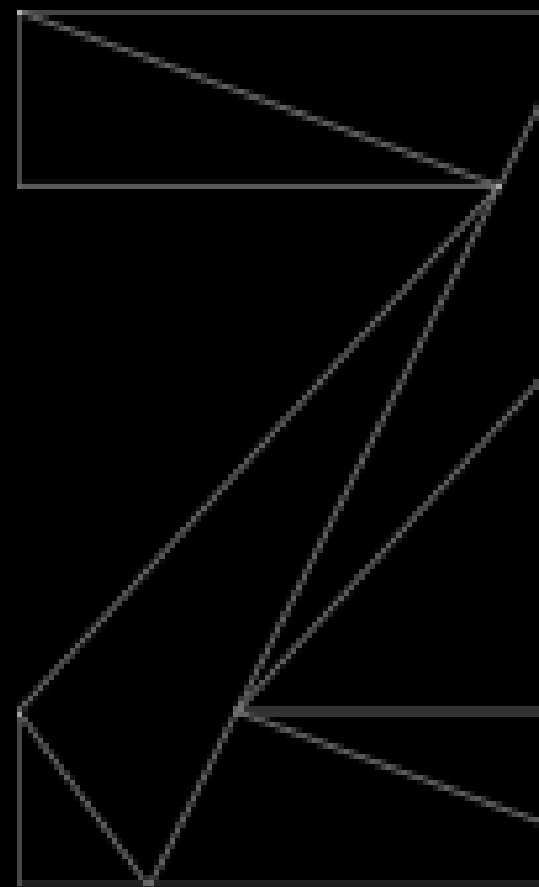


---

# Change set

IBM Z



# Change set

---

VARY OBEY is supported in Network Configuration Assistant by introducing a new configuration object called a “Change Set”

- You create a change set based on an existing configuration object
  - a stack or group of stacks, or
  - a reusable configuration, or
  - a sysplex
- The change set is seeded with the configuration from the object it's based on.
- You edit the change set to make the configuration changes you want.
- When you install the change set, Network Configuration Assistant will generate the VARY OBEY files necessary to put the changes you made into effect.
- The VARY OBEY files, once placed onto the system are manually applied by the operator
  - Provides an opportunity for review of the OBEY files before they are applied to production systems. Customer feedback indicated this was important.

# Additional change set capabilities

---

- You can undo a change set
  - This will create the OBEY files necessary to put the configuration back the way it was before any edits were made in the change set
    - This supports the use case of making a temporary change that can easily be removed.
      - Or to back off an erroneous change!
- You can merge change sets into the base
  - Once the OBEY files are applied this makes the change permanent
  - Customer feedback indicated to us that the main use case was to create an OBEY file, apply the change, then update the base configuration to reflect that change
    - For example: add a PORT reservation for a new application

# Change sets are accessible from the TCP/IP systems tree

Welcome x Configuration A... x

Configuration Assistant (Home) ▶ TCP/IP Profile

V2R2 Current Backing Store is MJF\_DEMO

Select a TCP/IP technology to configure : TCP/IP Profile ▼

Systems Reusable Configuration Security Reusable Resources **Change Sets**

Actions ▼

✚ No filter applied

	System Group or Sysplex / System Image / Stack <a href="#">Filter</a>	Type <a href="#">Filter</a>	Status <a href="#">Filter</a>	Install Status
<input type="radio"/>	Default	System Group	Complete	
<input type="radio"/>	DEFIMG	System Image	Complete	Not applicable
<input type="radio"/>	DEFSTK	Stack	Complete	Installed
<input type="radio"/>	PLEX1	Sysplex	Complete	Synchronized

Total: 16 Selected: 0

Home Save

Welcome x Configuration A... x

Configuration Assistant (Home) ▶ TCP/IP Profile

V2R2 Current Backing Store is MJF\_DEMO

Select a TCP/IP technology to configure : TCP/IP Profile ▼

Systems Reusable Configuration Security Reusable Resources **Change Sets**

Actions ▼

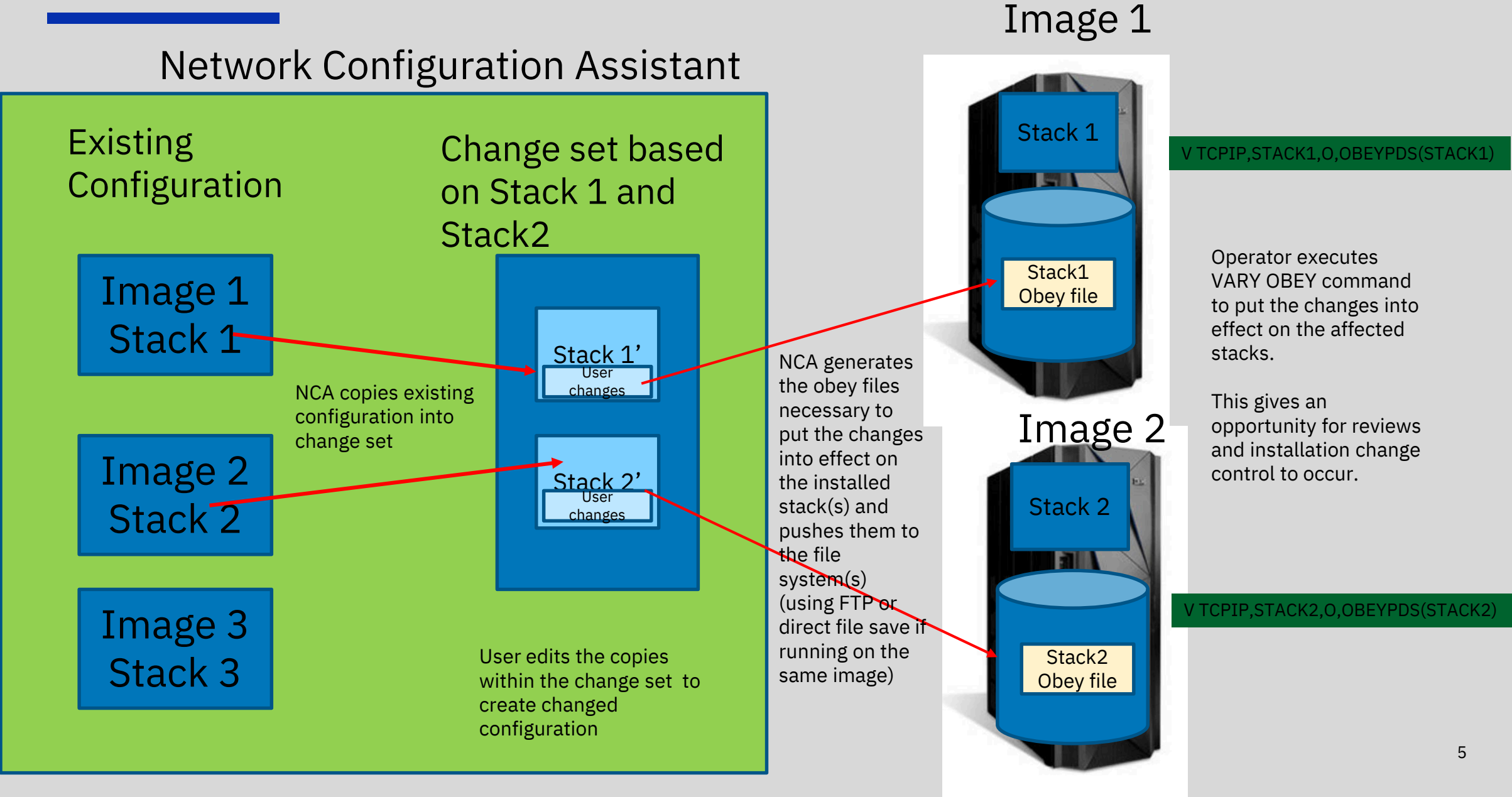
- Modify...
- Delete
- Configure Change Set
- Validate against base
- Manage stacks for RC Change Sets
- Configure RC symbol changes
- Merge Change Set into Base
- New...**
- Manage Change Set Installs
- Hide Filter Row
- Clear Sorts

Install Status <a href="#">Filter</a>	Validation Pass <a href="#">Filter</a>	Time Created <a href="#">Filter</a>	Time Updated <a href="#">Filter</a>
There is no data to display.			

Total: 0 Selected: 0

Home Save

# Illustration: Change sets based on TCP/IP stacks



# Create a stack change set

Welcome x Configuration A... x

Configuration Assistant (Home) > TCP/IP Profile > Change Set

### New Change Set

👉 Name and description  
Select the configuration for profile change

**Name and description**

\* Name:  
CS1

Description:  
A change set for stacks

A change set allows for changing active TCP/IP stack configuration. Create the change set and then select the configuration to change. You can change either base stack configuration or reusable configuration in a change set.

Select the type of configuration to be changed:

☒ Stacks  
☐ Sysplex  
☐ Reusable Configuration

< Back Next > Finish Cancel

- A stack change set can be based on one or more stacks
- A stack change set can only be based on stacks that are installed (note that LPAR3.STACK3 is not available for selection!)

