : 0
No. of times MPG link in forwarding state : 0
No. of times CPG got auto disabled : 0
```

2.43 show user-account

ユーザアカウント情報を表示します。

(1) コマンドフォーマット

```
show user-account (WORD)
```

(2) パラメータ

WORD ユーザ名を指定します。

(3) コマンドモード

Exec mode and Privileged Exec mode

(4) 実行例

```
Switch>show user-account admin
User:admin
roles: network-admin
```

2.44 show users

ログインしているユーザ情報を表示します。

(1) コマンドフォーマット

```
show users
```

(2) パラメータ

指定するパラメータありません

(3) コマンドモード

Exec mode and Privileged Exec mode

(4) 実行例

This is a sample output of the `show users` command:

```
Switch#show users
Line           User           Host(s)         Idle           Location
130 vty 0       idle           idle            00:45:44      2
```

2.45 show version

NW スイッチモジュールの FW バージョンを表示します。

(1) コマンドフォーマット

`show version`

(2) パラメータ

指定するパラメータありません

(3) コマンドモード

Exec mode and Privileged Exec mode

(4) 実行例

Switch#show version

```
ZebOS-XP version 1.2.0.9 IPIRouter 11/30/15 10:17:21
Build # is ZebOS-XP-1-2-0-9-IPI on host arm-unknown-linux-gnu
Copyright (C) 2001-2013 IP Infusion Inc. All rights reserved.
```

2.46 show vlan

VLAN 設定を表示します。

(1) コマンドフォーマット

`show vlan (brief | <2-4094>)`

(2) パラメータ

`brief` 全てのVLAN情報を表示します。

`<2-4094>` 指定したVLANの情報を表示します。

(3) コマンドモード

Exec mode and Privileged Exec mode

(4) 実行例

Switch#show vlan brief

2.47 system fw-update

NW Switch Module の FW アップデートを行います。

(1) コマンドフォーマット

```
system fw-update [filesystem | kernel] option tftp server-ip A.B.C.D path PATH
```

(2) パラメータ

filesystem	ファイルシステムのアップデートを行います。
kernel	カーネルのアップデートを行います。
A.B.C.D	TFTP サーバの IP アドレス
PATH	ファイル名

(3) コマンドモード

Exec mode and Privileged Exec mode

(4) 実行例

```
Switch# system fw-update kernel server-ip A.B.C.D path uImage.
```

2.48 terminal length

現在使用しているターミナルにおいて、表示の一時停止を行う行数を指定します。設定可能範囲は、0～512です。0を指定した場合は、一時停止を行いません。

no をコマンドの先頭に指定するとデフォルトに戻ります。

(1) コマンドフォーマット

```
terminal length <0-511>
terminal no length
```

(2) パラメータ

<0-511> 表示する行数を指定します。「0」の場合、画面の一時停止は行われません。

(3) デフォルト

```
Serial Console 24
Telnet/ssh Termnal Length
```

(4) コマンドモード

Exec mode and Privileged Exec mode

(5) 実行例

```
Switch>enable
Switch#terminal length 0
```

2.49 write

設定を保存します。

(1) コマンドフォーマット

```
write
```

(2) パラメータ

指定するパラメータありません

(3) コマンドモード

Privileged Exec mode

(4) 実行例

```
Switch#write
Building configuration...
[OK]
```

2.50 write tech-support

Tech-Support ファイルを TFTP サーバにエクスポートします。

(1) コマンドフォーマット

```
write tech-support dump server-ip A.B.C.D path FILE
```

(2) パラメータ

A.B.C.D TFTP サーバの IP アドレス.

FILE ファイル名

(3) コマンドモード

Privileged Exec mode

(4) 実行例

```
Switch#write tech-support dump server-ip A.B.C.D path tech-support  
Copy Success...
```

3. Config Mode コマンド

3.1 aaa authentication login error-enable

ログイン失敗時のエラーメッセージ表示を有効にします。

no をコマンドの先頭に指定すると本機能を無効にします。

(1) コマンドフォーマット

```
aaa authentication login error-enable  
no aaa authentication login error-enable
```

(2) パラメータ

指定するパラメータありません

(3) デフォルト

Disabled

(4) コマンドモード

Configure mode

(5) 実行例

```
Switch#configure terminal  
Switch(config)#aaa authentication login error-enable
```

3.2 aaa authentication login default

AAA 認証方法を設定します。

no をコマンドの先頭に指定すると本機能を無効にします。

(1) コマンドフォーマット

```
aaa authentication login default ((group LINE) | local)
no aaa authentication login default ((group LINE) | local)
```

(2) パラメータ

group	認証にサーバグループを使用します。
LINE	radius、または、tacacs+ サーバグループ名を指定し、local、none、もしくはその両方をそのあとに入力します。
radius	RADIUS サーバ
tacacs+	TACACS+サーバ
local	ローカル認証

(3) デフォルト

local

(4) コマンドモード

Configure mode

(5) 実行例

```
Switch#configure terminal
Switch(config)#aaa authentication login default group radius
```

3.3 aaa authentication login default fallback error

リモート認証が設定されており、AAA サーバにアクセス不可能な場合、ローカル認証を実施するよう設定します。

no をコマンドの先頭に指定すると本機能を無効にします。

(1) コマンドフォーマット

```
aaa authentication login default fallback error local
no aaa authentication login default fallback error local
```

(2) パラメータ

指定するパラメータありません

(3) デフォルト

Dsiabled

(4) コマンドモード

Configure mode

(5) 実行例

```
Switch#configure terminal
Switch(config)#aaa authentication login default fallback error local
```

3.4 access-list (IP Address)

Access List (ACL) を作成します。ACL は、各インタフェースでのパケット処理を制御します。

no をコマンドの先頭に指定すると設定を削除します。

(1) コマンドフォーマット

```
access-list (<100-199>|<2000-2699>) [deny | permit] any [any | A.B.C.D/M] [any | A.B.C.D/M]
no access-list (<100-199>|<2000-2699>)
```

(2) パラメータ

(<100-199> | <2000-2699>)

ACL 番号

deny パケットを拒否します。

permit パケットを許可します。

any 送信元の IP アドレスを任意とする場合に指定します。

A.B.C.D/M 送信元 IP アドレス

any 送信先の IP アドレスを任意とする場合に指定します。

A.B.C.D/M 送信先 IP アドレス

(3) コマンドモード

Configure mode

(4) 実行例

```
Switch(config)#access-list 101 deny any A.B.C.D/M any
Switch(config)#access-list 102 deny any A.B.C.D/M A.B.C.D/M
```

3.5 access-list (MAC Address)

Access List (ACL) を作成します。ACL は、各インタフェースでのパケット処理を制御します。

no をコマンドの先頭に指定すると設定を削除します。

(1) コマンドフォーマット

```
access-list [<100-199>|<2000-2699>] [deny | permit] mac [any | MAC MASK] [any | MAC MASK]
no access-list (<100-199>|<2000-2699>)
```

(2) パラメータ

(<100-199> | <2000-2699>)

ACL 番号

deny パケットを拒否します。

permit パケットを許可します。

mac MAC アクセスリスト

any 送信元の MAC アドレスを任意にする場合に指定します。

MAC 送信元 MAC アドレス

MASK 送信元マスク

any 送信先の MAC アドレスを任意にする場合に指定します。

MAC 送信先 MAC アドレス

MASK 送信先マスク

(3) コマンドモード

Configure mode

(4) 実行例

```
Switch(config)#access-list 103 deny mac any any
Switch(config)#access-list 104 deny mac XXXX.XXXX.XXXX 1111.1111.1111 any
```


3.6 access-list (Protocol)

Access List (ACL) を作成します。ACL は、各インタフェースでのパケット処理を制御します。

no をコマンドの先頭に指定すると設定を削除します。

(1) コマンドフォーマット

