

Data Migration from IPWorks HP 15B FD1 CP3 to IPWorks 2

USER GUIDE

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1 Introduction

This document describes the followings:

- Prerequisites of the data migration from IPWorks HP to IPWorks 2
- The procedure of IPWorks HP configuration data and provisioning data Backup
- The procedure of IPWorks Service Migration from IPWorks HP to IPWorks 2

This document focuses on the data migration from IPWorks HP to IPWorks 2, including:

- DNS configuration data
- ENUM configuration data
- ENUM provisioning data
- AAA Diameter configuration data
- AAA Diameter provisioning data
- AAA Radius configuration data
- AAA Radius provisioning data
- DHCP configuration data
- DHCP provisioning data

Other services and scenarios are out of the scope.

If any issue occurs during data migration, consult the next level of maintenance support.





2 Timeline

The results in Table 1 are based on the lab test and only as reference.

The actual duration of IPWorks data migration is different based on the volume of user data.

Table 1 lists all parts timeline information.

Table 1 Timeline for IPWorks Data Migration

Service	Duration (mins)	Section/Action	Comments
DNS	2	Common Backup	Includes SS configuration
	2	Database Backup	
	2	DNS Backup	
	2	Common Migration	
	8	DNS Database Migration	2 million arecord
	2	DNS Migration	
ENUM	2	Common Backup	Includes SS configuration
	2	Database Backup	
	2	ENUM Backup	
	2	Common Migration	
	84	ENUM Database Migration	24 million arecord
	2	ENUM Migration	



Service	Duration (mins)	Section/Action	Comments
DNS + ENUM	2	Common Backup	Includes SS configuration
	2	Database Backup	
	4	DNS, ENUM Backup	
	2	Common Migration	
	8	DNS, ENUM Database Migration	1 million arecord and 1 million naptrrecord
	4	DNS, ENUM Database	
AAA Diameter	2	Common Backup	Includes SS configuration
	2	Diameter Database Backup	
	2	Diameter Backup	
	2	Common Migration	
	15	Diameter Database Migration	2 million aaauser
	2	Diameter Migration	
AAA Radius	2	Common Backup	Includes SS configuration
	2	Radius Database Backup	
	2	Radius Backup	
	2	Common Migration	
	15	Radius Database Migration	2 million aaauser
	2	Radius Migration	



Service	Duration (mins)	Section/Action	Comments
DHCP	2	Common Backup	Includes SS configuration
	2	Database Backup	1000 pool
	4/8	DHCP Backup	5 million lease file/10 million lease file
	2	Common Migration	
	4	DHCP Database Migration	1000 pool
	20/25	DHCP Migration	5 million lease file/10 million lease file





3 Prerequisites

This section states the prerequisites that must be fulfilled.

This section assumes that readers have knowledge and experience with:

- Intermediate Linux and UNIX
- Concepts in virtualization
- Concepts in CEE

For information about CEE, refer to CEE Technical Description.

- Concepts, terminologies, and telecommunication abbreviations, such as TCP/IP, PDN (Packet Data Network)

Before execution of the migration, the IPWorks VNF deployment must be completed. For the deployment, refer to the IPWorks Deployment Guide.

To execute the data migration, the root access is needed.

3.1 Prepare scripts

The IPWorks software packages can be retrieved from SW Gateway. For specific information, see the product release notes.

The IPWorks software package `CXP9029034_3_Ux_<Revision Number>.tar.gz` is used for the data migration.

`CXP9029034_3_Ux_K.tar.gz` is used as an example in this document.





4 Backup

This section describes the steps of IPWorks data backup for data migration on IPWorks HP.

To perform the backup, see the Table 2:

Table 2

Service Complex	Operation	Deployment Scenario	Reference
DNS	SS Backup DNS Service Backup	For all deployments	Section 4.1 Section 4.2.1
ENUM	SS Backup ENUM Service Backup	For all deployments	Section 4.1 Section 4.2.2
DNS + ENUM	SS Backup DNS Service Backup ENUM Service Backup	For all deployments	Section 4.1 Section 4.2.1 Section 4.2.2
AAA Diameter	SS Backup AAA Diameter Service Backup	For all deployments	Section 4.1 Section 4.2.3
AAA Radius	SS Backup Radius Service Backup	For all deployments	Section 4.1 Section 4.2.4
DHCP	SS Backup DHCP Service Backup	For all deployments	Section 4.1 Section 4.2.5 on page 15

4.1 SS Backup

Backup the configuration and database on active SS node.