Welcome x Configuration A... x

Configuration Assistant (Home) > TCP/IP Profile > Change Set

### New Change Set CS1

✓ Name and description  
👉 Select the configuration for profile change

**Select the configuration for profile change**

Select the configuration to be changed

Actions ▾

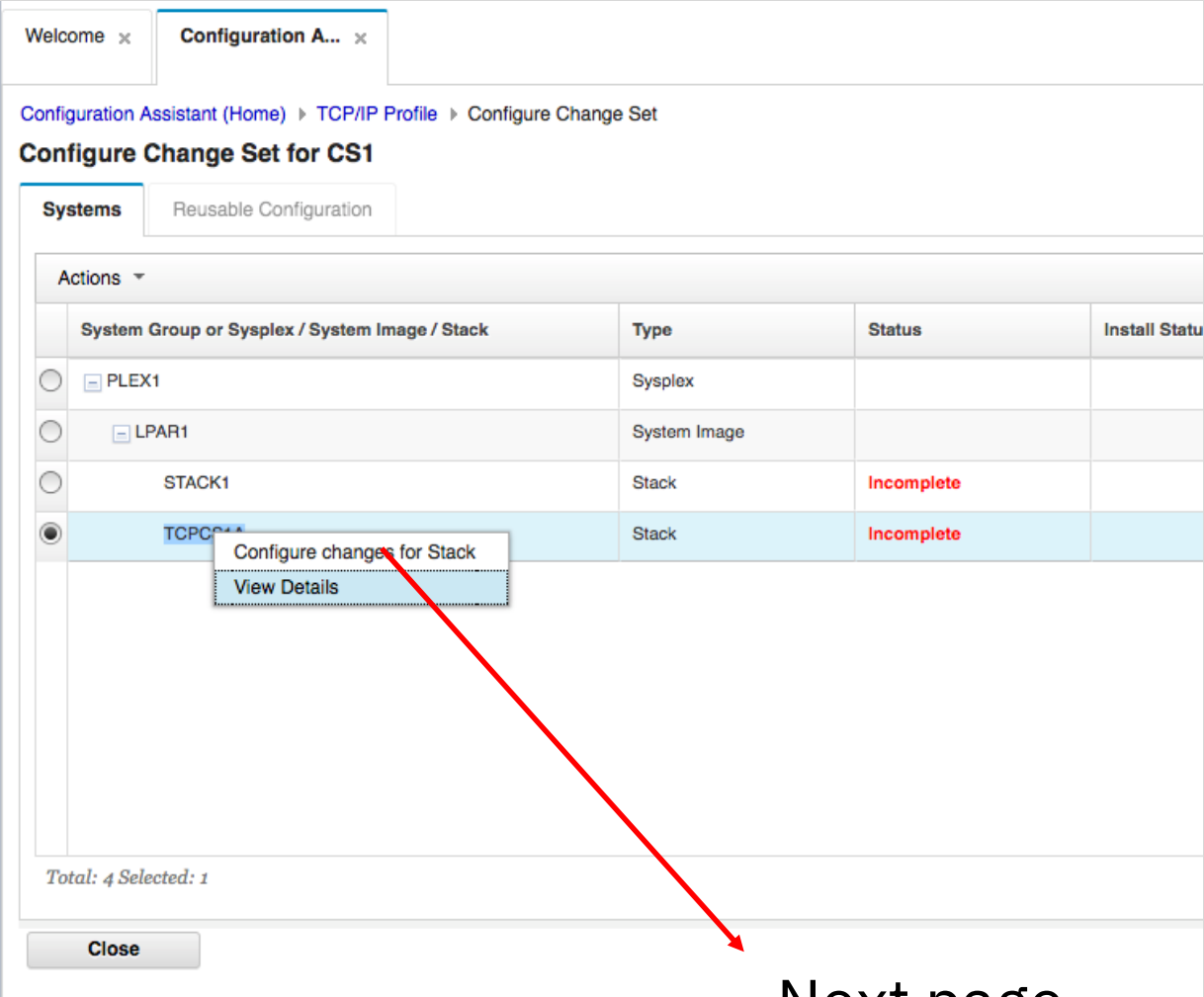
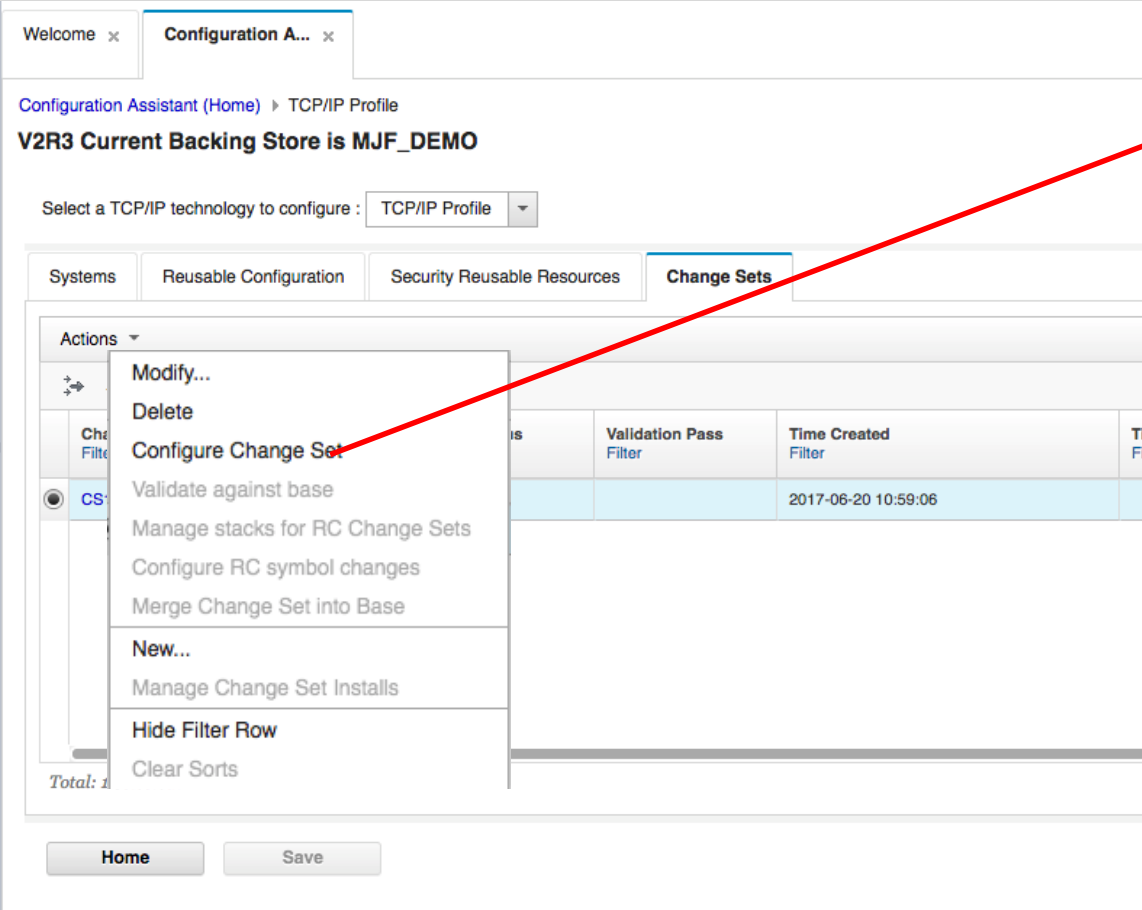
	System Group or Sysplex / System Image / Stack	Install Status
<input type="checkbox"/>	PLEX1	
<input checked="" type="checkbox"/>	LPAR1.STACK1	Installed
<input checked="" type="checkbox"/>	LPAR1.TCPCS1A	Installed
<input type="checkbox"/>	LPAR2.STACK2	Installed
<input type="checkbox"/>	LPAR3.STACK3	Needs install
<input type="checkbox"/>	LPAR4.STACK4	Installed
<input type="checkbox"/>	PLEX2	
<input type="checkbox"/>	LPAR5.STACK5	Installed
<input type="checkbox"/>	Default	

Total: 10 Selected: 2

< Back Next > Finish Cancel

Next page

# Edit created stack change set



If there are multiple stacks in a change set, you edit them one at a time

Next page

# Editing a stack in a change set

Welcome x Configuration A... x

Configuration Assistant (Home) > TCP/IP Profile > Configure Change Set > TCP/IP Profile: PLEX1.LPAR1.STACK1.CS1

Changeset CS1 for TCP/IP Profile for Group PLEX1, System Image LPAR1, Stack STACK1

Configure

Use the following links to create and modify TCP/IP resources to define this stack's profile configuration.

TCP/IP Stack Resources	Base Status	Change Set Status
Interfaces: Attach to networks	Configured	Not updated
Routes: Connect to other systems	Configured	Not updated
Ports: Reserve ports for TCP/IP applications	Configured	Not updated
Security: Control network access to and from the system	Configured	Not updated
Source IP Addressing: Control outbound connection source IP addressing	Not configured	Not updated
Performance and Protocol: Tune your TCP/IP stack	Configured	Not updated
Management and Traces: Enable TCP/IP stack systems management and diagnosis	Not configured	Not updated

Close Save

To configure changes, Simply edit the stack as you would normally using the GUI

Welcome x Configuration A... x

Configuration Assistant (Home) > TCP/IP Profile > Configure Change Set > TCP/IP Profile: PLEX1.LPAR1.STACK1.CS1 > Performance and Protocol

Configure Performance and Protocol Properties

Global Settings and Configuration Status

Settings	Base Status	Change Set Status
TCP protocol settings...	Configured	Not updated
UDP protocol settings...	Configured	Not updated
IP protocol settings...	Not configured	Not updated
Shared Memory Communications Settings...	Not configured	Not updated
Shared Memory Communications over Remote Direct Memory Access (SMC-R) Settings...	Configured	Not updated
Shared Memory Communications - Direct Memory Access (SMC-D)...	Not configured	Not updated
Global network device layer optimization settings...	Not configured	Not updated
TCP/IP storage tuning...	Not configured	Not updated

Close Save

Next page

“Change Set Status” column indicates where changes have been made



# Change a parameter for the change set

Welcome x Configuration A... x

Configuration Assistant (Home) > TCP/IP Profile > Configure Change Set > TCP/IP Profile: PLEX1.LPAR1.STACK1.CS1 > Performance and Protocol > TCP protocol settings

### TCP protocol settings

Buffer and Limits KeepAlive Protocol Settings Retransmission

Global Property Setting:  
Maximum number of backlog entries for a server's listening socket  
2222 Range is 1 to 2147483647. Default is 1024.

Receive buffer properties

**Maximum receive buffer size an application can set**  
333 Kilobytes Range is the value coded on **Default** receive buffer size for application - 2048 kilobytes. Default is 256 kilobytes.  
(Current Range is 64 Kilobytes to 2048 Kilobytes)

**Default receive buffer size for applications that do not explicitly set a size**  
Kilobytes Range is 256 bytes - value coded on **Maximum** receive buffer size. Default is 64 kilobytes.  
(Current Range is 1 Kilobytes to 333 Kilobytes)

Send buffer properties

**Maximum send buffer size an application can set**  
Kilobytes Range is the value coded on **Default** send buffer size for application - 2048 kilobytes. Default is 256 kilobytes.  
(Current Range is 64 Kilobytes to 256 Kilobytes)

OK Cancel

Welcome x Configuration A... x

Configuration Assistant (Home) > TCP/IP Profile > Configure Change Set > TCP/IP Profile: PLEX1.LPAR1.STACK1.CS1 > Performance and Protocol > TCP protocol settings

### TCP protocol settings

Buffer and Limits KeepAlive Protocol Settings Retransmission

Global Property Setting:  
Maximum number of backlog entries for a server's listening socket  
2222 Range is 1 to 2147483647. Default is 1024.

Receive buffer properties

**Maximum receive buffer size an application can set**  
577 Kilobytes Range is the value coded on **Default** receive buffer size for application - 2048 kilobytes. Default is 256 kilobytes.  
(Current Range is 64 Kilobytes to 2048 Kilobytes)

**Default receive buffer size for applications that do not explicitly set a size**  
Kilobytes Range is 256 bytes - value coded on **Maximum** receive buffer size. Default is 64 kilobytes.  
(Current Range is 1 Kilobytes to 577 Kilobytes)

Send buffer properties

**Maximum send buffer size an application can set**  
Kilobytes Range is the value coded on **Default** send buffer size for application - 2048 kilobytes. Default is 256 kilobytes.  
(Current Range is 64 Kilobytes to 256 Kilobytes)

OK Cancel

In this example, we simply edited the Maximum receive buffer value, changing it from 333 to 577 kilobytes

Next page

# Seeing what updates were made

Welcome x Configuration A... x

Configuration Assistant (Home) > TCP/IP Profile > Configure Change Set > TCP/IP Profile: PLEX1.LPAR1.STACK1.CS1 > Performance and Protocol

## Configure Performance and Protocol Properties

Global Settings and Configuration Status

Settings	Base Status	Change Set Status
<b>TCP protocol settings...</b>	Configured	<b>Updated</b>
UDP protocol settings...	Configured	Not updated
IP protocol settings...	Not configured	Not updated
Shared Memory Communications Settings...	Not configured	Not updated
Shared Memory Communications over Remote Direct Memory Access (SMC-R) Settings...	Configured	Not updated
Shared Memory Communications - Direct Memory Access (SMC-D)...	Not configured	Not updated
Global network device layer optimization settings...	Not configured	Not updated
TCP/IP storage tuning...	Not configured	Not updated

Close Save

“Change Set Status” column now indicates that something was changed in that column

Welcome x Configuration A... x


Configuration Assistant (Home) > TCP/IP Profile > Configure Change Set > TCP/IP Profile: PLEX1.LPAR1.STACK1.CS1 > Performance and Protocol > TCP protocol settings

## TCP protocol settings

Buffer and Limits KeepAlive Protocol Settings Retransmission

Global Property Setting:  
Maximum number of backlog entries for a server's listening socket  
2222 Range is 1 to 2147483647. Default is 1024.