```
access-list [<100-199>|<2000-2699>] [deny | permit] [any | <0-255>] [any | A.B.C.D/M]
[any | A.B.C.D/M]
no access-list (<100-199>|<2000-2699>)
```

(2) パラメータ

(<100-199> | <2000-2699>)

ACL 番号

deny パケットを拒否します。

permit パケットを許可します。

any 任意のプロトコルを設定する場合に指定します。

icmp icmp パケット

tcp TCP パケット

udp UDP パケット

any 任意の送信元 IP アドレスを任意にする場合に指定します。

A.B.C.D/M 送信元 IP アドレス

any 任意の送信先 IP アドレスを任意にする場合に指定します。

A.B.C.D/M 送信先 IP アドレス

(3) コマンドモード

Configure mode

(4) 実行例

```
Switch(config)#access-list 105 deny icmp any any
```

3.7 do

Config モードにおいて、Exec モード、または、Privileged Exec モードのコマンドを実行することが可能です。

(1) コマンドフォーマット

do LINE

(2) パラメータ

LINE 実行するコマンドを入力します。

(3) コマンドモード

Configure mode

(4) 実行例

```
Switch(config)#do show interface description
Interface      Status      Protocol    Description
internal       up          up
lo             up          up
mgmt           up          up
Port1          up          up
Port2          up          up
Port3          up          up
Port4          up          up
Port5          up          up
Port6          up          up
Port7          up          up
Port8          up          up
Port9          up          up
```

3.8 feature tacacs+

TACACS+の機能を有効にします。

no をコマンドの先頭に指定すると本機能を無効にします。

(1) コマンドフォーマット

```
feature tacacs+
no feature tacacs+
```

(2) パラメータ

指定するパラメータありません

(3) デフォルト

Disabled

(4) コマンドモード

Configure mode

(5) 実行例

```
Switch#configure terminal
Switch(config)#feature tacacs+
```

3.9 fog

FOG の作成、および、有効・無効の設定を行います。

no をコマンドの先頭に指定すると設定を削除します。

(1) コマンドフォーマット

```
fog <1-33> [enable|disable]
no fog <1-33>
```

(2) パラメータ

<1-33> FOG 番号

enable FOG を有効にします。

disable FOG を無効にします。

(3) コマンドモード

Configure mode

(4) 実行例

```
Switch#configure terminal
Switch(config)#fog 5 enable
```

3.10 fog tfc

FOG の MPG に LAG を指定した場合に、フェイルオーバー動作を行うリンク数を設定します。

(1) コマンドフォーマット

```
fog <1-33> tfc <0-7>
```

(2) パラメータ

<1-33> FOG 番号

<0-n> リンク数

(3) デフォルト

tfc のデフォルトは 0 です。

(4) コマンドモード

Configure mode

(5) 実行例

```
ZebOS-XP#configure terminal
ZebOS-XP(config)#fog 5 tfc 7
```

3.11 interface

インタフェースを選択し、インターフェースモードに移行します。

(1) コマンドフォーマット

```
interface IFNAME
interface range IF-RANGE
```

(2) Parameter

IFNAME インタフェース番号

IF-RANGE インタフェースを範囲指定する場合、指定する範囲の最小インタフェース番号と最大インタフェース番号をハイフンで区切ります。

(3) コマンドモード

Configure mode

(4) 実行例

下記の例では、Port45 を選択して Interface モードに移行します。

```
Switch#configure terminal
Switch(config)#interface Port45
Switch(config-if)#
```

下記の例では、Port1～Port10 を選択して Interface モードに移行します。

```
Switch#configure terminal
Switch(config)#interface range Port1-10
Switch(config-if)#
```

3.12 line vty

ラインモードに移行します。

(1) コマンドフォーマット

```
line vty <0-871> (<0-871>|)
```

(2) パラメータ

<0-871> 先頭ターミナル番号

<0-871> 最終ターミナル番号

(3) コマンドモード

Configure mode

(4) 実行例

```
Switch#configure terminal
Switch(config)#line vty 9
Switch(config-line)#
```

3.13 logging server

SYSLOG サーバを設定します。

no をコマンドの先頭に指定すると設定を削除します。

Note:

複数の SYSLOG サーバを設定する場合、ファシリティはすべて同じ値を設定してください。

(1) コマンドフォーマット

```
logging server A.B.C.D (|((<0-7>) (|facility (local0| local1 | local2 | local3|
local4 |local5 | local6 | local7 |user))))
no logging server A.B.C.D
```

(2) パラメータ

A.B.C.D	SYSLOG サーバの IP アドレス
<0-7>	ログレベル。ログレベルについては、下記を参照してください。ログレベルを省略した場合は、7 が設定されます。
facility	7 ファシリティを指定します。省略した場合、local7 が設定されます。
local0	Local0
local1	Local1
local2	Local2
local3	Local3
local4	Local4
local5	Local5
local6	Local6
local7	Local7 (default)
user	ユーザ設定

ログレベル	説明	内容
0	emergency	System unusable
1	alert	Immediate action required
2	critical	Critical condition
3	error	Error conditions
4	warning	Warning conditions
5	notification	Normal but significant conditions
6	informational	Informational messages
7	debugging	Debugging messages

(3) コマンドモード

Configure mode

(4) 実行例

```
Switch#configure terminal
Switch(config)#logging server MyLogHost
```

3.14 mac-address-table

静的 MAC アドレステーブルを登録します。

no をコマンドの先頭に指定すると設定を削除します。

(1) コマンドフォーマット

```
mac-address-table static MAC (forward|discard) IFNAME
mac-address-table static MAC (forward|discard) IFNAME vlan <2-4094>
no mac-address-table static MAC (forward|discard) IFNAME
no mac-address-table static MAC (forward|discard) IFNAME vlan <2-4094>
```

(2) パラメータ

static	静的 MAC アドレス
MAC	登録する MAC アドレスを入力します。
forward	本設定と一致した MAC アドレスの通信を送信します。
discard	本設定と一致した MAC アドレスの通信は破棄されます。
IFNAME	送信するインタフェース番号を指定します。
vlan	VLAN ID を指定します。

(3) コマンドモード

Configure mode

(4) 実行例

```
Switch#configure terminal
Switch(config)#mac-address-table static 2222.2222.2222 forward Port45
```

3.15 ntp enable

NTP 機能を有効にします。

no をコマンドの先頭に指定すると本機能を無効にします。

(1) コマンドフォーマット

```
ntp enable
no ntp enable
```

(2) パラメータ

指定するパラメータありません

(3) デフォルト

Enabled

(4) コマンドモード

Configure mode

(5) 実行例

```
Switch#configure terminal
Switch(config)#ntp enable
```

3.16 ntp server

NTP サーバを設定します。

no をコマンドの先頭に指定すると設定を削除します。

(1) コマンドフォーマット

```
ntp server A.B.C.D  
no ntp server A.B.C.D
```

(2) パラメータ

A.B.C.D NTP サーバの IP アドレスを指定します。

(3) コマンドモード

Configure mode

(4) 実行例

```
Switch#configure terminal  
Switch(config)#ntp server 10.10.0.23
```

3.17 radius-server host

RADIUS サーバを設定します。

no をコマンドの先頭に指定すると設定を削除します。

(1) コマンドフォーマット

```
radius-server host A.B.C.D  
radius-server host A.B.C.D timeout <1-60>  
no radius-server host A.B.C.D  
no radius-server host A.B.C.D timeout <1-60>
```

(2) パラメータ

A.B.C.D RADIUS サーバの IP アドレスを指定します。

timeout RADIUS サーバからの応答のタイムアウト時間を設定します。

<1-60> タイムアウト時間を秒で指定します。

(3) コマンドモード

Configure mode

(4) 実行例

```
Switch#configure terminal  
Switch(config)#radius-server host 203.0.113.15
```

3.18 radius-server host key

RADIUS サーバのキーを設定します。

no をコマンドの先頭に指定すると設定を削除します。

(1) コマンドフォーマット

```
radius-server host A.B.C.D key WORD (timeout <1-60>)
no radius-server host A.B.C.D key WORD (timeout <1-60>)
```

(2) パラメータ

WORD キーを指定します。

timeout RADIUS サーバからの応答のタイムアウト時間を設定します。

<1-60> タイムアウト時間を秒で指定します。

(3) コマンドモード

Configure mode

(4) 実行例