1. Prepare the backup scripts.

Log on the active SS node.



Copy the package CXP9029034_3_Ux_K.tar.gz to /tmp in active SS node.

```
# cd /tmp

# tar -zxvf CXP9029034_3_Ux_K.tar.gz

# cd datamigrationtool/

# cd backup/

# chmod +x ipwbackup_for_datamigration.sh ipw_get_service_conf.py ipwbackup_serverinfo.sh server_info.py
```

2. Backup IPWorks common configuration data.

```
# ./ipwbackup_for_datamigration.sh COMMON
```

Note: It generates a file called “ipwbackup_<time>_<date>_<hostname>_for_COMMON.tar.gz” under /tmp/dest.

<time>_<date> displays Coordinated Universal Time (UTC).

Expect result:

IPWORKS Backup/Migration Utility

...

File Created:

```
../dest/ipwbackup_025152_04102017_ipwm2ss-01_for_COMMON.tar.gz
```

Copy the backup file to other machine or external devices.

3. Backup IPWorks database.

```
# ./ipwbackup_for_datamigration.sh DB
```

Note: It generates a file called “ipwbackup_<time>_<date>_<hostname>_for_DB.tar.gz” under /tmp/dest.

<time>_<date> displays Coordinated Universal Time (UTC).

Expect result:

IPWORKS Backup/Migration Utility



...

File Created:

`../dest/ipwbackup_025152_04102017_ipwm2ss-01_for_DB.tar.gz`

Note: If no backup generated, refer to section 6.

Copy the backup file to other machine or external devices.

4. Backup network deployment information

`# ./ipwbackup_serverinfo.sh`

A file named “server_address.csv” will be generated under /tmp/dest.

For example:

`# cat server_address.csv`

```
server,name,host,ip AAAServer,aaaserver01,ci-wsqr2fwytfsy-ipworks28,192.168.23.79
```

```
DNSServer,dns1,ci-wsqr2fwytfsy-ipworks28,192.168.23.79
```

Copy the backup file to other machine or external devices.

4.1.1 Backup the Configuration on standby SS Node

Backup the configuration on standby SS node, if it exists.

1. Prepare the backup scripts.

Log on the standby SS node.

Copy the package CXP9029034_3_Ux_K.tar.gz to /tmp in standby SS node.

`# cd /tmp`

`# tar -zxvf CXP9029034_3_Ux_K.tar.gz`

`# cd datamigrationtool/`

`# cd backup/`

`# chmod +x ipwbackup_for_datamigration.sh ipw_get_service_conf.py ipwbackup_serverinfo.sh server_info.py`

2. Backup IPWorks common configuration data.

`# ./ipwbackup_for_datamigration.sh COMMON`



Note: It generates a file called “ipwbackup_<time>_<date>_<hostname>_f or_COMMON.tar.gz” under /tmp/dest.

<time>_<date> displays Coordinated Universal Time (UTC).

Expect result:

IPWORKS Backup/Migration Utility

...

File Created:

../dest/ipwbackup_025152_04102017_ipwm2ss-02_for_COMMON.tar.gz

Copy the backup package to other machine or external devices.

4.2 PS Backup

The PS backup contains:

- DNS service backup
- ENUM service backup
- AAA Diameter service backup
- AAA Radius service backup
- DHCP service backup

Prepare the backup scripts:

Copy the package CXP9029034_3_Ux_K.tar.gz to /tmp.

```
# cd /tmp
```

```
# tar -zxvf CXP9029034_3_Ux_K.tar.gz
```

```
# cd datamigrationtool/
```

```
# cd backup/
```

```
# chmod +x ipwbackup_for_datamigration.sh ipw_get_service_conf.py
```

4.2.1 DNS Service Backup

To backup the DNS service, do the following steps on **each** PS node:



1. Backup DNS configuration

```
#./ipwbackup_for_datamigration.sh DNS
```

Note: It generates a file called “ipwbackup_<time>_<date>_<hostname>_for_DNS.tar.gz” under /tmp/dest.