Receive buffer properties

**Maximum receive buffer size an application can set**   
577 Kilobytes Range is the value coded on **Default** receive buffer size for application - 2048 kilobytes. Default is 256 kilobytes.  
(Current Range is 64 Kilobytes to 2048 Kilobytes)

**Default receive buffer size for applications that do not explicitly set a size**  
Kilobytes Range is 256 bytes - value coded on **Maximum** receive buffer size. Default is 64 kilobytes.  
(Current Range is 1 Kilobytes to 577 Kilobytes)

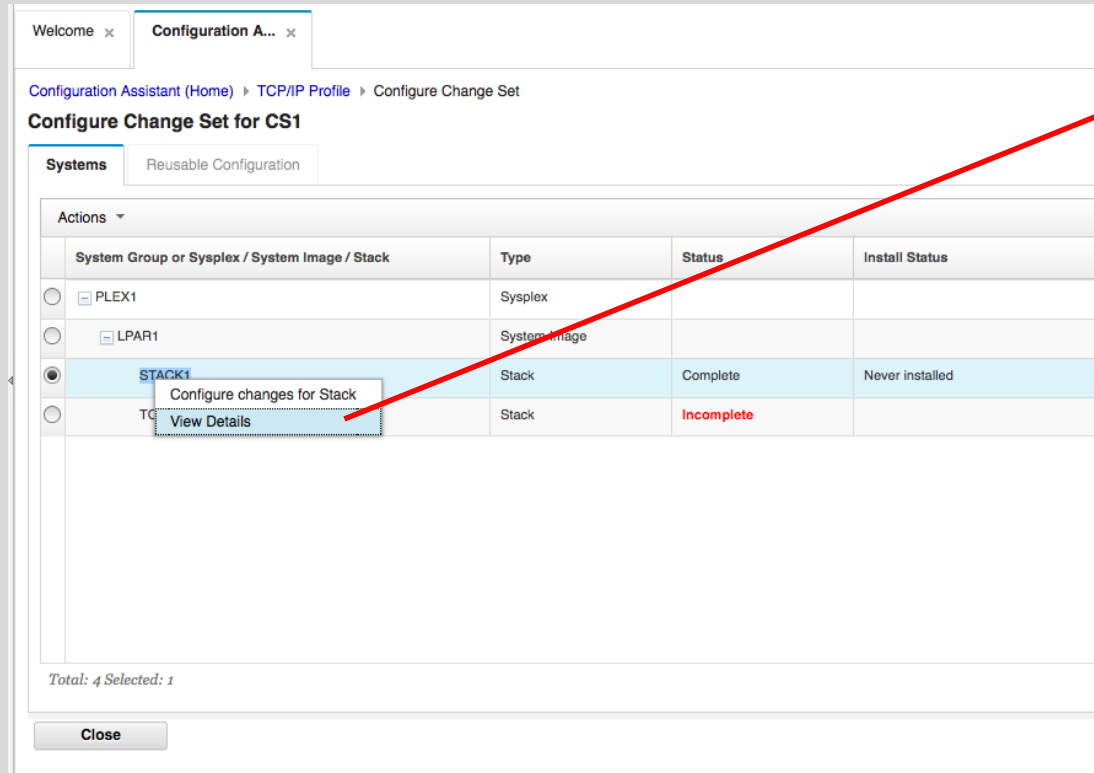
Send buffer properties

**Maximum send buffer size an application can set**  
Kilobytes Range is the value coded on **Default** send buffer size for application - 2048 kilobytes. Default is 256 kilobytes.  
(Current Range is 64 Kilobytes to 256 Kilobytes)

OK Cancel

Green Delta flags help you pick out what's changed on a panel

# To compare old and new values, use View Details



Welcome x Configuration A... x

Configuration Assistant (Home) > TCP/IP Profile > Configure Change Set

### Configure Change Set for CS1

Systems Reusable Configuration

Actions ▾

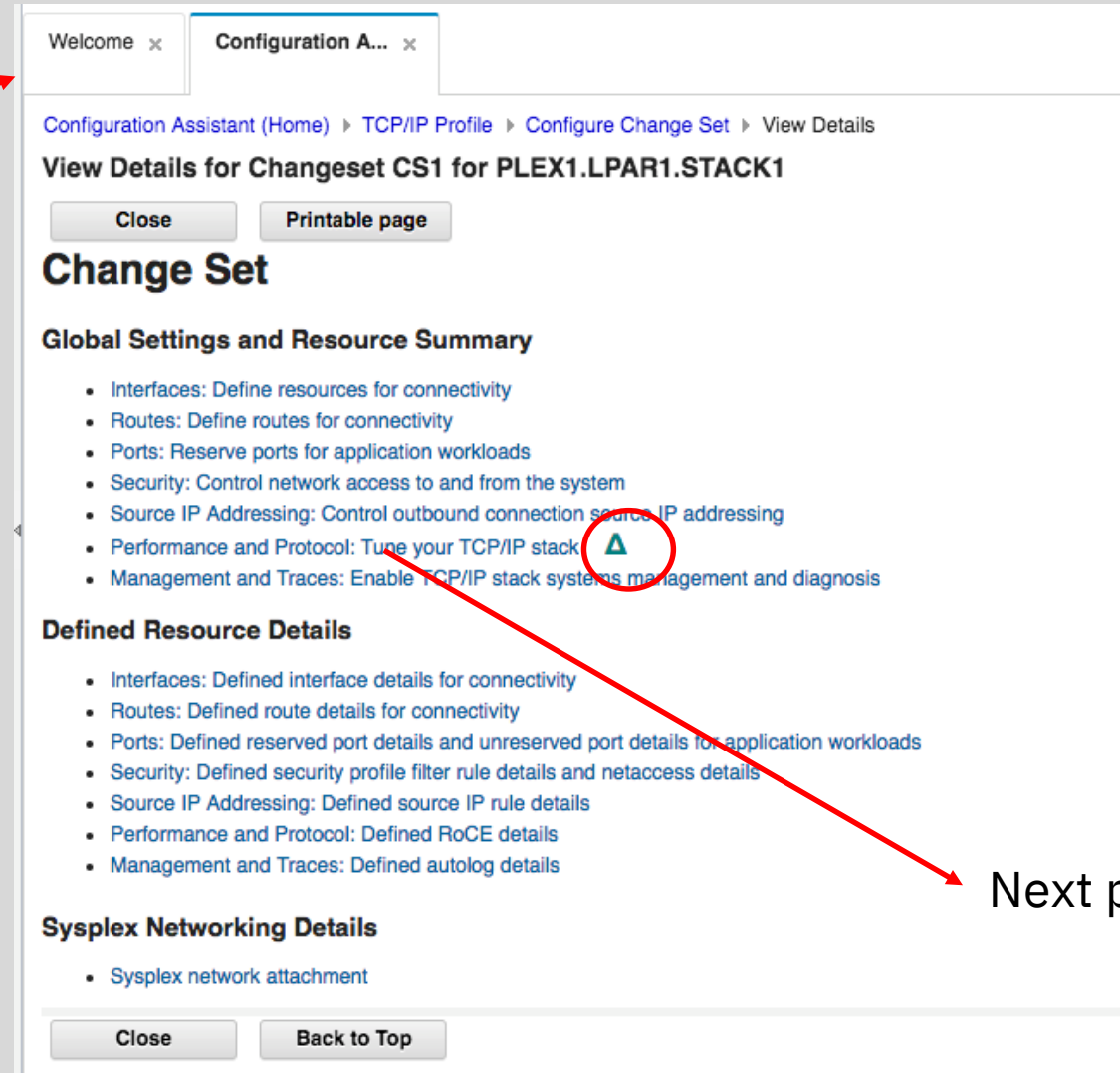
System Group or Sysplex / System Image / Stack	Type	Status	Install Status
<input type="radio"/> PLEX1	Sysplex		
<input type="radio"/> LPAR1	System Image		
<input checked="" type="radio"/> STACK1	Stack	Complete	Never installed
<input type="radio"/> TC	Stack	Incomplete	

Configure changes for Stack  
View Details

Total: 4 Selected: 1

Close

On the change set configuration screen, View Details gives you an easy before and after view of a stack being changed



Welcome x Configuration A... x


Configuration Assistant (Home) > TCP/IP Profile > Configure Change Set > View Details

### View Details for Changeset CS1 for PLEX1.LPAR1.STACK1

Close Printable page

## Change Set

#### Global Settings and Resource Summary

- Interfaces: Define resources for connectivity
- Routes: Define routes for connectivity
- Ports: Reserve ports for application workloads
- Security: Control network access to and from the system
- Source IP Addressing: Control outbound connection source IP addressing
- Performance and Protocol: Tune your TCP/IP stack 
- Management and Traces: Enable TCP/IP stack systems management and diagnosis

#### Defined Resource Details

- Interfaces: Defined interface details for connectivity
- Routes: Defined route details for connectivity
- Ports: Defined reserved port details and unreserved port details for application workloads
- Security: Defined security profile filter rule details and netaccess details
- Source IP Addressing: Defined source IP rule details
- Performance and Protocol: Defined RoCE details
- Management and Traces: Defined autolog details

#### Sysplex Networking Details

- Sysplex network attachment

Close Back to Top

Next page

# View details comparison

Welcome x

Configuration A... x

Configuration Assistant (Home) > TCP/IP Profile > Configure Change Set > View Details

Help

View Details for Changeset CS1 for PLEX1.LPAR1.STACK1

Performance and Protocol: Tune your TCP/IP stack

TCP Protocol Setting Properties

Configuration Assistant Description	Detailed Description	Statement Parameter	Change set value	Base value, if different
Specifies a maximum connection length for the connection request queues created by the socket call listen().	N/A	SOMAXCONN	2222	---
The TCP maximum receive buffer size is the maximum value an application can set as its receive buffer size using SETSOCKOPT().	N/A	TCPCONFIG TCPMAXRCVBUFRSIZE	577	333
The TCP receive buffer size.	N/A	TCPCONFIG TCPRCVBUFRSIZE	Default	---
The maximum send buffer size.	N/A	TCPCONFIG TCPMAXSENDERBUFRSIZE	Default	---
The TCP send buffer size.	N/A	TCPCONFIG TCPSENDERBUFRSIZE	Default	---
The default TCP keepalive interval for applications that enable the SO_KEEPALIVE socket option and do not override the interval using the TCP_KEEPAIVE socket option.	N/A	TCPCONFIG INTERVAL	Default	---
The interval in seconds between keepalive probes.	N/A	TCPCONFIG KEEPAIVEPROBEINTERVAL	Default	---
The number of keepalive probes before the connection is aborted.	N/A	TCPCONFIG KEEPAIVEPROBES	Default	---

Close

Back to Top

In this example, a simple scalar parameter was changed. View details is very sophisticated and shows you changes made to table parameters, as shown on the next page.

# View Details: table parameters

Welcome x Configuration A... x

Configuration Assistant (Home) > TCP/IP Profile > Configure Change Set > View Details Help

View Details for Changeset CS1 for PLEX1.LPAR1.STACK1

Ignore hop limits in IPv6 router advertisements that override the defined hop limit	N/A	IPCONFIG6 IGNOREROUTERHOPLIMIT	Default	---
Ignore ICMP redirects for IPv4 that cause a route update	N/A	IPCONFIG IGNOREREDIRECT	Default	---
Ignore ICMP redirects for IPv6 that cause a route update	N/A	IPCONFIG6 IGNOREREDIRECT	Default	---

**Summary of Changed Static Routes**

	Destination/Subnet	First Hop	Interface	MTU	Description
<b>Routes Changed</b>					
Change set value	DEFAULT	2.2.2.254	OSA1	DEFAULTSIZE	---
Base value if different	---	5.5.5.253	---	---	---
<b>New Routes Added</b>					
Change set value	10.1.0.0/32	2.2.2.254	OSA1	DEFAULTSIZE	new route

☐ Ports: Reserve ports for application workloads

**Global Port Properties**

Configuration Assistant Description	Detailed Description	Statement Parameter	Change set value	Base value, if different
Restrict low ports (1-1023) from use unless authorized for TCP	N/A	TCPCONFIG RESTRICTLOWPORTS	Default	---
Restrict low ports (1-1023) from use unless authorized for UDP	N/A	UDPCONFIG RESTRICTLOWPORTS	Default	---

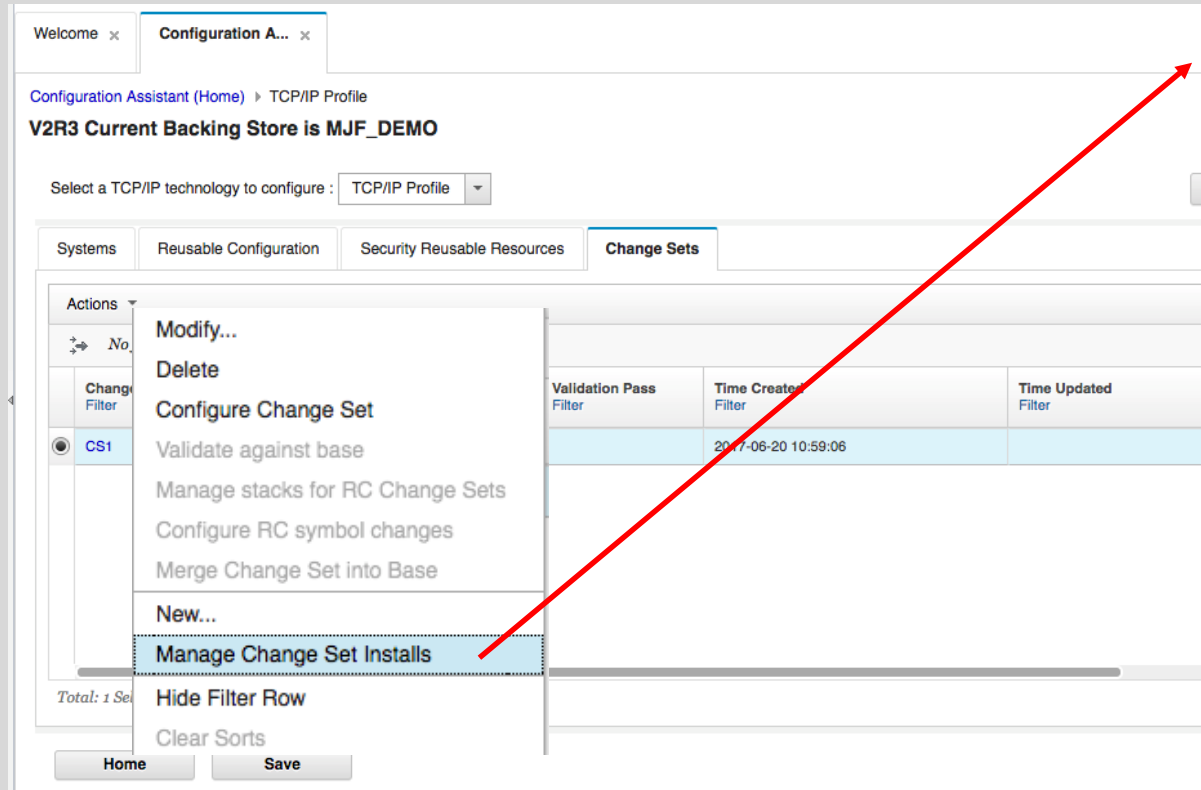
Close Back to Top

In this example, the static route table was modified by:

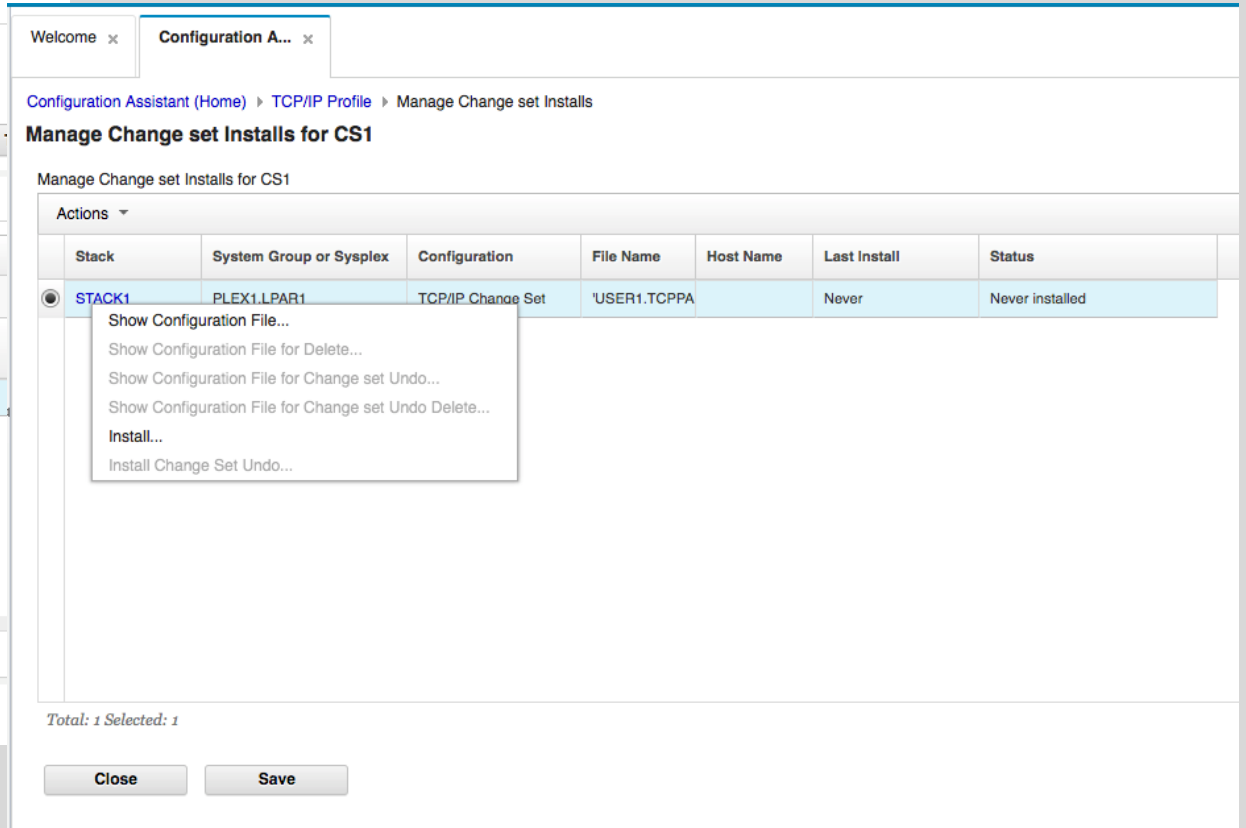
- Changing the first hop of the default route
- Adding a new route to 10.1.0.0/32.

View Details helps you see before and after

# Installing changes: creating the OBEY file



The OBEY file is created and stored through the Install interface. It works similarly to the Install interface for regular configuration files



Once the OBEY file has been installed, the operator can run the VARY OBEY console command to put it into effect

# Change set UNDO

Configuration Assistant (Home) > TCP/IP Profile > Manage Change set Installs

### Manage Change set Installs for CS1

Manage Change set Installs for CS1

Stack	System Group or Sysplex	Configuration	File Name	Hos Nan	Last Install	Status
STACK1	PLEX1.LPAR1	TCP/IP.Change.Set	'USER1.TCPPARMS(CS1)'		2017-06-20 13:34:07	Installed

Total: 1 Selected: 1

Close Save

Useful for undoing erroneous change sets, or to remove changes that were meant to be temporary

Change set Undo is an install action.

- After a change set has been installed, you can undo it for a stack by selecting **Actions->Install Change Set Undo** on the Manage Installs panel for change sets.
- This creates and saves an OBEY file that restores the stack's configuration to the pre-Change Set state.
- The change set is still available to be edited and/or re-installed from the Network Configuration Assistant.



# Change set merge

Configuration Assistant (Home) > TCP/IP Profile

V2R3 Current Backing Store is MJF\_DEMO1

Select a TCP/IP technology to configure : TCP/IP Profile

Tools

Systems Reusable Configuration Security Reusable Resources **Change Sets**

Actions

No filter applied

Change Sets Filter	Install Status Filter	Validation Pass Filter	Time Created Filter	Time Updated Filter
<input checked="" type="radio"/> CS1	Installed		2017-06-20 10:59:06	

Modify...  
Delete  
Configure Change Set  
Validate against base  
Manage stacks for RC Change Sets  
Configure RC symbol changes  
**Merge Change Set into Base**

Total: 1 Selected: 1

Home Save

Useful for making the change a permanent part of the stack's configuration (example: adding a port for a new application)

Merge is a change set action

- After a change set has been installed (and has not been undone), merge the changes into the stack by selecting **Actions->Merge Change Set into Base**
- This updates the base configuration to the changed configuration and removes the stack from the change set.
- If this is the only stack in a change set, the change set is deleted



# Change set merge notes

Welcome x

Configuration A... x

Configuration Assistant (Home) » TCP/IP Profile

V2R3 Current Backing Store is MJF\_DEMO1

Select a TCP/IP technology to configure : TCP/IP Profile Tools

Systems

Reusable Configuration

Security Reusable Resources

Change Sets

Actions ▾

➡ No filter applied

	System Group or Sysplex / System Image / Stack Filter	Type Filter	Status Filter	Install Status	Release Filter	Descri
<input type="radio"/>	[-] PLEX1	Sysplex	Complete	Synchronized		
<input type="radio"/>	[-] LPAR1	System Image	Complete	Not applicable	V2R2	
<input type="radio"/>	STACK1	Stack	Complete	Needs install(Change set merged)	V2R2	
<input type="radio"/>	TCPCS1A	Stack	Complete	Installed	V2R2	
<input type="radio"/>	[-] LPAR2	System Image	Complete	Not applicable	V2R2	

Merging a change set into the base configuration changes the base configuration

- This has all the same implications as if the base configuration had been edited manually.
- The base configuration must be re-installed so that it is available to the stack next time it IPLs
- Because the stack needs to be installed, a new change set cannot be based on it until that install is done.

# Stack change set restrictions

---

When Network Configuration Assistant is creating an OBEY file for a change set, it creates the OBEY file necessary to change the base configuration to match the change set configuration. For this reason, Network Configuration Assistant must know exactly what is in the base TCP/IP configuration on the MVS image to correctly generate this file.

This requirement results in two main change set restrictions:

1. A change set can only be based on installed configuration.
  - For a stack change set, this means that stacks whose install status is Needs Install or Never Installed are not eligible to have change sets based on them. .
2. Configuration with a change set based on it cannot be edited.
  - For a stack change set, this means that a stack that has a change set based on it cannot be edited in the GUI until the change set is either merged or deleted.

# **Change set special case: changing IP interfaces**

The procedure for changing the name, IP address, or most other characteristics of an IP interface for Communications Server is:

1. Stop the interface to be changed
2. Perform a VARY OBEY to delete the interface to be changed
3. Perform a VARY OBEY to add the interface with its new characteristics.

Restriction: this must be a different OBEY file from the one used in step 2

- You cannot delete and add an interface in the same OBEY file!

Because of this requirement, Network Configuration Assistant has special processing for these types of interface changes.

Network Configuration Assistant creates two OBEY files: A DELETE file to delete the old definition, and then another OBEY file to add it back with changes. The next few pages illustrate this process.

# Change set example – change interface name

Welcome x Configuration A... x

Configuration Assistant (Home) > TCP/IP Profile > Configure Change Set > TCP/IP Profile: PLEX1.LPAR1.STACK1.CS1 > Network Interfaces

Define Network Interfaces

Global Settings and Configuration Status

Settings	Base Status	Change Set Status
Global Interface Properties	Configured	Not updated
Define Loopback Addresses (IPv4 or IPv6)...	Not configured	Not updated
* Default local host...	Configured	Not updated

(Only required when an IPv4 interface is defined)

Interfaces

Actions

No filter applied

Name	Origin Reusable Configuration	Type	IP Address	Source VIPA	VLAN ID	Status	D-Fi
OSA1		IPAQENET/OSD	5.5.5.1/24	VIPA1		✓	
OSA2		IPAQENET/OSD	6.7.8.9/24	VIPA1		✓	
VIP1	osas	VIRTUAL	4.4.4.&HOST.			✓	stat VIF for the hos
VIP2	osas	VIRTUAL	1.11.7.&SYM1.			✓	

Close Save

Welcome x Configuration A... x

Configuration Assistant (Home) > TCP/IP Profile > Configure Change Set > TCP/IP Profile: PLEX1.LPAR1.STACK1.CS1 > Network Interfaces > OSA2

Modify Network Interface

Name and Type Connectivity Additional Properties

Name: OSA2A

Description:

Select the type of network interface:

☐ Static Virtual IP Address (VIPA)

☒ Ethernet LAN (OSA CHPID type OSD)

☐ HyperSockets

☐ Intra-Ensemble Data Network (OSA CHPID type OSX)

☐ MPCPTP - High Performance Data Transfer (HPDT)

☐ Channel-to-Channel (CTC)

☐ LAN Channel Station (LCS)

Select the IP address type of network interface:

☒ IPv4 interface

☐ IPv6 interface

OK Cancel

In this example, the name of interface “OSA2” is changed to “OSA2A”

# Change interface name, delete file

Welcome x Configuration A... x

Configuration Assistant (Home) > TCP/IP Profile > Manage Change set Installs

### Manage Change set Installs for CS1

Manage Change set Installs for CS1

Actions ▾

Stack	System Group or Sysplex	Configuration	File Name	Host Name
STACK1	PLEX1.LPAR1	TCP/IP Change Set	'USER1.TCPPARMS(CS1)'	

- Show Configuration File...
- Show Configuration File for Delete...
- Show Configuration File for Change set Undo...
- Show Configuration File for Change set Undo Delete...
- Install...
- Install Change Set Undo...