```
Switch#configure terminal
Switch(config)#radius-server host 203.0.113.15 key keyword
```

3.19 reboot-on-crash

有効にすると、NW スイッチモジュールのサービス異常（クラッシュ）が発生した際に自動的に NW スイッチモジュールのリブートが行われます。

(1) コマンドフォーマット

```
reboot-on-crash (enable|disable)
```

(2) パラメータ

enable 本機能を有効にします。

disable 本機能を無効にします。

(3) デフォルト

デフォルトでは本機能は無効です。

(4) コマンドモード

Configure mode

(5) 実行例

```
Switch#configure terminal
Switch(config)#reboot-on-crash enable
```


3.20 set time-zone

タイムゾーンを設定します。

(1) コマンドフォーマット

```
set time-zone WORD
```

(2) パラメータ

WORD 下記に示す都市名を指定します。

CET	GB	Hongkong	MET	Poland	Universal
CST6CDT	GB-Eire	Iceland	MST	Portugal	W-SU
Cuba	GMT	Iran	MST7MDT	ROC	WET
EET	GMT+0	Israel	NZ	ROK	Zulu
EST	GMT-0	Jamaica	NZ-CHAT	Singapore	iso3166.tab
EST5EDT	GMT0	Japan	Navajo	Turkey	posixrules
Egypt	Greenwich	Kwajalein	PRC	UCT	zone.tab
Eire	HST	Libya	PST8PDT	UTC	

Africa:

Abidjan	Brazzaville	Freetown	Lome	Ndjamena
Accra	Bujumbura	Gaborone	Luanda	Niamey
Addis_Ababa	Cairo	Harare	Lubumbashi	Nouakchott
Algiers	Casablanca	Johannesburg	Lusaka	Ouagadougou
Asmara	Ceuta	Juba	Malabo	Porto-Novo
Asmera	Conakry	Kampala	Maputo	Sao_Tome
Bamako	Dakar	Khartoum	Maseru	Timbuktu
Bangui	Dar_es_Salaam	Kigali	Mbabane	Tripoli
Banjul	Djibouti	Kinshasa	Mogadishu	Tunis
Bissau	Douala	Lagos	Monrovia	Windhoek
Blantyre	El_Aaiun	Libreville	Nairobi	

America:

Adak	Coral_Harbour	Indiana	Monterrey	Santiago
Anchorage	Cordoba	Indianapolis	Montevideo	Santo_Domingo
Anguilla	Costa_Rica	Inuvik	Montreal	Sao_Paulo
Antigua	Cuiaba	Iqaluit	Montserrat	Scoresbysund
Araguaina	Curacao	Jamaica	Nassau	Shiprock
Argentina	Danmarkshavn	Jujuy	New_York	Sitka
Aruba	Dawson	Juneau	Nipigon	St_Barthelemy
Asuncion	Dawson_Creek	Kentucky	Nome	St_Johns
Atikokan	Denver	Knox_IN	Noronha	St_Kitts
Atka	Detroit	Kralendijk	North_Dakota	St_Lucia
Bahia	Dominica	La_Paz	Ojinaga	St_Thomas
Bahia_Banderas	Edmonton	Lima	Panama	St_Vincent
Barbados	Eirunepe	Los_Angeles	Pangnirtung	Swift_Current
Belem	El_Salvador	Louisville	Paramaribo	Tegucigalpa
Belize	Ensenada	Lower_Princes	Phoenix	Thule
Blanc-Sablon	Fort_Wayne	Maceio	Port-au-Prince	Thunder_Bay
Boa_Vista	Fortaleza	Managua	Port_of_Spain	Tijuana
Bogota	Glace_Bay	Manaus	Porto_Acre	Toronto
Boise	Godthab	Marigot	Porto_Velho	Tortola
Buenos_Aires	Goose_Bay	Martinique	Puerto_Rico	Vancouver
Cambridge_Bay	Grand_Turk	Matamoros	Rainy_River	Virgin
Campo_Grande	Grenada	Mazatlan	Rankin_Inlet	Whitehorse
Cancun	Guadeloupe	Mendoza	Recife	Winnipeg
Caracas	Guatemala	Menominee	Regina	Yakutat
Catamarca	Guayaquil	Merida	Resolute	Yellowknife

Cayenne	Guyana	Metlakatla	Rio_Branco
Cayman	Halifax	Mexico_City	Rosario
Chicago	Havana	Miquelon	Santa_Isabel
Chihuahua	Hermosillo	Moncton	Santarem

Antarctica:

Casey	Macquarie	Palmer	Syowa
Davis	Mawson	Rothera	Vostok
DumontD'Urville	McMurdo	South_Pole	

Arctic:

Longyearbyen

Asia:

Aden	Colombo	Kamchatka	Omsk	Tashkent
Almaty	Dacca	Karachi	Oral	Tbilisi
Amman	Damascus	Kashgar	Phnom_Penh	Tehran
Anadyr	Dhaka	Kathmandu	Pontianak	Tel_Aviv
Aqtau	Dili	Katmandu	Pyongyang	Thimbu
Aqtobe	Dubai	Kolkata	Qatar	Thimphu
Ashgabat	Dushanbe	Krasnoyarsk	Qyzylorda	Tokyo
Ashkhabad	Gaza	Kuala_Lumpur	Rangoon	Ujung_Pandang
Baghdad	Harbin	Kuching	Riyadh	Ulaanbaatar
Bahrain	Hebron	Kuwait	Riyadh87	Ulan_Bator
Baku	Ho_Chi_Minh	Macao	Riyadh88	Urumqi
Bangkok	Hong_Kong	Macau	Riyadh89	Vientiane
Beirut	Hovd	Magadan	Saigon	Vladivostok
Bishkek	Irkutsk	Makassar	Sakhalin	Yakutsk
Brunei	Istanbul	Manila	Samarkand	Yekaterinburg
Calcutta	Jakarta	Muscat	Seoul	Yerevan
Choibalsan	Jayapura	Nicosia	Shanghai	
Chongqing	Jerusalem	Novokuznetsk	Singapore	
Chungking	Kabul	Novosibirsk	Taipei	

Atlantic:

Azores	Cape_Verde	Jan_Mayen	South_Georgia
Bermuda	Faeroe	Madeira	St_Helena
Canary	Faroe	Reykjavik	Stanley

Australia:

ACT	Canberra	Hobart	Melbourne	Queensland	Victoria
Adelaide	Currie	LHI	NSW	South	West
Brisbane	Darwin	Lindeman	North	Sydney	Yancowinna
Broken_Hill	Eucla	Lord_Howe	Perth	Tasmania	

Brazil:

Acre	DeNoronha	East	West
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Canada:

Atlantic	Eastern	Pacific
Central	Mountain	Saskatchewan
East-Saskatchewan	Newfoundland	Yukon

Chile:

Continental EasterIsland

Europe:

Amsterdam	Chisinau	Kiev	Moscow	Sarajevo	Vatican
Andorra	Copenhagen	Lisbon	Nicosia	Simferopol	Vienna
Athens	Dublin	Ljubljana	Oslo	Skopje	Vilnius

Belfast	Gibraltar	London	Paris	Sofia	Volgograd
Belgrade	Guernsey	Luxembourg	Podgorica	Stockholm	Warsaw
Berlin	Helsinki	Madrid	Prague	Tallinn	Zagreb
Bratislava	Isle_of_Man	Malta	Riga	Tirane	Zaporozhye
Brussels	Istanbul	Mariehamn	Rome	Tiraspol	Zurich
Bucharest	Jersey	Minsk	Samara	Uzhgorod	
Budapest	Kaliningrad	Monaco	San_Marino	Vaduz	

Indian:

Antananarivo	Christmas	Comoro	Mahe	Mauritius	Reunion
Chagos	Cocos	Kerguelen	Maldives	Mayotte	

Mexico:

BajaNorte	BajaSur	General
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Mideast:

Riyadh87	Riyadh88	Riyadh89
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Pacific:

Apia	Fakaofu	Honolulu	Midway	Pitcairn	Tahiti
Auckland	Fiji	Johnston	Nauru	Pohnpei	Tarawa
Chatham	Funafuti	Kiritimati	Niue	Ponape	Tongatapu
Chuuk	Galapagos	Kosrae	Norfolk	Port_Moresby	Truk
Easter	Gambier	Kwajalein	Noumea	Rarotonga	Wake
Efate	Guadalcanal	Majuro	Pago_Pago	Saipan	Wallis
Enderbury	Guam	Marquesas	Palau	Samoa	Yap

US:

Alaska	Central	Hawaii	Mountain
Aleutian	East-Indiana	Indiana-Starke	Pacific
Arizona	Eastern	Michigan	Samoa

(3) コマンドモード

Configure mode

(4) 実行例

Switch(config)#set time-zone Japan

3.21 snmp-server community

SNMP のコミュニティ名と権限を設定します。

no をコマンドの先頭に指定すると設定を削除します。

(1) コマンドフォーマット