<time>_<date> displays Coordinated Universal Time (UTC).

Expect result:

```
-----
```

IPWORKS Backup/Migration Utility

```
-----
```

...

File Created:

```
../dest/ipwbackup_025152_04102017_ ipwm2ps-01_for_DNS.tar.gz
```

Note: If no backup generated, refer to section 6.

Copy the backup file to other machine or external devices.

4.2.2 ENUM Service Backup

To backup the ENUM service, do the following steps on **each** PS node:

1. Backup ENUM configuration

```
#./ipwbackup_for_datamigration.sh ENUM
```

Note: It generates a file called “ipwbackup_<time>_<date>_<hostname>_for_ENUM.tar.gz” under /tmp/dest.

<time>_<date> displays Coordinated Universal Time (UTC).

Expect result:

```
-----
```

IPWORKS Backup/Migration Utility

```
-----
```

...

File Created:

```
../dest/ipwbackup_025152_04102017_ipwm2ps-01_for_ENUM.tar.gz
```



Note: If no backup generated, refer to section 6.

Copy the backup file to other machine or external devices.

4.2.3 AAA Diameter Service Backup

To backup AAA Diameter service, do the following steps on **each** PS node:

1. Backup AAA Diameter configuration

```
# ./ipwbackup_for_datamigration.sh AAA-Dia
```

Note: It generates a file called “ipwbackup_<time>_<date>_<hostname>_f or_AAA-Dia.tar.gz” under /tmp/dest.

<time>_<date> displays Coordinated Universal Time (UTC).

Expect result:

IPWORKS Backup/Migration Utility

...

File Created:

```
../dest/ipwbackup_025152_04102017_ipwm2ps-01_for_AAA-Dia.tar.gz
```

If no backup generated, refer to section 6.

Copy the backup file to other machine or external devices.

4.2.4 AAA Radius Service Backup

To backup the AAA Radius service, do the following steps on **each** PS node:

1. Backup AAA Radius configuration

```
# ./ipwbackup_for_datamigration.sh AAA-Rad
```

Note: It generates a file called “ipwbackup_<time>_<date>_<hostname>_f or_AAA-Rad.tar.gz” under /tmp/dest.

<time>_<date> displays Coordinated Universal Time (UTC).

Expect result:

IPWORKS Backup/Migration Utility



...

File Created:

`../dest/ipwbackup_025152_04102017_ipwm2ps-01_for_AAA-Rad.tar.gz`

If no backup generated, refer to section 6.

Copy the backup file to other machine or external devices.

4.2.5 DHCP Service Backup

To backup the DHCP service, do the following steps on each PS node:

1. Stop DHCPv4 server

```
# /etc/init.d/ipworks.dhcpv4 stop
```

```
stopping IPWorks DHCPv4 server.
```

2. Back up DHCP configuration

```
# ./ipwbackup_for_datamigration.sh DHCP
```

Note: It generates a file called “ipwbackup_<time>_<date>_<hostname>”_for_DHCP.tar.gz under /tmp/dest.

<time>_<date> displays Coordinated Universal Time (UTC).

Expect result:

IPWORKS Backup/Migration Utility

...

File Created:

`../dest/ipwbackup_025152_04102017_ipwm2ps-01_for_DHCP.tar.gz`

Note: If no backup generated, refer to section 6.

Copy the backup file to other machine or external devices.





5 Migration

This section describes the steps of following migrations.

- Common Migration
- DNS Service Migration
- ENUM Service Migration
- AAA Diameter Service Migration
- AAA Radius Service Migration
- DHCP Service Migration

Before execution of the configuration migration, make sure that:

- The Backup of IPWorks HP is completed (See section 4 Backup).