Total: 1 Selected: 1

Close Save

Welcome x Configuration A... x

Configuration Assistant (Home) > TCP/IP Profile > Manage Change set Installs > PLEX1.LPAR1.STACK1.CS1

### Configuration File for Changeset CS1

Close Printable page

```
;;
;; TCP/IP Changeset Configuration file for:
;;   Image: LPAR1
;;   Stack: STACK1
;;   Changeset: CS1
;;
;; Created by the IBM Configuration Assistant for z/OS Communications Server
;; Version 2 Release 3
;; Backing Store = MJF_DEMO1
;; Install History:
;; End of Configuration Assistant information
INTERFACE OSA2 DELETE
```

Close Back to Top

Because the interface's name was changed, a separate DELETE file is generated alongside the normal OBEY file

# Change interface name, continued

Welcome x Configuration A... x

Configuration Assistant (Home) > TCP/IP Profile > Manage Change set Installs

Manage Change set Installs for CS1

Manage Change set Installs for CS1

Actions

Stack	System Group or Sysplex	Configuration	File Name	
STA		Change Set	'USER1.TCPPARMS(CS1)'	

Show Configuration File...

Show Configuration File for Delete...

Show Configuration File for Change set Undo...

Show Configuration File for Change set Undo Delete...

Install...

Install Change Set Undo...

Total: 1 Selected: 1

Close

Save

The obey file adding the interface back with the new name is created alongside the DELETE file

Welcome x Configuration A... x

Configuration Assistant (Home) > TCP/IP Profile > Manage Change set Installs > PLEX1.LPAR1.STACK1.CS1

Configuration File for Changeset CS1

Close

Printable page

```
;;
;;
;; TCP/IP Changeset Configuration file for:
;;   Image: LPAR1
;;   Stack: STACK1
;;   Changeset: CS1
;;
;;
;; Created by the IBM Configuration Assistant for z/OS Communications Server
;; Version 2 Release 3
;; Backing Store = MJF_DEMO1
;; Install History:
;; End of Configuration Assistant information
INTERFACE OSA2A
  DEFINE IPAQENET
  CHPIDTYPE OSD
  PORTNAME PORT2
  IPADDR 6.7.8.9/24
  INBPERF DYNAMIC NOWORKLOADQ
  VMAC ROUTEALL
  SMCR
  SMCD
  SOURCEVIPINTERFACE VIPA1
  READSTORAGE GLOBAL
  NOMONSYSPLEX
  NODYNVLANREG
  NOOLM
  NOISOLATE
;; END OF INTERFACE STATEMENT
START OSA2A
```

Close

Back to Top

# Install interface name change files

Welcome x Configuration A... x

Configuration Assistant (Home) > TCP/IP Profile > Manage Change set Installs

### Manage Change set Installs for CS1

Manage Change set Installs for CS1

Actions

- Show Configuration File...
- Show Configuration File for Delete...
- Show Configuration File for Change set Undo...
- Show Configuration File for Change set Undo Delete...
- Install...**
- Install Change Set Undo...

Configuration	File Name
TCP/IP Change Set	'USER1.TCPPARMS(CS1)'

Total: 1 Selected: 1

Close Save

Welcome x Configuration A... x

Configuration Assistant (Home) > TCP/IP Profile > Manage Change set Installs > Install

### Install File

\* Install file name for delete of interfaces:  
'USER1.TCPPARMS(DELETE)'

\* Install file name:  
'USER1.TCPPARMS(CS1)'

Select installation method

☒ Save to disk  
☐ FTP

FTP information

\* Host name:

\* Port number:

\* User ID:

\* Password:  ☒ Save password

☐ Use SSL  
☐ Create the directories if they do not exist

Data transfer mode  
☒ Default ☐ Passive ☐ Active

Comment for the configuration file prologue (optional)

Selecting the GO button will do an automatic save of the backing store before the install.

Go Close View FTP Log

Both the delete and the add with new name OBEY files are saved when this change set is installed. As always, you can edit the name of either one.

- Note that the UNDO for this change set will also create both a DELETE and a re-add OBEY file!

# Other IP interface change set restrictions

Welcome x Configuration A... x

Configuration Assistant (Home) > TCP/IP Profile > Configure Change Set > TCP/IP Profile: PLEX1.LPAR1.STACK1.CS1 > Network Interfaces > OSA1

### Modify Network Interface

Messages 1 0 0 [Close All](#)

**The interface OSA1 you are trying to modify is referenced as a Route Interface. You cannot modify an interface that is being referenced in change set.** CAMSGE Jun 20, 2017, 2:25:52 PM x

**Name and Type** Connectivity Additional Properties

\* Name:  
OSA1A

Description:

Select the type of network interface:

- ☐ Static Virtual IP Address (VIPA)
- ☒ Ethernet LAN (OSA CHPID type OSD)
- ☐ HyperSockets
- ☐ Intra-Ensemble Data Network (OSA CHPID type OSX)
- ☐ MPCPTP - High Performance Data Transfer (HPDT)
- ☐ Channel-to-Channel (CTC)
- ☐ LAN Channel Station (LCS)

Select the IP address type of network interface:

- ☒ IPv4 interface
- ☐ IPv6 interface

OK Cancel

Because an IP interface must be deleted to change it, you cannot change an interface that is referenced elsewhere unless you also delete that reference. This is the same restriction you have when editing interfaces in base configuration in Network Configuration Assistant.

Examples of places where IP interfaces can be referenced:

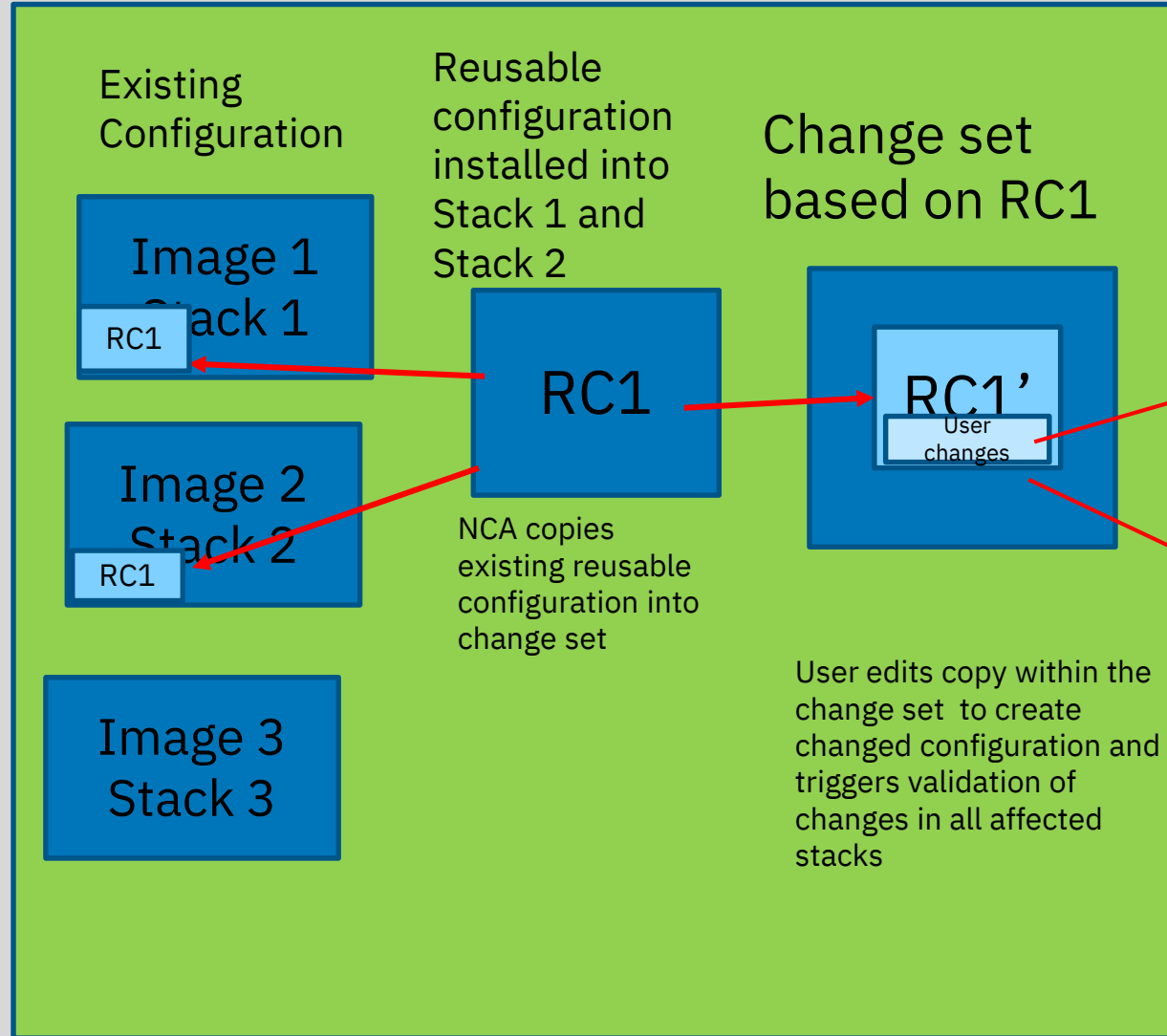
- SOURCEVIPAs statements or parameters
- Static route outgoing interface
- Primary interface for a stack
- VIPAROUTE targets

If you attempt to change an interface that is referenced elsewhere, Network Configuration Assistant will tell you where those references are, as shown here.

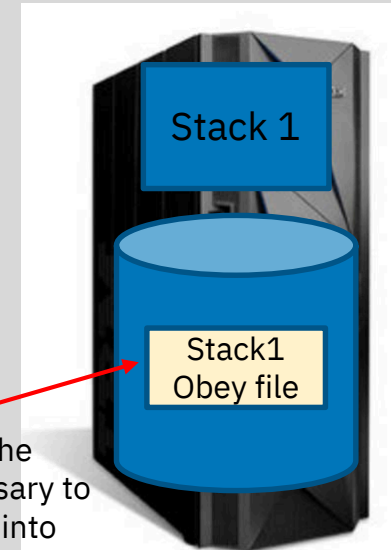


# Illustration: Change sets based on Reusable Configuration

## Network Configuration Assistant



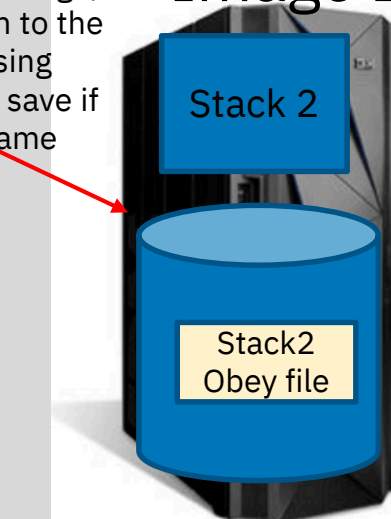
## Image 1



V TCPIP,STACK1,O,OBEYPDS(STACK1)

Operator executes VARY OBEY command to put the changes into effect on the affected stacks.

## Image 2



V TCPIP,STACK2,O,OBEYPDS(STACK2)

This gives an opportunity for reviews and installation change control to occur.

# Create a Reusable Configuration Change set

Welcome x Configuration A... x

Configuration Assistant (Home) > TCP/IP Profile > Change Set

### New Change Set

➡ Name and description  
Select the configuration for profile change

**Name and description**

Name: TUNINGRC

Description: Update shared tuning parameters

A change set allows for changing active TCP/IP stack configuration. Create the change set and then select the configuration to change. You can change either base stack configuration or configuration in a change set.