```
snmp-server community WORD (ro | rw)
no snmp-server community WORD
```

(2) パラメータ

WORD コミュニティ名を入力します。（最大 32 文字）

(3) コマンドモード

Configure mode

(4) 実行例

```
Switch#configure terminal
Switch(config)#snmp-server community myComm rw
```

3.22 snmp-server enable snmp

SNMP 機能を有効にします。

no をコマンドの先頭に指定すると本機能を無効にします。

(1) コマンドフォーマット

```
snmp-server enable snmp
no snmp-server enable snmp
```

(2) パラメータ

指定するパラメータありません

(3) デフォルト

Enabled

(4) コマンドモード

Configure mode

(5) 実行例

```
Switch#configure terminal
Switch(config)#snmp-server enable snmp
```

3.23 snmp-server host

SNMP Trap の送信先を設定します。

no をコマンドの先頭に指定すると設定を削除します。

Note:

SNMP Trap を有効にした場合、サーバモジュールの ON/OFF 動作によりリンクトレーニングが行われるため、Trap が複数回送信されます。

(1) コマンドフォーマット

```
snmp-server host A.B.C.D traps version ((1 | 2c ) WORD)
snmp-server host A.B.C.D traps version 3 (noauth | auth | priv) WORD))
no snmp-server host A.B.C.D
```

(2) パラメータ

A.B.C.D	送信先 IP アドレス
traps	Trap を送信します。
version	バージョン
1	SNMP v1
2c	SNMP v2c
3	SNMP v3
noauth	認証を行いません。下位互換のための機能で、Trap メッセージは暗号化されずに送信されます。
auth	認証は行いますが、Trap メッセージは暗号化されずに送信されます。
priv	暗号化されたメッセージが送信されます。
WORD	コミュニティ名 (v1, v2c) 、または、ユーザ名 (v3) を指定します。

(3) コマンドモード

Configure mode

(4) 実行例

```
Switch#configure terminal
Switch(config)#snmp-server host A.B.C.D traps version 2c public
```

Trap で送信される OID 一覧を以下に示します。

OID	Descriptin
1.3.6.1.6.3.1.1.5.3	Link is down
1.3.6.1.6.3.1.1.5.4	Link is up
1.3.6.1.2.1.17.0.2	Topology is changed.
1.3.6.1.4.1.36613.1.1.1	TFO Feature
1.3.6.1.4.1.36613.1.1.2.1.3	The last two digits shows TFO MPG Port Number.
1.3.6.1.4.1.36613.1.1.2.1.4	The last two digits shows TFO CPG Port Number.
1.3.6.1.4.1.36613.1.1.2.1.6	Link Failure is detected on MPG.
1.3.6.1.4.1.36613.1.1.2.1.7	Link Failure is recovered on MPG
1.3.6.1.4.1.36613.1.1.2.1.8	Blocking State is detected on MPG
1.3.6.1.4.1.36613.1.1.2.1.9	Forwarding State is detected on MPG
1.3.6.1.4.1.36613.1.1.2.1.10	CPG is got auto enabled
1.3.6.1.4.1.36613.1.1.2.1.11	CPG is got auto disabled

3.24 snmp-server user

SNMP ユーザを作成します。

no をコマンドの先頭に指定すると設定を削除します。

(1) コマンドフォーマット

```
snmp-server user WORD ((auth (md5 | sha ) AUTH-PASSWORD) ((priv (des | aes)
PRIV-PASSWORD))
no snmp-server user USER-NAME
```

(2) パラメータ

WORD	ユーザ名（5～32文字）
auth	認証方法を指定します。
md5	Message Digest Algorithm 5 (MD5)
sha	Secure Hash Algorithm (SHA)
AUTH-PASSWORD	認証パスワード（8～33文字）
priv	暗号化方式を指定します。
des	Data Encryption Standard (DES)
aes	Advanced Encryption Standard (AES)
PRIV-PASSWORD	暗号化パスワード（8～33文字）

(3) コマンドモード

Configure mode

(4) 実行例

```
Switch#configure terminal
Switch(config)#snmp-server user Fred auth md5 XXX priv YYY
```

3.25 spanning-tree ageing-time

FDB の保存時間を設定します。学習した MAC アドレスは、本設定時間内にアクセスが無ければ削除されます。
no をコマンドの先頭に指定するとデフォルトに戻ります。

(1) コマンドフォーマット

```
spanning-tree ageing-time <10-840>  
no spanning-tree ageing-time
```

(2) パラメータ

<10-840> 保存時間を秒で指定します。

(3) デフォルト

デフォルトは 300 秒です。

(4) コマンドモード

Configure mode

(5) 実行例

```
Switch#configure terminal  
Switch(config)# spanning-tree ageing-time 100
```


3.26 spanning-tree errdisable-timeout

BPDU ガードの Error-Disable 機能を有効にします。また、再度インタフェースを有効にするまでのインターバル時間を設定します。

BPDU ガードが有効にされたインタフェースで BPDU を受信した場合、そのインタフェースはシャットダウンされます。Error-Disable 機能を有効にすると、シャットダウン後、インターバル時間が経過するとそのインタフェースは再度、有効化されます。

no をコマンドの先頭に指定すると本機能を無効にします。

(1) コマンドフォーマット

```
spanning-tree errdisable-timeout enable
spanning-tree errdisable-timeout interval <10-1000000>
no spanning-tree errdisable-timeout enable
no spanning-tree errdisable-timeout interval
```

(2) パラメータ

enable	Error-Disable 機能を有効にします。
interval	インターバル時間を設定します。
<10-1000000>	インターバル時間を秒で指定します。

(3) デフォルト

デフォルトでインターバル時間は 300 秒です。

(4) コマンドモード

Configure mode

(5) 実行例

```
Switch#configure terminal
Switch(config)# spanning-tree errdisable-timeout enable
```

3.27 spanning-tree forward-time

STP の転送遅延（ラーニング状態、フォワーディング状態へ移行するまでの待機時間）を指定します。本設定は本 NW スイッチモジュール全体で有効です。

no をコマンドの先頭に指定するとデフォルトに戻ります。

(1) コマンドフォーマット

```
spanning-tree forward-time <4-30>
no spanning-tree forward-time
```

(2) パラメータ

<4-30> 転送遅延を秒で指定します。

Note:

本設定は 8 秒以上が推奨値です。

(3) デフォルト

デフォルトは 15 秒です。

(4) コマンドモード

Configure mode

(5) 実行例

```
Switch#configure terminal
Switch(config)# spanning-tree forward-time 30
```

3.28 spanning-tree hello-time

hello 時間 (BPDU の送信間隔) を設定します。hello 時間を短くするとネットワーク負荷が上がります。また、hello 時間を長くすると、ネットワークのトポロジー変更の検出までの遅延が長くなる可能性があります。本設定は本 NW スイッチモジュール全体で有効です。

設定可能な範囲は、1 ～ 10 秒です。

no をコマンドの先頭に指定するとデフォルトに戻ります。

(1) コマンドフォーマット