To perform the migration, see table 3:

Table 3

Service Complex	Operation	Reference
DNS	Common Migration	Section 5.1
	DNS Service Migration	Section 5.2
ENUM	Common Migration	Section 5.1
	ENUM Service Migration	Section 5.3
DNS + ENUM	Common Migration	Section 5.1
	DNS Service Migration	Section 5.2
	ENUM Service Migration	Section 5.3
AAA Diameter	Common Migration	Section 5.1
	AAA Diameter Service Migration	Section 5.4
AAA Radius	Common Migration	Section 5.1
	AAA Radius Service Migration	Section 5.5
DHCP	Common Migration	Section 5.1
	DHCP Service Migration	Section 5.6 on page 45



5.1 Common Migration

The Common migration contains:

- Configuration Data Migration
- Database Migration

5.1.1 Configuration Data Migration

To execute the configuration data migration, do:

1. Log on the active SC node.

```
#ssh <Username>@<MIP_OAM_IP>
```

```
Password:<Password>
```

2. Copy the migration tool to /cluster on the SC node .

The migration tool is:

```
CXP9029034_3_Ux_K.tar.gz
```

3. Unpack the migration tool.

```
SC-x:~ # tar -zxvf CXP9029034_3_Ux_K.tar.gz
```

```
# cd datamigrationtool/
```

```
SC-x:~ # ls
```

```
backup/ dest/ migration/ ruleconf/ util/
```

4. Copy the common backup file to /cluster/datamigrationtool/migration/.

The backup file is:

```
ipwbackup_<time>_<date>_<hostname>_for_COMMOM.tar.gz
```

5. Run the migration tool.

```
SC-x:~ # cd /cluster/datamigrationtool/migration
```

```
SC-x:~ # chmod +x ipw_migrate_service.py
```

```
SC-x:~ # ./ipw_migrate_service.py COMMON SC-1 ipwbackup_<time>_<date>_<hostname>_for_COMMOM.tar.gz
```



A netconf XML file, “common_netconf_set_SC-1.xml”, is generated in /cluster/datamigrationtool/dest/ after the execution of the migration tool.

Note: If it is AAA migration, make sure the tables of ipw_prov_aaa are empty before migration.

6. Execute netconf command to import the netconf configuration.

```
SC-x:~ # netconf < /cluster/datamigrationtool/dest/common_netconf_set_SC-1.xml
```

Note: If any error, refer to section 6.

5.1.2 Database Migration

To execute the database migration, do:

1. Log on the active SC node.

```
#ssh <Username>@<MIP_OAM_IP>
```

```
Password:<Password>
```

2. Check the status of the NDB Cluster Node.

Check the status of the NDB Cluster Node as following:

```
SC-x:~ # ipw-ctr status all
```

```
on SC-1 :
```

```
...
```

```
sqlnodemgr is running as standby role.
```

```
on SC-2 :
```

```
...
```

```
sqlnodemgr is running as active role.
```

At least the sqlnodemgr is running on one SC node. If not, start sqlnodemgr as following:

```
SC-x:~ # ipw-ctr start sqlnodemgr
```

```
Start sqlnodemgr ==> success.
```

3. Copy the DB backup file to /cluster/datamigrationtool/migration/.

The backup file is:



```
ipwbackup_<time>_<date>_<hostname>_for_DB.tar.gz
```

4. Run the migration tool

```
SC-x:~ # cd /cluster/datamigrationtool/migration/
```

```
SC-x:~ # chmod +x ipw_migrate_db.py
```

a. Database migration for Common part:

```
SC-x:~ # ./ipw_migrate_db.py COMMON ipwbackup_<time>_<date>_<hostname>_for_DB.tar.gz
```

b. Database migration for service:

```
SC-x:~ # ./ipw_migrate_db.py <SERVICE_NAME>  
ipwbackup_<time>_<date>_<hostname>_for_DB.tar.gz
```

The <SERVICE_NAME> can be set as DNS, ENUM, AAA or DHCP according to the actual environment.

If the <SERVICE_NAME> is set as AAA, a netconf XML file, “db_netconf_set_aaa.xml”, is generated in /cluster/datamigrationtool/dest/ after the execution of the migration tool.

Note: Currently the netconf XML file will be only generated for AAA Radius services.