Select the type of configuration to be changed:

☐ Stacks  
☐ Sysplex  
☒ Reusable Configuration

< Back Next Finish Cancel

Welcome x Configuration A... x

Configuration Assistant (Home) > TCP/IP Profile > Change Set

### New Change Set TUNINGRC

✔ Name and description  
➡ Select the configuration for profile change

**Select the configuration for profile change**

Select the configuration to be changed

Actions ▾

⚙ No filter applied

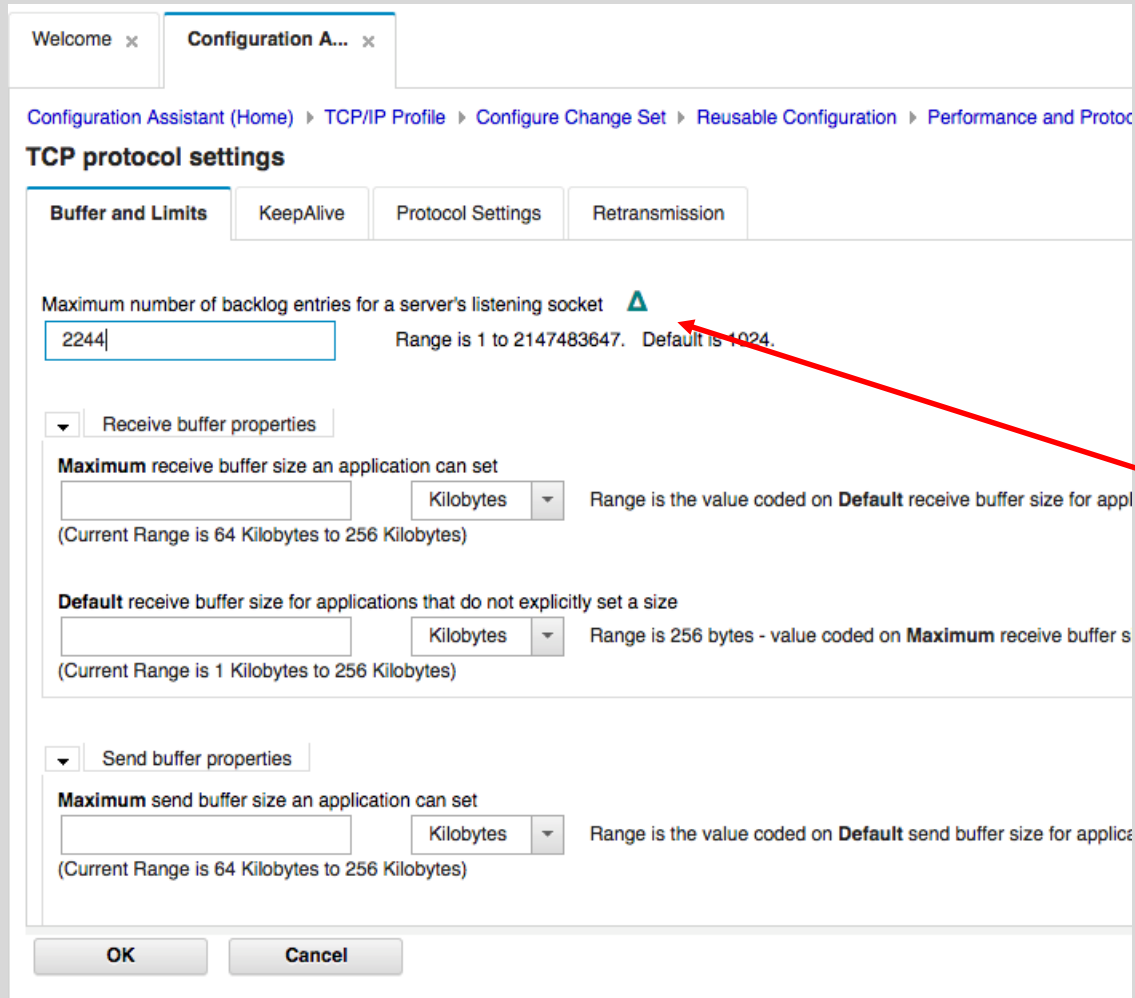
Name Filter	Install Status
<input type="radio"/> newrc	Installed
<input type="radio"/> osas	Installed(Stack needs install)
<input type="radio"/> PORTS	Installed(Stack needs install)
<input checked="" type="radio"/> Tuning	Installed
<input type="radio"/> useless	Installed

Total: 5 Selected: 1

< Back Next > Finish Cancel

A change set can only be based on a reusable configuration if that RC has been installed into the stacks that use it, AND all those stacks are installed.


# Configuring a reusable configuration change set



Configuration Assistant (Home) > TCP/IP Profile > Configure Change Set > Reusable Configuration > Performance and Protocol

### TCP protocol settings

**Buffer and Limits** | KeepAlive | Protocol Settings | Retransmission

Maximum number of backlog entries for a server's listening socket   Range is 1 to 2147483647. Default is 1024.

**Receive buffer properties**

**Maximum** receive buffer size an application can set  Kilobytes Range is the value coded on **Default** receive buffer size for application (Current Range is 64 Kilobytes to 256 Kilobytes)

**Default** receive buffer size for applications that do not explicitly set a size  Kilobytes Range is 256 bytes - value coded on **Maximum** receive buffer size (Current Range is 1 Kilobytes to 256 Kilobytes)

**Send buffer properties**

**Maximum** send buffer size an application can set  Kilobytes Range is the value coded on **Default** send buffer size for application (Current Range is 64 Kilobytes to 256 Kilobytes)

**OK** **Cancel**

You configure a reusable configuration change set similarly to how you configure a stack change set. You simply make the desired changes in the editor as if you were editing the Reusable configuration normally. In this example we've updated the backlog limit.

# Extra step for RC change sets: validate against base

Welcome x Configuration A... x

Configuration Assistant (Home) > TCP/IP Profile

**V2R3 Current Backing Store is MJF\_DEMO1**

Select a TCP/IP technology to configure : TCP/IP Profile

Systems Reusable Configuration Security Reusable Resources **Change Sets**

Actions ▾

➤ No filter applied

Change Sets Filter	Install Status Filter	Validation Pass Filter	Time Created Filter	Time Updated Filter
<input checked="" type="radio"/> TUNINGRC	Never installed	Needs validate	2017-06-20 14:47:41	

Modify...  
Delete  
Configure Change Set  
**Validate against base**  
Manage stacks for RC Change Sets  
Configure RC symbol changes  
Merge Change Set into Base

Total: 1 Selected: 1

Home Save

Before a reusable configuration change set can be installed, you must validate it against the base.

This validation verifies that no conflicts or errors were created within the stacks that include this reusable configuration

- For example, adding a duplicate interface name or address, or deleting an interface that's referenced in the stack configuration

# RC change set configuration installation

Welcome x Configuration A... x

Configuration Assistant (Home) > TCP/IP Profile

V2R3 Current Backing Store is MJF\_DEMO1

Select a TCP/IP technology to configure : TCP/IP Profile

Systems

Reusable Configuration

Security Reusable Resources

Change Sets

Actions

Modify...

Delete

Configure Change Set

Validate against base

Manage stacks for RC Change Sets

Configure RC symbol changes

Merge Change Set into Base

New...

Manage Change Set Installs

Hide Filter Row

Clear Sorts

Validation Pass Filter	Time Created Filter	Time Filter
✓	2017-06-20 14:47:41	

Total: 1 Selected: 1

Home

Save

Welcome x Configuration A... x

Configuration Assistant (Home) > TCP/IP Profile > Manage Change set Installs

Manage Change set Installs for TUNINGRC

Manage Change set Installs for TUNINGRC

Actions

Show Configuration File...

Show Configuration File for Delete...

Show Configuration File for Change set Undo...

Show Configuration File for Change set Undo Delete...

Install...

Install Change Set Undo...

Stack	System Group or Sysplex	Configuration	File Name	Hos Nan	Last Install	Status
STACK1	PLEX1.LPAR1	TCP/IP Change Set	'USER1.TCPPARMS(TUNINGRC)'		Never	Never install
STACK2	PLEX1.LPAR2	TCP/IP Change Set	'USER1.TCPPARMS(TUNINGRC)'		Never	Never install

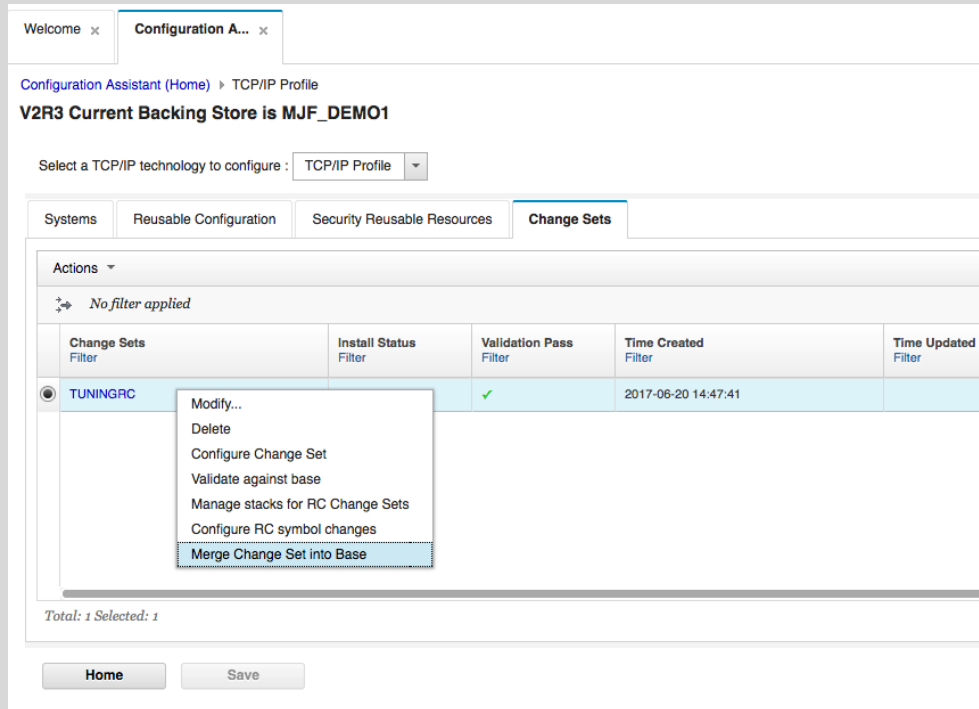
Total: 2 Selected: 1

Close

Save

When you install an RC change set, Network Configuration Assistant automatically generates OBEY files for every stack that uses that RC. You can then view, install, and undo the changes on a stack by stack basis.

# Merging an RC change set



Welcome x Configuration A... x

Configuration Assistant (Home) > TCP/IP Profile

V2R3 Current Backing Store is MJF\_DEMO1

Select a TCP/IP technology to configure : TCP/IP Profile

Systems Reusable Configuration Security Reusable Resources **Change Sets**

Actions

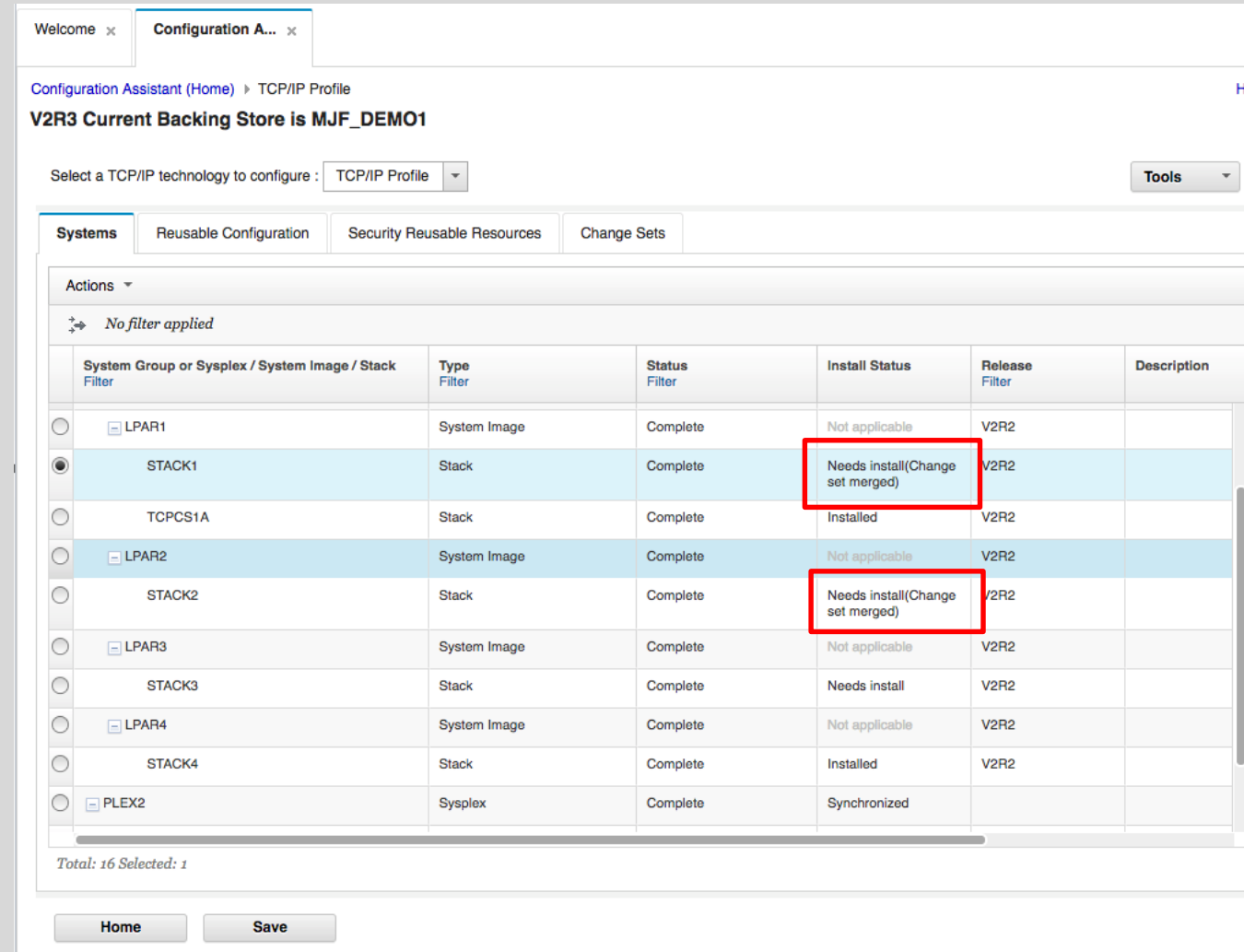
No filter applied

Change Sets Filter	Install Status Filter	Validation Pass Filter	Time Created Filter	Time Updated Filter
<input checked="" type="radio"/> TUNINGRC		✓	2017-06-20 14:47:41	