```
spanning-tree hello-time <1-10>  
no spanning-tree hello-time
```

(2) パラメータ

<1-10> Hello 時間を秒で指定します。

(3) デフォルト

デフォルトは 2 秒です。

(4) コマンドモード

Configure mode

(5) 実行例

```
Switch#configure terminal  
Switch(config)#spanning-tree hello-time 1
```

3.29 spanning-tree max-age

最大エージング時間を設定します。本設定は、本 NW スイッチモジュール全体で有効です。最大エージング時間は、BPDUの有効時間を示します。最大エージング時間は、hello 時間の 2 倍 + 1 より大きな値を設定する必要がありますが、転送遅延時間の 2 倍 - 1 より小さい必要があります。

最大エージング時間の設定可能範囲は 6 ~ 40 秒です。最大エージング時間を大きくすることにより、ルートスイッチからの BPDU を最大エージング時間内に転送することが可能となります。

no をコマンドの先頭に指定するとデフォルトに戻ります。

(1) コマンドフォーマット

```
spanning-tree max-age <6-40>
no spanning-tree max-age
```

(2) パラメータ

<6-40> 最大エージング時間を秒で指定します。

(3) デフォルト

デフォルトは、20 秒です。

(4) コマンドモード

Configure Mode

(5) 実行例

```
Switch#configure terminal
Switch(config)# spanning-tree max-age 12
```

3.30 spanning-tree mode

本 NW スイッチモジュールのスパニングツリーの動作モードを変更します。

(1) コマンドフォーマット

```
spanning-tree mode (stp-vlan-bridge|rstp-vlan-bridge|mstp)
```

(2) パラメータ

mstp スパニングツリーの動作モードを MSTP にします。

rstp-vlan-bridge スパニングツリーの動作モードを RSTP にします。

stp-vlan-bridge スパニングツリーの動作モードを STP にします。

(3) デフォルト

rstp-vlan-bridge

(4) コマンドモード

Configure mode

(5) 実行例

```
Switch#configure terminal
Switch(config)#spanning-tree mode mstp
```

3.31 spanning-tree mst configuration

Multiple Spanning Tree (MST)の設定モードへ移行します。

(1) コマンドフォーマット

```
spanning-tree mst configuration
```

(2) パラメータ

指定するパラメータありません

(3) コマンドモード

Configure mode

(4) 実行例

```
Switch#configure terminal
Switch(config)#spanning-tree mst configuration
Switch(config-mst)#
```

3.32 spanning-tree priority

スイッチのプライオリティを設定します。通常、プライオリティの値が最も小さいスイッチがルートスイッチになります。プライオリティは、4096 の倍数で指定します。

no をコマンドの先頭に指定するとデフォルトに戻ります。

(1) コマンドフォーマット

```
spanning-tree priority <0-61440>  
no spanning-tree priority
```

(2) パラメータ

<0-61440> プライオリティ値

(3) デフォルト

デフォルトは、32768 (0x8000) です。

(4) コマンドモード

Configure mode

(5) 実行例

```
Switch#configure terminal  
Switch(config)# spanning-tree priority 4096
```

3.33 spanning-tree shutdown

NW スイッチモジュールのスパニングツリー機能を無効にします。

no をコマンドの先頭に指定するとデフォルトに戻ります。

(1) コマンドフォーマット

```
spanning-tree shutdown  
no spanning-tree shutdown
```

(2) パラメータ

指定するパラメータありません

(3) デフォルト

デフォルトでは、スパニングツリー機能は有効です。

(4) コマンドモード

Configure mode

(5) 実行例

```
Switch#configure terminal  
Switch(config)# spanning-tree shutdown
```

3.34 system restore default-config

NW スイッチモジュールの設定をすべてデフォルト状態に戻します。

(1) コマンドフォーマット

```
system restore default-config
```

(2) パラメータ

指定するパラメータありません

(3) コマンドモード

Configure mode

(4) 実行例

```
Switch#configure terminal
Switch(config)#system restore default-config
This task requires reboot system,
do you want to continue? (y/n): y
```

3.35 tacacs-server host

TACACS+サーバの設定を行います。

no をコマンドの先頭に指定すると設定を削除します。

(1) コマンドフォーマット

```
tacacs-server host A.B.C.D key WORD
no tacacs-server host A.B.C.D
no tacacs-server host A.B.C.D key WORD
```

(2) パラメータ

A.B.C.D	TACACS+サーバの IP アドレス
key	認証キーを設定します。
WORD	認証キー（最大 63 文字）

(3) コマンドモード

Configure mode

(4) 実行例

```
Switch#configure terminal
Switch(config)#tacacs-server host 203.0.113.31
```

3.36 tfo

TFO(Trigger failover)機能を有効にします。

(1) コマンドフォーマット

```
tfo (enable|disable)
```

(2) パラメータ

```
enable      TFO を有効にします。
disable     TFO を無効にします。
```

(3) デフォルト

```
Disabled
```

(4) コマンドモード

```
Configure mode
```

(5) 実行例

```
Switch#configure terminal
Switch(config)#tfo enable
```

3.37 username-remote

ユーザの追加、および、ユーザ権限の変更を行います。ユーザ権限を省略した場合、ユーザ権限は、network-user となります。

no をコマンドの先頭に指定すると設定を削除します。

(1) コマンドフォーマット

```
username-remote USERNAME password PASSWORD
username-remote USERNAME role ( network-admin |network-user ) password PASSWORD
no username-remote USERNAME
```

(2) パラメータ

```
USERNAME      ユーザ名   ( 2 ～15 文字)
PASSWORD      パスワード ( 8 ～ 3 2 文字)

network-admin ユーザ権限を network-admin に設定します。network-admin 権限のユーザはすべてのコマンドが使用可能です。

network-user  ユーザ権限を network-user に設定します。network-user 権限のユーザは、設定モードへの移行できません。(configure terminal コマンドが使用できません。)
```

(3) コマンドモード

```
Configure mode
```

(4) 実行例

```
Switch#configure terminal
Switch(config)#username-remote admin2 role network-admin password XXXXXXXX
```

3.38 vlan VLAN_RANGE

VLAN の作成を行います。

no をコマンドの先頭に指定すると設定を削除します。

(1) コマンドフォーマット

```
vlan VLAN_RANGE
vlan VLAN_RANGE state (enable | disable)
no vlan VLAN_RANGE
```

(2) パラメータ

VLAN_RANGE VLAN ID、もしくは、VLAN ID の範囲を指定します。複数インタフェースを指定する場合は「,」、範囲指定する場合は「-」で区切ります。

state 動作設定を行います。

enable VLAN を有効にします。

disable VLAN を無効にします。

(3) コマンドモード

Configure mode.

(4) 実行例

```
Switch(config)#vlan 100 state enable
```

4. Line Mode コマンド

4.1 exec-timeout

コンソール入力がなくなってから自動ログアウトするまでのタイムアウト時間を設定します。設定時間に「0」を設定すると自動ログアウトは行いません。

no をコマンドの先頭に指定するとデフォルトに戻ります。

(1) コマンドフォーマット

```
exec-timeout <0-35791> (<0-2147483>|)  
no exec-timeout (<0-35791>|) (<0-2147483>|)
```

(2) パラメータ

<0-35791> タイムアウト時間（分）を指定します。

<0-2147483> タイムアウト時間（秒）を指定します。

(3) デフォルト

10 分

(4) コマンドモード

Line mode

(5) 実行例

下記の例では、コンソール入力がなくなってから 2 分 30 秒後に自動ログアウトします。

```
Router#configure terminal  
Router(config)#line vty 0 10  
Router(config-line)#exec-timeout 2 30
```

5. Interface Mode コマンド

5.1 bandwidth

QSFP+モジュールインタフェースの動作モード（40G/10G）を変更します。

(1) コマンドフォーマット

```
bandwidth (40g | 10g)
```

(2) Parameter

40g QSFP+モジュールインタフェースは、40G で動作します。

10g QSFP+モジュールインタフェースは、10G×4 で動作します。

(3) デフォルト

40g

(4) コマンドモード

Interface mode

(5) 実行例