If any error, refer to section 6.

5. In case of AAA Radius, execute netconf command to import the netconf configuration.

```
SC-x:~ # netconf < /cluster/datamigrationtool/dest/db_netconf_set_aaa.xml
```

Note: If any error, refer to section 6.

6. Configure the **UserName** and **Password** for the Storage Server.

The **UserName** and **Password** migrate from HP to IPWork 2 for the Storage Server.

Configure them same with in HP.

```
SC-x:~ # /opt/com/bin/cliss
```

For information about how to use ECLI, refer to Ericsson Command-Line Interface User Guide.

```
>configure
```




```
(config)>ManagedElement=<Node Name>,IpworksFunction=1,IpworksCommonRoot=1,StorageServer=1,SSInterface=1
```

```
(config-SSInterface=1)> username=<Storage Server UserName>
```

```
(config-SSInterface=1)> password="<Storage Server Password>"
cleartext
```

```
(config-StorageServer=1)> commit
```

```
(config-StorageServer=1)> exit
```

7. Restart Storage Server by ipw-ctr

```
SC-x:~ # ipw-ctr restart ss SC-1
```

```
SC-x:~ # ipw-ctr restart ss SC-2
```

5.2 DNS Service Migration

There are two types of DNS service, see Page 21.

Table 4 Types of DNS

DNS Service Type	Reference
Scenario 1: DNS	See section 5.2.1
Scenario 2: iDNS and eDNS	See section 5.2.2
Scenario 3: Single PS to Multiple PL	See section 5.2.3

5.2.1 DNS Service Migration for Scenario 1: DNS

To execute the DNS service configuration data migration, do:

1. Log on the active SC node.

```
#ssh <Username>@<MIP_OAM_IP>
```

```
Password:<Password>
```

2. Copy the DNS backup packages to /cluster/datamigrationtool/migration/.

For example:

The backup packages are:

```
ipwbackup_<time>_<date>_<hostname 1>_for_DNS.tar.gz
```

```
ipwbackup_<time>_<date>_<hostname 2>_for_DNS.tar.gz
```



...

Because DNS service needs 2 PLs for the migration, choose only two backup packages.

For example:

```
ipwbackup_<time>_<date>_<hostname 1>_for_DNS.tar.gz and  
ipwbackup_<time>_<date>_<hostname 2>_for_DNS.tar.gz for PL-3 and  
PL-4
```

3. Run the migration tool on the SC for the two PLs.

```
SC-x:~ # cd /cluster/datamigrationtool/migration/
```

```
SC-x:~ # ./ipw_migrate_service.py DNS <PL Node hostname>  
ipwbackup_<time>_<date>_<hostname n>_for_DNS.tar.gz
```

Example:

```
SC-x:~ # ./ipw_migrate_service.py DNS PL-3 ipwbackup_091108_040  
12017_ipwm2ps1_for_DNS.tar.gz
```

A netconf XML file, “dns_netconf_set_PL-3.xml”, is generated in /cluster/datamigrationtool/dest/ after the execution of the migration tool.

```
SC-x:~ # ./ipw_migrate_service.py DNS PL-4 ipwbackup_091108_040  
12017_ipwm2ps2_for_DNS.tar.gz
```

A netconf XML file, “dns_netconf_set_PL-4.xml”, is generated in /cluster/datamigrationtool/dest/ after the execution of the migration tool.

Note: If any error, refer to section 6.

4. Execute netconf command to import the netconf configuration.

```
SC-x:~ # netconf < /cluster/datamigrationtool/dest/dns_netconf_  
set_<PL node>.xml
```

For example:

```
SC-x:~ # netconf < /cluster/datamigrationtool/dest/dns_netconf_  
_set_PL-3.xml
```

```
SC-x:~ # netconf < /cluster/datamigrationtool/dest/dns_netconf_  
_set_PL-4.xml
```

Note: If any error, refer to section 6.