Total: 1 Selected: 1

Home Save

When you merge an RC change set into its base RC, the RC is updated to match the change set configuration, the changes are pushed to each stack that uses the RC, and then the change set is deleted. Each stack that uses the RC must be reinstalled to make the changed configuration available for the next stack IPL



Welcome x Configuration A... x

Configuration Assistant (Home) > TCP/IP Profile

V2R3 Current Backing Store is MJF\_DEMO1

Select a TCP/IP technology to configure : TCP/IP Profile

Tools

Systems Reusable Configuration Security Reusable Resources **Change Sets**

Actions

No filter applied

System Group or Sysplex / System Image / Stack Filter	Type Filter	Status Filter	Install Status	Release Filter	Description
<input type="radio"/> LPAR1	System Image	Complete	Not applicable	V2R2	
<input checked="" type="radio"/> STACK1	Stack	Complete	Needs install(Change set merged)	V2R2	
<input type="radio"/> TCPCS1A	Stack	Complete	Installed	V2R2	
<input type="radio"/> LPAR2	System Image	Complete	Not applicable	V2R2	
<input type="radio"/> STACK2	Stack	Complete	Needs install(Change set merged)	V2R2	
<input type="radio"/> LPAR3	System Image	Complete	Not applicable	V2R2	
<input type="radio"/> STACK3	Stack	Complete	Needs install	V2R2	
<input type="radio"/> LPAR4	System Image	Complete	Not applicable	V2R2	
<input type="radio"/> STACK4	Stack	Complete	Installed	V2R2	
<input type="radio"/> PLEX2	Sysplex	Complete	Synchronized		

Total: 16 Selected: 1

Home Save

# Reusable configuration change set restrictions

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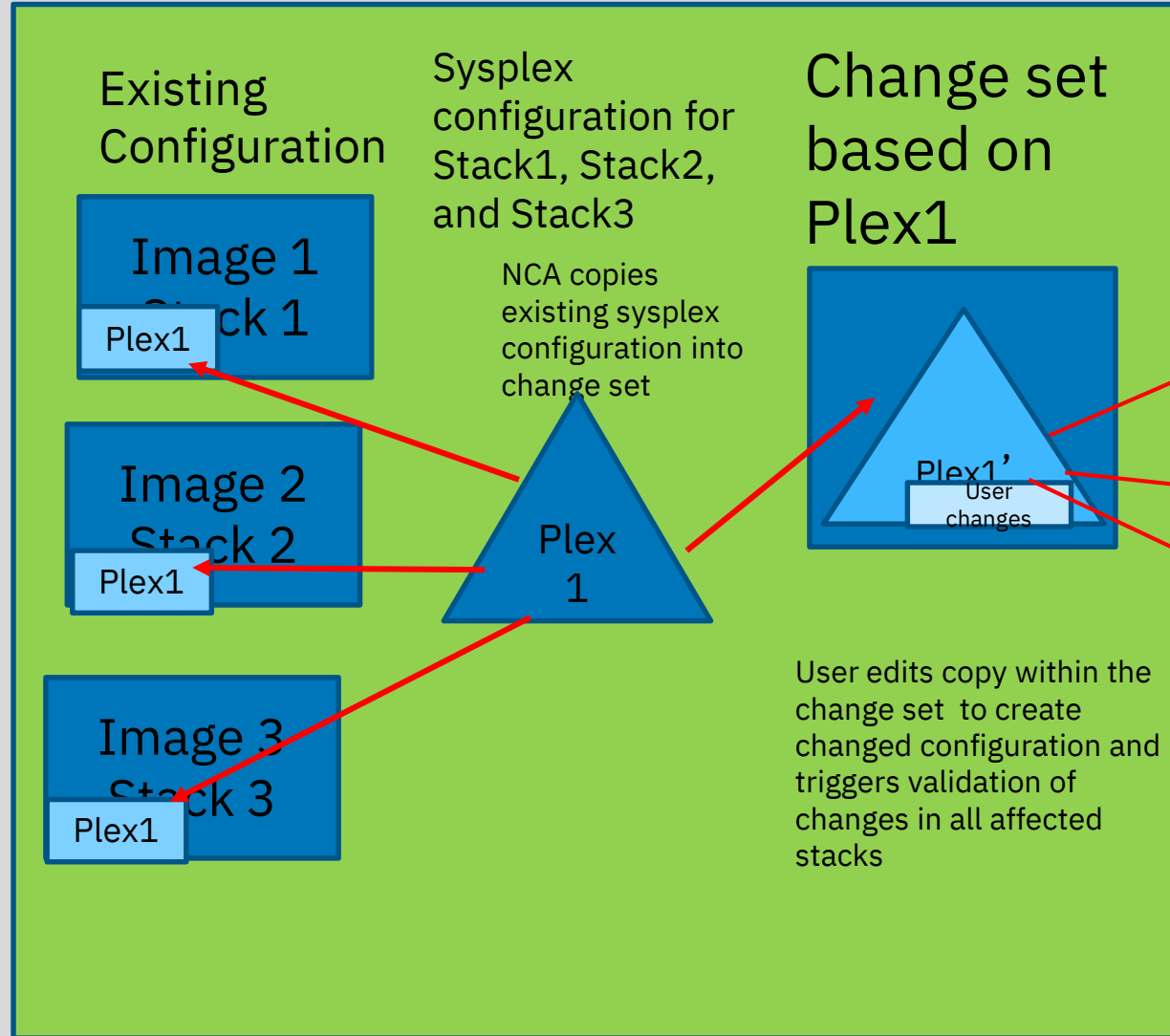
Reminder: When Network Configuration Assistant is creating an OBEY file for a change set, it creates the OBEY file necessary to change the base configuration to match the change set configuration. For this reason, Network Configuration Assistant must know exactly what is in the base TCP/IP configuration on the MVS image to correctly generate this file.

This requirement results in two main change set restrictions:

1. A change set can only be based on installed configuration.
  - For a reusable configuration change set, this means that an RC must be installed in all using stacks, and those stacks all have an install status of “Installed” for the RC to be eligible to have a change set based on it.
2. Configuration with a change set based on it cannot be edited.
  - For a reusable configuration change set, this means that an RC with a change set cannot be edited in the Network Configuration Assistant. It also means that none of the stacks that use a reusable configuration that has a change set based on it can be edited. These restrictions are in place until the change set is merged or deleted.

# Illustration: Change sets based on a sysplex

## Network Configuration Assistant



NCA generates the obey files necessary to put the changes into effect on all the stacks affected by the change, and pushes them to the file system(s) (using FTP or direct file save if running on the same image)

### Image 1

Stack 1

Stack1 Obey file

V TCPIP,STACK1,O,OBEYPDS(STACK1)

Operator executes VARY OBEY command to put the changes into effect on the affected stacks.

This gives an opportunity for reviews and installation change control to occur.

### Image 2

Stack 2

Stack2 Obey file

V TCPIP,STACK2,O,OBEYPDS(STACK2)

### Image 3

Stack 3

Stack3 Obey file

V TCPIP,STACK3,O,OBEYPDS(STACK3)



# Creating a sysplex change set

Welcome x Configuration A... x

Configuration Assistant (Home) > TCP/IP Profile > Change Set Help

## New Change Set

➔ Name and description  
Select the configuration for profile change

**Name and description**

\* Name:  
PLEXCS

Description:  
Make a sysplex change

A change set allows for changing active TCP/IP stack configuration. Create the change set and then select the configuration to change. You can change either base stack configuration or reusable configuration in a change set.

Select the type of configuration to be changed:

☐ Stacks  
☒ Sysplex  
☐ Reusable Configuration

< Back Next > Finish Cancel

Welcome x Configuration A... x

Configuration Assistant (Home) > TCP/IP Profile > Change Set

## New Change Set PLEXCS

✓ Name and description  
➔ Select the configuration for profile change

**Select the configuration for profile change**

Select the configuration to be changed

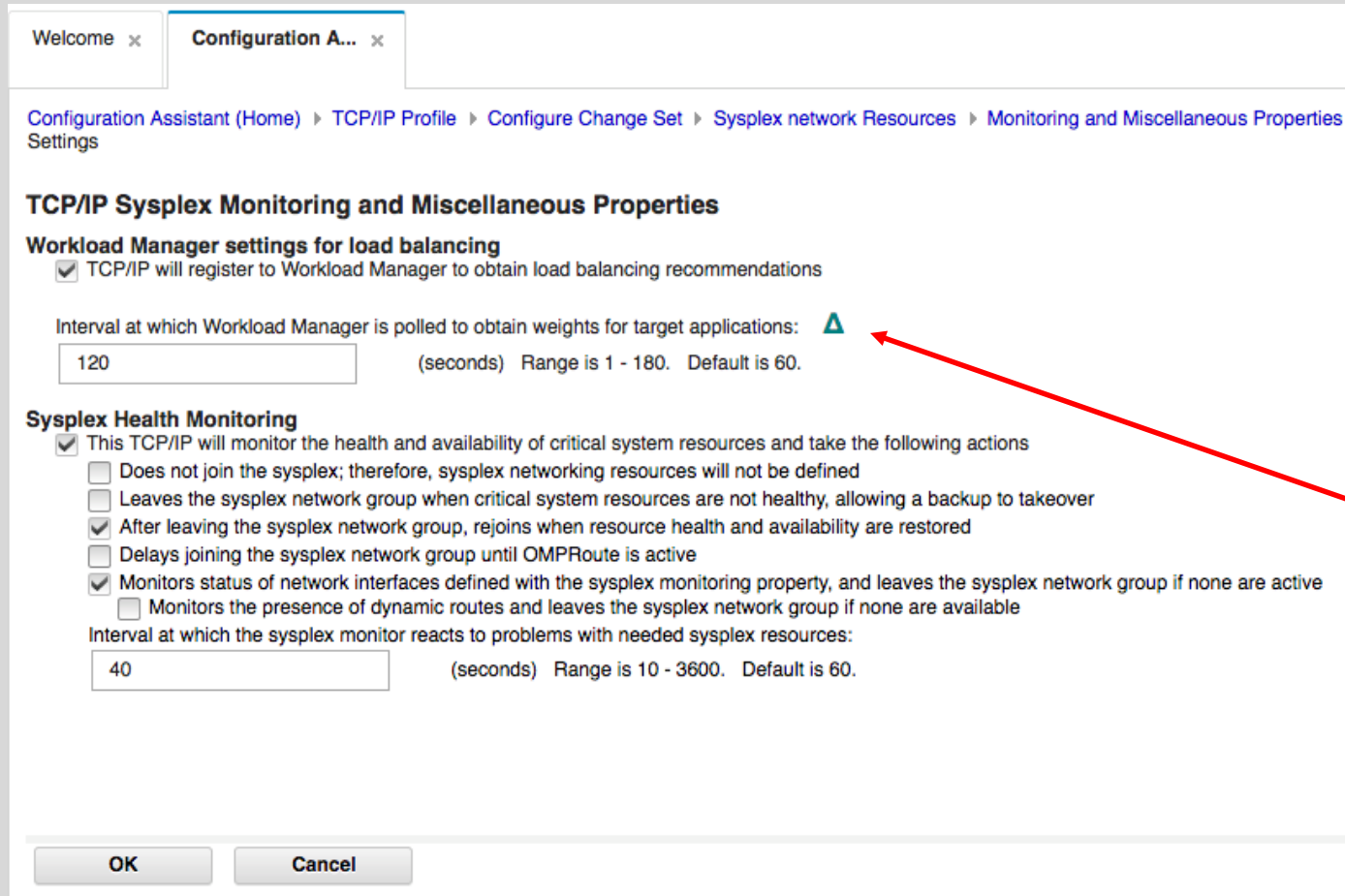
System Group or Sysplex / System Image / Stack	Install Status
<input checked="" type="checkbox"/> PLEX1	Installed
<input type="checkbox"/> PLEX2	Stack needs install

Total: 2 Selected: 1

< Back Next > Finish Cancel

A change set can only be based on a sysplex if every stack in the sysplex has an install status of “Installed”.