```
Switch#configure terminal
Switch(config)#interface Port45
Switch(config-if)#bandwidth 10g
```

5.2 channel-group mode

インタフェースをリンクアグリゲーショングループに追加し、リンクアグリゲーション（LACP）を設定します。
no をコマンドの先頭に指定すると設定を削除します。

Note :

同一のリンクアグリゲーショングループに追加する場合、各インタフェースの下記設定は同じである必要があります。

Bandwidth, VLAN ID, Port Mode, Flow Control, Storm Control.

Note :

サーバモジュールと 10G LAN モジュールで LACP を設定することはできません。

Note :

チャネルグループ番号が 0 となる設定は使用できません。

Windows の LBFO などチャネルグループ番号が 0 となる場合は、静的 LAG（static-channel-group）を使用してください。

(1) コマンドフォーマット

```
channel-group <1-65535> mode (active|passive)
no channel-group
```

(2) パラメータ

```
<1-65535>   チャネルグループ番号
mode        チャネルモードを指定します。
active      アクティブモード
passive     パッシブモード
```

(3) コマンドモード

Interface mode

(4) 実行例

```
Switch#configure terminal
Switch(config)#interface Port45
Switch(config-if)#channel-group 4 mode active
Switch#configure terminal
Switch(config)#interface eht0
Switch(config-if)#no channel-group
```

5.3 downlink-port flowcontrol

モジュールスロット（Port1～44）、および、NW スイッチモジュール間インターフェース（Port78）のフロー制御の設定を行います。

フロー制御を有効にした場合、実際のフロー制御設定は、ペアデバイスとのオートネゴにより決定されます。

no をコマンドの先頭に指定すると本機能を無効にします。

Note:

本コマンドによるフロー制御の OFF は一時的な設定変更のみ可能です。フロー制御を常時 OFF にする場合は、OS 側の設定でフロー制御を OFF にしてください。

Note:

Interconnect Port (Port78) のフロー制御は ON です。

(1) コマンドフォーマット

```
downlink-port flowcontrol (enable | disable)
```

(2) パラメータ

enable フロー制御（オートネゴ）を ON にします。

disable フロー制御（オートネゴ）を OFF にします。

(3) デフォルト

Enabled

(4) コマンドモード

Interface mode

(5) 実行例

```
Switch#configure terminal
Switch(config)#interface Port1
Switch(config-if)# downlink-port flowcontrol enable
```

5.4 flowcontrol

QSFP+ポート（Port45～76）のフロー制御の設定を行います。

no をコマンドの先頭に指定すると本機能を無効にします。

(1) コマンドフォーマット

```
flowcontrol both
flowcontrol send (on | off)
flowcontrol receive (on | off)
no flowcontrol
```

(2) パラメータ

both	TX/RX のフロー制御を有効にします。
send	TX のフロー制御を設定します。
receive	RX のフロー制御を設定します。
off	フロー制御を OFF にします。
on	フロー制御を ON にします。

(3) デフォルト

Disabled

(4) コマンドモード

Interface mode

(5) 実行例

```
Switch#configure terminal
Switch(config)#interface Port45
Switch(config-if)#flowcontrol both
```

5.5 fog type

各インタフェースに FOG の MPG(Monitor Port Group) または、CPG (Control Monitor Group).を設定します。
no をコマンドの先頭に指定すると設定を削除します。

Note:

FOG から全てのインタフェースを削除する場合は、事前に fog disable コマンドで FOG を無効にしてください。

(1) コマンドフォーマット

```
fog <1-33> type (mpg|cpg)
no fog <1-33> type (mpg|cpg)
```

(2) パラメータ

<1-33> FOG ID

mpg MPG を設定します。MPG は、Port45～77 に指定可能です。

cpg CPG を設定します。CPG は、Port1～44 に指定可能です。

(3) コマンドモード

Interface mode

(4) 実行例

```
Switch#configure terminal
Switch#interface Port45
Switch(config-if)#fog 1 type mpg
```

5.6 ip access-group

IP Access List を設定します。本コマンドは、送信パケット、または、受信パケットに対して設定可能です。

LAG ポートに IP アクセスリストを設定する場合は、LAG を構成するインタフェースに本設定を行ってください。

no をコマンドの先頭に指定すると設定を削除します。

(1) コマンドフォーマット

```
ip access-group (<100-199>|<2000-2699>) (in | out)
no ip access-group (<100-199>|<2000-2699>) (in | out)
```

(2) パラメータ

<100-199>|<2000-2699>

IP Access List の番号を指定します。

in 受信パケットに適用します。

out 送信パケットに適用します。

(3) コマンドモード

Interface mode

(4) 実行例

```
Switch#configure terminal
Switch(config)# access-list 101 deny ip any any
Switch(config)#interface 45
Switch(config-if)#ip access-group 101 in
```

5.7 ip address

管理インタフェースの IP アドレスを設定します。

(1) コマンドフォーマット

```
ip address A.B.C.D/M
ip address dhcp
```

(2) パラメータ

A.B.C.D/M スタティック IP アドレスを設定する場合、IP アドレスを指定します。

dhcp IP アドレスは、DHCP サーバより取得します。

(3) デフォルト

dhcp

(4) コマンドモード

Interface mode

(5) 実行例

```
Switch(config)#interface mgmt
Switch(config-if)#ip address 10.192.168.1/24
```

5.8 lacp timeout

LACP のタイムアウト時間 (short/long) を設定します。タイムアウト値は、LACP パケットの有効時間を意味します。

(1) コマンドフォーマット

```
lacp timeout (short|long)
```

(2) パラメータ

short Short Timeout (3 秒)

long Long Timeout (90 秒)

Default

(3) デフォルト

デフォルトは、Long Timeout です。

(4) コマンドモード

Interface mode

(5) 実行例

The following sets the LACP short timeout on a port.

```
Switch#configure terminal
Switch(config)#interface Port45
Switch(config-if)#lacp timeout short
```

5.9 lldp agent

LLDP の設定を行う、LLDP Agent モードに移行します。

(1) コマンドフォーマット

```
lldp-agent
```

(2) パラメータ

指定するパラメータありません

(3) コマンドモード

Interface Mode

(4) 実行例

```
Switch#configure terminal
Switch(config)#interface Port45
Switch(config-if)#lldp-agent
```

5.10 mac access-group

MAC Access List を設定します。本コマンドは、送信パケットに対して設定可能です。

Mac access list は、LAG ポートへの設定はできません。

no をコマンドの先頭に指定すると設定を削除します。

(1) コマンドフォーマット

```
mac access-group (<100-199>|<2000-2699>) in
no mac access-group (<100-199>|<2000-2699>)
```

(2) パラメータ

<100-199>|<2000-2699> MAC Access List の番号を指定します。

(3) コマンドモード

Interface mode

(4) 実行例

```
Switch#configure terminal
Switch(config)# access-list 103 deny mac any any
Switch(config)#interface 45
Switch(config-if)#mac access-group 103 in
```

5.11 mirror

ミラーポートの設定を行います。本コマンドは各インタフェース個別で設定を行う必要があります。また、ミラー設定は同じタイプのインターフェースである必要があります。

no をコマンドの先頭に指定すると本機能を無効にします。

Note:

mirror コマンドは、Port1-44, 45, 49, 53, 57, 61, 65, 69 and 73 に対して使用可能です。

(1) コマンドフォーマット

```
mirror interface IFNAME direction both
mirror interface IFNAME direction receive
mirror interface IFNAME direction transmit
no mirror interface IFNAME
no mirror interface IFNAME direction receive
no mirror interface IFNAME direction transmit
```

(2) パラメータ

IFNAME	ミラーするインタフェースを指定します。
direction	ミラーするパケットの通信方向を指定します。設定可能な項目は以下となります。
both	送信・受信パケットをミラーします。
receive	受信パケットをミラーします。
transmit	送信パケットをミラーします。

(3) コマンドモード

Interface mode

(4) 実行例

```
Switch#configure terminal
Switch(config)#interface Port45
Switch(config-if)#mirror interface Port49 direction both
```

5.12 shutdown

インタフェースをシャットダウンします。

no をコマンドの先頭に指定すると本機能を無効にします。

(1) コマンドフォーマット

```
shutdown  
no shutdown
```

(2) パラメータ

指定するパラメータありません

(3) コマンドモード

Interface mode

(4) 実行例

The following example shows the use of the `shutdown` command to shut down the interface called `Port45`.

```
Switch#configure terminal  
Switch(config)#interface Port45  
Switch(config-if)#shutdown
```

5.13 spanning-tree bpdu-guard

BUDU ガード機能の有効・無効を設定します。default に設定した場合は、スイッチ全体の設定(デフォルトは無効)に従います。BPDU ガードの現在の設定を確認するには、show spaninning-tree コマンドを使用してください。

no をコマンドの先頭に指定すると本機能を無効にします。

(1) コマンドフォーマット

```
spanning-tree bpdu-guard (enable | disable | default)
no spanning-tree bpdu-guard
```

(2) パラメータ

default	スイッチ全体の設定に従います。
disable	BPDU ガード機能を無効にします。
enable	BPDU ガード機能を有効にします。

(3) デフォルト

default (spanning-tree bpdu-guard は無効です。)

(4) コマンドモード

Interface mode

(5) 実行例

```
Switch#configure terminal
Switch(config)#interface Port45
Switch(config-if)#spanning-tree bpdu-guard enable
Switch(config-if)#no spanning-tree bpdu-guard
```

5.14 spanning-tree disable

スパニングツリーを無効にします。

Note:

LAG ポートのスパニングツリーを無効にする必要がある場合は、「spanning-tree shutdown」コマンドによりスイッチ全体のスパニングツリーを無効にしてください。

(1) コマンドフォーマット

```
spanning-tree disable
```

(2) パラメータ

指定するパラメータありません

(3) デフォルト

Port1-44, Port78, internal : スパニングツリー無効

Port45-76 : スパニングツリー有効

(4) コマンドモード

Interface mode

(5) 実行例

```
Switch#configure terminal
Switch(config)#interface Port45
Switch(config-if)#spanning-tree disable
```

5.15 spanning-tree enable

スパニングツリーを有効にします。

(1) コマンドフォーマット

```
spanning-tree enable
```

(2) パラメータ

指定するパラメータありません

(3) デフォルト

Port1-44, Port78, internal : スパニングツリー無効

Port45-76 : スパニングツリー有効

(4) コマンドモード

Interface mode

(5) 実行例

```
Switch#configure terminal
Switch(config)#interface Port45
Switch(config-if)#spanning-tree enable
```

5.16 spanning-tree instance

MST インスタンスを設定します。

no をコマンドの先頭に指定すると設定を削除します。

(1) コマンドフォーマット

```
spanning-tree instance <1-63>  
no spanning-tree instance <1-63>
```

(2) パラメータ

<1-63> インスタンス ID

(3) コマンドモード

Interface mode

(4) 実行例

```
Switch#configure terminal  
Switch(config)#interface Port45  
Switch(config-if)# spanning-tree instance 1
```

5.17 spanning-tree instance path-cost

MSTP のインスタンス パスコストを設定します。

本コマンド実行前に、bridge-group instance コマンドにより、インスタンスを作成してください。

no をコマンドの先頭に指定するとデフォルトに戻ります。

(1) コマンドフォーマット

```
spanning-tree instance <1-63> path-cost <1-2000000000>
no spanning-tree instance <1-63> path-cost
```

(2) パラメータ

<1-63> インスタンス ID を指定します。

<1-2000000000> パスコストを指定します。

(3) デフォルト

1G :20000

10G :2000

40G :500

(4) コマンドモード

Interface mode

(5) 実行例

```
Switch#configure terminal
Switch(config)#spanning-tree mst configuration
Switch(config-mst)# spanning-tree instance 3 vlan 3
Switch(config-mst)#exit
Switch(config)#interface Port45
Switch(config-if)# spanning-tree instance 3
Switch(config-if)# spanning-tree instance 3 path-cost 1000
```

5.18 spanning-tree instance port-priority

MSTP インスタンスのポートプライオリティを設定します。

(1) コマンドフォーマット

```
spanning-tree instance (<1-63>) port-priority <0-240>
```

(2) パラメータ

<0-240> ポートプライオリティを指定します。ポートプライオリティは、16 の倍数となります。

(3) デフォルト

128.

(4) コマンドモード

Interface mode

(5) 実行例

```
Switch(config)#interface Port45  
Switch(config-if)# spanning-tree instance 4 priority 64
```

5.19 spanning-tree path-cost

パスコストを設定します。パスコストがより低いインタフェースが、ルートポートに設定されます。

no をコマンドの先頭に指定するとデフォルトに戻ります。

(1) コマンドフォーマット

```
spanning-tree path-cost <1-2000000000>  
no spanning-tree path-cost
```

(2) パラメータ

<1-2000000000> パスコストを指定します。

(3) デフォルト

RSTP/MSTP

1G	:20000
10G	:2000
40G	:500

STP

1G	:4
10G	:2
40G	:1

(4) コマンドモード

Interface mode

(5) 実行例

```
Switch#configure terminal  
Switch(config)#interface Port45  
Switch(config-if)# spanning-tree path-cost 123
```

5.20 spanning-tree portfast

インタフェースをポートファースト（エッジポート）モードに設定します。

no をコマンドの先頭に指定するとデフォルトに戻ります。

Note:

本コマンドは、スイッチを接続しないインタフェースのみに設定してください。

(1) コマンドフォーマット

```
spanning-tree portfast
no spanning-tree portfast
```

(2) パラメータ

指定するパラメータありません

(3) コマンドモード

Interface mode

(4) 実行例

```
Switch#configure terminal
Switch(config)#interface Port45
Switch(config-if)#spanning-tree portfast
```

5.21 spanning-tree port-priority

ポートプライオリティを設定します。ポートプライオリティのより低いインタフェースがルートになります。

(1) コマンドフォーマット

```
spanning-tree priority <0-240>
```

(2) パラメータ

<0-240> ポートプライオリティを 16 の倍数で指定します。

(3) デフォルト

128.

(4) コマンドモード

Interface mode

(5) 実行例

```
Switch#configure terminal
Switch(config)#interface Port45
Switch(config-if)# spanning-tree priority 96
```

5.22 static-channel-group

静的 LAG（Link Aggregation）の作成、インタフェースの追加を行います。

no をコマンドの先頭に指定すると静的 LAG からインタフェースを削除します。

Note :

同一 LAG に設定するインタフェースは、以下のパラメータは同じ設定としてください。

Bandwidth, VLAN ID, Port Mode, Flow Control, Storm Control.

Note :

サーバモジュールと 10G LAN モジュールで静的 LAG を設定することはできません。

(1) コマンドフォーマット

```
static-channel-group <1-65535>  
no static-channel-group
```

(2) Parameter

<1-65535> チャンネルグループ ID

(3) コマンドモード

Interface mode

(4) 実行例

```
Switch#configure terminal  
Switch(config)#interface Port45  
Switch(config-if)#static-channel-group 2
```

5.23 storm-control

ブロードキャスト、マルチキャスト、DLF（未学習アドレス）に関するストームコントロールを設定します。トラフィックが指定した使用率に達した場合、ストームコントロール機能により通信をブロックします。

no をコマンドの先頭に指定すると本機能を無効にします。

(1) コマンドフォーマット

```
storm-control (broadcast|multicast|dlf) level LEVEL
no storm-control (broadcast|multicast|dlf) level
```

(2) パラメータ

broadcast	ブロードキャスト
multicast	マルチキャスト
dlf	DLF (未学習アドレス)
level	閾値を指定します。
LEVEL	閾値をインタフェースの通信速度の 0～100%で指定します。

(3) デフォルト

Disabled.

(4) コマンドモード

Interface mode

(5) 実行例

```
Switch#configure terminal
Switch(config)#interface Port45
Switch(config-if)#storm-control broadcast level 30
Switch(config)#interface Port45
Switch(config-if)#storm-control multicast broadcast level 30
Switch(config)#interface Port45
Switch(config-if)#no storm-control multicast level
```

5.24 switchport access

アクセスポートの VLAN ID を設定します。

no をコマンドの先頭に指定するアクセスポートは、VLAN ID = 1 に戻ります。

(1) コマンドフォーマット

```
switchport access vlan <2-4094>
no switchport access vlan
```

(2) Parameter

<2-4094> VLAN ID を指定します。

(3) コマンドモード

Interface mode

(4) 実行例

This example shows the steps of a typical VLAN session, creating and destroying a VLAN.