# Configuring sysplex changes




Welcome x Configuration A... x

Configuration Assistant (Home) ▶ TCP/IP Profile ▶ Configure Change Set ▶ Sysplex network Resources ▶ Monitoring and Miscellaneous Properties ▶ Settings

### TCP/IP Sysplex Monitoring and Miscellaneous Properties

**Workload Manager settings for load balancing**

☒ TCP/IP will register to Workload Manager to obtain load balancing recommendations

Interval at which Workload Manager is polled to obtain weights for target applications:   
 (seconds) Range is 1 - 180. Default is 60.

**Sysplex Health Monitoring**

☒ This TCP/IP will monitor the health and availability of critical system resources and take the following actions

- ☐ Does not join the sysplex; therefore, sysplex networking resources will not be defined
- ☐ Leaves the sysplex network group when critical system resources are not healthy, allowing a backup to takeover
- ☒ After leaving the sysplex network group, rejoins when resource health and availability are restored
- ☐ Delays joining the sysplex network group until OMPRoute is active
- ☒ Monitors status of network interfaces defined with the sysplex monitoring property, and leaves the sysplex network group if none are active
- ☐ Monitors the presence of dynamic routes and leaves the sysplex network group if none are available

Interval at which the sysplex monitor reacts to problems with needed sysplex resources:  
 (seconds) Range is 10 - 3600. Default is 60.

OK Cancel

Similar to the other change set types, you simply make the changes you want in the GUI. In this example, we have changed the Workload Manager polling interval to 120 seconds.

# Sysplex change set installation

Welcome x Configuration A... x

Configuration Assistant (Home) > TCP/IP Profile

V2R3 Current Backing Store is MJF\_DEMO1

Select a TCP/IP technology to configure : TCP/IP Profile Tools

Systems Reusable Configuration Security Reusable Resources Change Sets

Actions

Modify...

Delete

Configure Change Set

Validate against base

Manage stacks for RC Change Sets

Configure RC symbol changes

Merge Change Set into Base

New...

Manage Change Set Installs

Hide Filter Row

Clear Sorts

Change Filter

PLEXCS

Validation Pass Filter

Time Created Filter

Time Updated Filter

		2017-06-20 15:32:13	
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Total: 1 Selected

Home

Welcome x Configuration A... x

Configuration Assistant (Home) > TCP/IP Profile > Manage Change set Installs

Manage Change set Installs for PLEXCS

Manage Change set Installs for PLEXCS

Actions

Stack	System Group or Sysplex	Configuration	File Name	Host Name	Last Install	Status
<input type="radio"/> STACK1	PLEX1.LPAR1	TCP/IP Change Set	'USER1.TCPPAI		Never	Never installed
<input type="radio"/> TCPCS1A	PLEX1.LPAR1	TCP/IP Change Set	'USER1.TCPPAI		Never	Never installed
<input type="radio"/> STACK2	PLEX1.LPAR2	TCP/IP Change Set	'USER1.TCPPAI		Never	Never installed
<input checked="" type="radio"/> STACK3	PLEX1.LPAR2	TCP/IP Change Set	'USER1.TCPPAI		Never	Never installed

Show Configuration File...

Show Configuration File for Delete...

Show Configuration File for Change set Undo...

Show Configuration File for Change set Undo Delete...

Install...

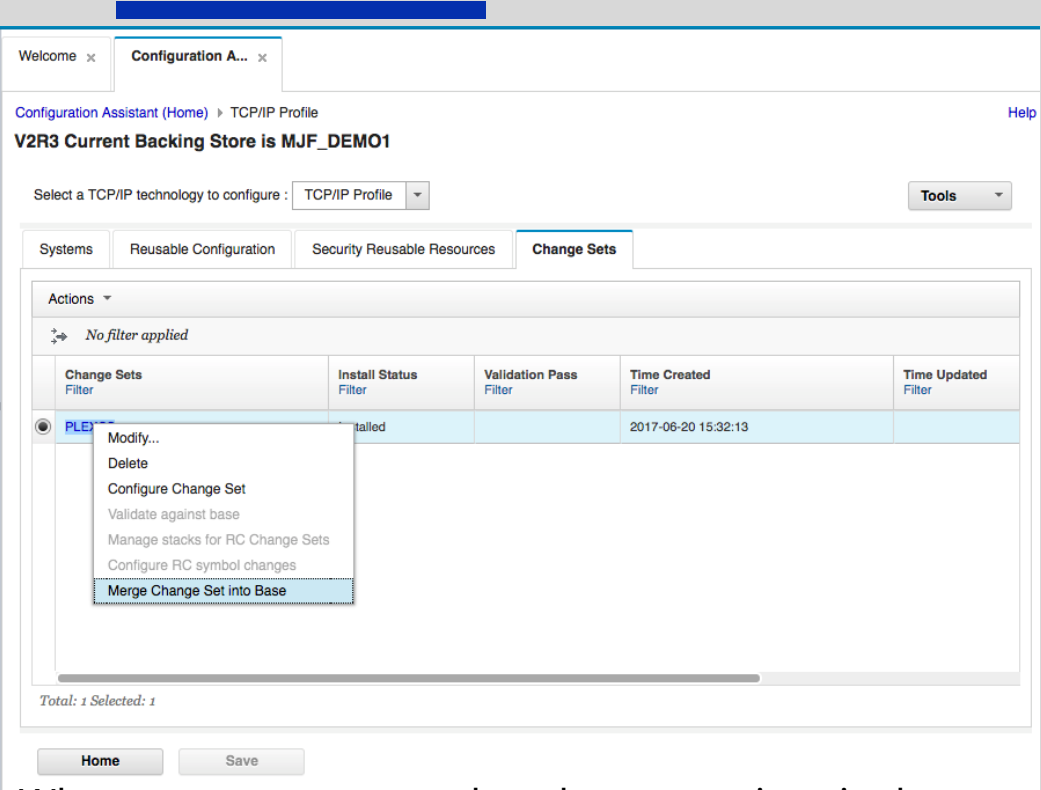
Install Change Set Undo...

Total: 4 Selected: 1

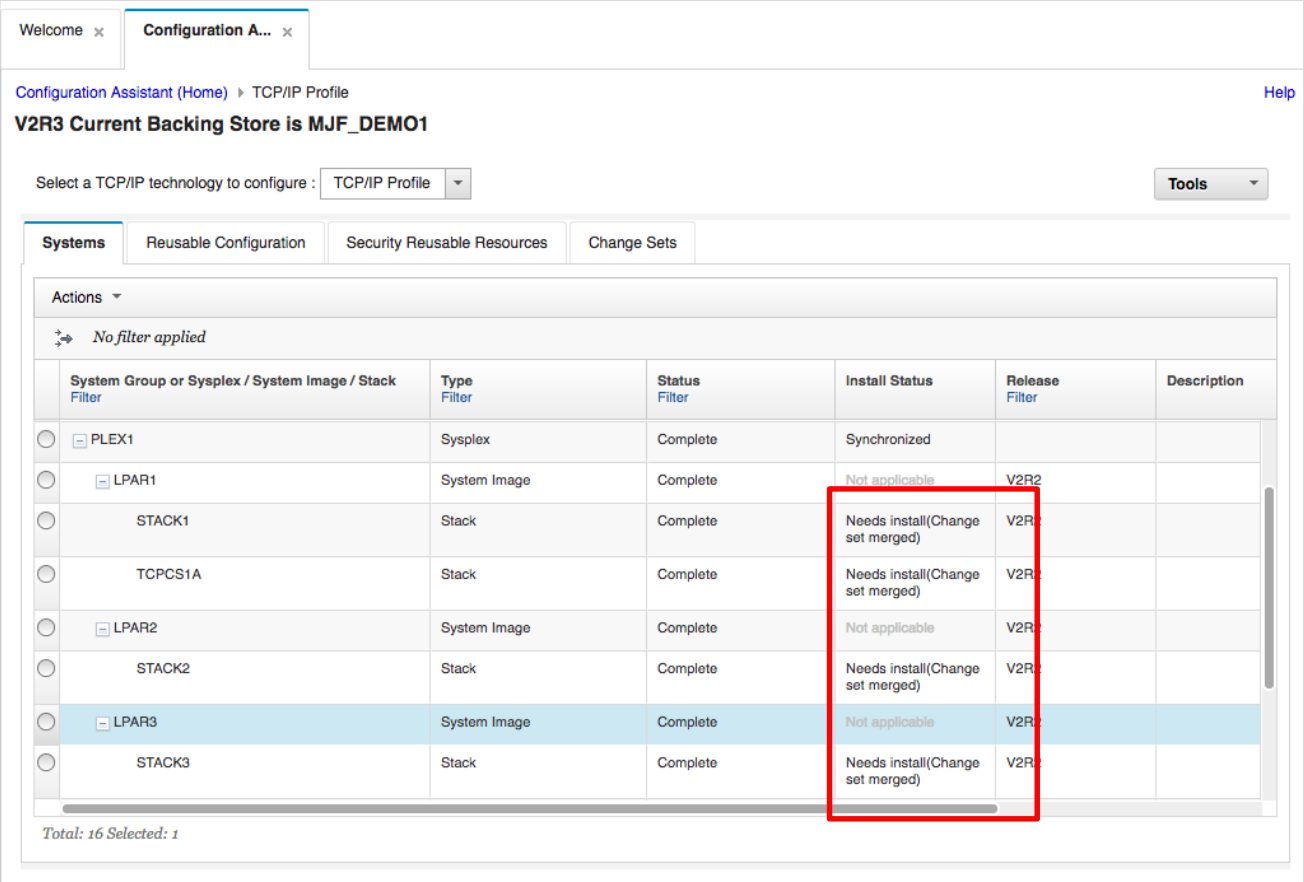
Close Save

When you install a sysplex change set, Network Configuration Assistant automatically generates OBEY files for every stack in the sysplex that is affected by the change. You can then view, install, and undo the changes on a stack by stack basis.

# Merging a sysplex change set



When you merge a sysplex change set into its base sysplex, the sysplex is updated to match the change set configuration, the changes are pushed to each affected stack in the sysplex, and the sysplex is removed from the change set (if it was the only sysplex in the change set, the change set is deleted). Each affected stack must be reinstalled to make the changed configuration available for the next stack IPL



# Sysplex change set restrictions

---

Reminder: When Network Configuration Assistant is creating an OBEY file for a change set, it creates the OBEY file necessary to change the base configuration to match the change set configuration. For this reason, Network Configuration Assistant must know exactly what is in the base TCP/IP configuration on the MVS image to correctly generate this file.

This requirement results in two main change set restrictions:

1. A change set can only be based on installed configuration.
  - For a sysplex change set, this means that every stack in the sysplex have an install status of “Installed” for the sysplex to be eligible to have a change set based on it.
2. Configuration with a change set based on it cannot be edited.
  - For a sysplex change set, this means that a sysplex with a change set based on it cannot be edited in the Network Configuration Assistant. It also means that none of the stacks that are in a sysplex that has a change set based on it can be edited. These restrictions are in place until the change set is merged or deleted.



IBM Z