```
Switch#configure terminal
Switch(config)#interface Port45
Switch(config-if)#switchport access vlan 3
Switch(config)#interface Port45
Switch(config-if)#no switchport access vlan
```

5.25 switchport mode access

インタフェースをアクセスポートに変更します。アクセスポートでは、タグ付きの通信はできません。

Note:

ポートモードを変更すると、VLAN ID は 1 にリセットされます。他の VLAN ID を使用する場合は、本コマンド実行前に、インタフェースをシャットダウンしてください。

(1) コマンドフォーマット

```
switchport mode access
```

(2) パラメータ

指定するパラメータありません

(3) コマンドモード

Interface mode

(4) 実行例

```
Switch#configure terminal
Switch(config)#interface Port45
Switch(config-if)#switchport mode access
```

5.26 switchport mode trunk

インタフェースをトランクポートに変更します。トランクポートでは、タグ付き、タグ無しの通信が可能です。

Note:

ポートモードを変更すると、VLAN ID は 1 にリセットされます。他の VLAN ID を使用する場合は、本コマンド実行前に、インタフェースをシャットダウンしてください。

(1) コマンドフォーマット

```
switchport mode trunk
```

(2) パラメータ

指定するパラメータありません

(3) コマンドモード

Interface mode

(4) 実行例

```
Switch#configure terminal
Switch(config)#interface Port45
Switch(config-if)#switchport mode trunk
```

5.27 switchport trunk allowed

トランクポートに VLAN の設定を行います。VLAN を範囲指定をする場合は、「-」（ハイフン）でつなげてください。複数の VLAN を指定する場合は、「,」（コンマ）で区切ってください。

no をコマンドの先頭に指定すると VLAN ID は削除されます。

(1) コマンドフォーマット

```
switchport trunk allowed vlan all
switchport trunk allowed vlan none
switchport trunk allowed vlan add VLAN_ID
switchport trunk allowed vlan except VLAN_ID
switchport trunk allowed vlan remove VLAN_ID
no switchport trunk
```

(2) パラメータ

all	全ての VLAN を通信可能にします。
none	タグ付き通信を不可にします。
add	指定した VLAN をトランクポートに追加します。
VLAN_ID	VLAN ID を指定します。
except	指定した VLAN 以外の VLAN 全てをトランクポートに追加します。
VLAN_ID	VLAN ID を指定します。
remove	指定した VLAN をトランクポートから削除します。
VLAN_ID	VLAN ID を指定します。

(3) コマンドモード

Interface mode

(4) 実行例

下記の実行例では、該当インタフェースを VLAN 2 に追加します。

```
Switch(config)#interface Port45
Switch(config-if)#switchport trunk allowed vlan add 2
```

下記の実行例では、該当インタフェースを VLAN 2 から VLAN 4 に追加します。

```
Switch(config)#interface Port45
Switch(config-if)#switchport trunk allowed vlan add 2-4
```

5.28 switchport trunk native

トランクポートのネイティブ VLAN を指定します。ネイティブ VLAN は、タグ無し通信で使用する VLAN です。
no をコマンドの先頭に指定するとネイティブ VLAN は、VLAN ID = 1 に戻ります。

(1) コマンドフォーマット

```
switchport trunk native vlan <2-4094>  
no switchport trunk native vlan
```

(2) Parameter

<2-4094> VLAN ID

(3) コマンドモード

Interface mode

(4) 実行例

```
Switch#configure terminal  
Switch(config)#interface Port45  
Switch(config-if)#switchport trunk native vlan 2  
Switch(config)#interface Port45  
Switch(config-if)#no switchport trunk native vlan
```

6. MSTP Configuration Mode コマンド

6.1 instance vlan

VLAN のインスタンスを作成します。本コマンドは、VLAN を作成した後に実施してください。

no をコマンドの先頭に指定すると設定を削除します。

Note:

インスタンスのプライオリティは、32768 に固定されています。

(1) コマンドフォーマット

```
instance <1-63> vlan VLANID  
no instance <1-63> vlan VLANID
```

(2) パラメータ

<1-63>	インスタンス ID
VLANID	VLAN を指定します。VLAN を範囲指定をする場合は、「-」（ハイフン）でつなげてください。複数の VLAN を指定する場合は、「,」（コンマ）で区切ってください。

(3) コマンドモード

MST configure mode

(4) 実行例

```
Switch#configure terminal  
Switch(config)#spanning-tree mst configuration  
Switch(config-mst)#instance 2 vlan 30
```

6.2 region

MSTP のリージョン名を設定します。

(1) コマンドフォーマット

```
region REGION_NAME
```

(2) パラメータ

REGION_NAME リージョン名

(3) デフォルト

デフォルトのリージョン名は「Default」です。

(4) コマンドモード

MST configure mode

(5) 実行例

```
Switch#configure terminal
Switch(config)#spanning-tree mst configuration
Switch(config-mst)#region ABC
```

6.3 revision

MSTP のリビジョンを設定します。

(1) コマンドフォーマット

```
revision <0-65535>
```

(2) パラメータ

<0-65535> リビジョンを指定します。

(3) デフォルト

デフォルトの Revision は 0 です

(4) コマンドモード

MST configure mode

(5) 実行例

```
Switch#configure terminal
Switch(config)#spanning-tree mst configuration
Switch(config-mst)#revision 25
```

7. LLDP Agent Mode コマンド

7.1 lldp tlv-select

LLDP に含む TLV セットを設定します。

no をコマンドの先頭に指定すると設定を削除します。

(1) コマンドフォーマット

```
lldp tlv-select {basic-mgmt| ieee-8021-org-specific| ieee-8023-org-specific}
no lldp tlv-select {basic-mgmt| ieee-8021-org-specific| ieee-8023-org-specific}
```

(2) パラメータ

basic-mgmt	Basic management specific TLV.
ieee-8021-org-specific	IEEE 802.1 organizationally-specific TLV.
ieee-8023-org-specific	IEEE 803.1 organizationally-specific TLV

(3) デフォルト

Disabled

(4) コマンドモード

LLDP Agent mode

(5) 実行例

```
Switch#configure terminal
Switch(config)#interface Port45
Switch(config-if) lldp-agent
Switch(lldp-agent)#lldp tlv-select basic-mgmt
Switch(lldp-agent)#exit
```

7.2 set lldp disable

LLDP エージェントを無効にします。

(1) コマンドフォーマット

```
set lldp disable
```

(2) パラメータ

指定するパラメータありません

(3) デフォルト

デフォルトでは、LLDP エージェントは無効です。

(4) コマンドモード

Interface mode

(5) 実行例

```
Switch#configure terminal
Switch(config)#interface Port45
Switch(config-if)#set lldp disable
```

7.3 set lldp enable

LLDP エージェントを有効にします。

(1) コマンドフォーマット

```
set lldp enable (txonly|txrx|rxonly)
```

(2) パラメータ

Rxonly	受信のみ有効にします。
txonly	送信のみ有効にします。
txrx	送受信とも有効にします。

(3) デフォルト

デフォルトでは、LLDP エージェントは無効です。

(4) コマンドモード

Interface mode

(5) 実行例

```
Switch#configure terminal
Switch(config)#interface Port45
Switch(config-if)#set lldp enable txrx
```

改版履歴

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2016 年 2 月	新規作成
2016 年 9 月	5.2 channel-group mode の Note 追記 5.22 static-channel-group の Note 追記

NEC Scalable Modular Server

DX2000
NW スイッチ
コマンド リファレンス

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