5. Change DNS server address for the two PLs.



```
#ipwcli
```

```
IPWorks> modify dnsserver <dnsserver name 1> -set  
Address=169.254.100.3
```

```
IPWorks> modify dnsserver <dnsserver name 2> -set  
Address=169.254.100.4
```

```
IPWorks> exit
```

6. Restart the DNS service for each PLs.

Restart the DNS Server Manager.

```
SC-x:~ #ipw-ctr restart dnssm <PL node>
```

For example: ipw-ctr restart dnssm PL-3

Restart the DNS service.

```
SC-x:~ #ipw-ctr restart dns <PL node>
```

For more information on how to start and stop DNS service, refer to the Section Starting and Stopping DNS Service in [Configure DNS and ENUM](#).

7. Update the DNS server.

```
SC-x:~ #ipwcli
```

```
IPWorks>update dnsserver <server name> -rebuild=true
```

Result of performing an export is:

```
— Exported the zone [MasterZone iptelco.com]
```

```
— Exported configuration for [DnsServer dns1]
```

```
— Updated the configuration for 'DNS' server 'dns1'
```

```
IPWorks>exit
```

8. Start ASDNS monitor

Check that if ASDNS monitor function is configured.

```
SC-x:~ #ipwcli
```

```
IPWorks>list monitor
```

If no monitor listed, skip this step. Otherwise do as following:

Modify ASDNS monitor address to internal IP address.

```
SC-x:~ #ipwcli
```



```
IPWorks> modify monitor <monitor name 1> -set address=169.254
.100.3
```

```
IPWorks> modify monitor <monitor name 2> -set address=169.254
.100.4
```

```
IPWorks> exit
```

Restart ASDNS monitor.

```
SC-x:~ # ipw-ctr restart asdnssm PL-3
```

```
Stop asdnssm ==> success.
```

```
Start asdnssm ==> success.
```

```
SC-x:~ # ipw-ctr restart asdns PL-3
```

```
Stop asdns ==> success.
```

```
Start asdns ==> success.
```

```
SC-x:~ # ipw-ctr restart asdnssm PL-4
```

```
Stop asdnssm ==> success.
```

```
Start asdnssm ==> success.
```

```
SC-x:~ # ipw-ctr restart asdns PL-4
```

```
Stop asdns ==> success.
```

```
Start asdns ==> success.
```

Update ASDNS monitor.

Update all ASDNS monitor based on the actual environment.

```
SC-x:~ # ipwcli
```

```
IPWorks> update monitor asndsmon1
```

```
IPWorks> exit
```

5.2.2 DNS Service Migration for Scenario 2: iDNS and eDNS

To execute the iDNS and eDNS service configuration data migration, do:

1. Log on the active SC node.

```
#ssh <Username>@<MIP_OAM_IP>
```

```
Password:<Password>
```



2. Copy the DNS backup packages including iDNS and eDNS to `/cluster/datamigrationtool/migration/`.

For example:

The backup packages are:

iDNS: `ipwbackup_<time>_<date>_<hostname 1>_for_DNS.tar.gz`

iDNS: `ipwbackup_<time>_<date>_<hostname 2>_for_DNS.tar.gz`

...

eDNS: `ipwbackup_<time>_<date>_<hostname 3>_for_DNS.tar.gz`

eDNS: `ipwbackup_<time>_<date>_<hostname 4>_for_DNS.tar.gz`

...

Because iDNS or eDNS service needs 2 PLs for the migration, choose only two backup packages for one type of iDNS or eDNS into one IPWorks 2 system.

For example:

`ipwbackup_<time>_<date>_<hostname 1>_for_DNS.tar.gz` and `ipwbackup_<time>_<date>_<hostname 2>_for_DNS.tar.gz` for PL-3 and PL-4, or `ipwbackup_<time>_<date>_<hostname 3>_for_DNS.tar.gz` and `ipwbackup_<time>_<date>_<hostname 4>_for_DNS.tar.gz` for PL-3 and PL-4

3. Run the migration tool on the SC for the two PLs.

```
SC-x:~ # cd /cluster/datamigrationtool/migration/
```

```
SC-x:~ # ./ipw_migrate_service.py DNS <PL Node hostname>
ipwbackup_<time>_<date>_<hostname n>_for_DNS.tar.gz
```

Example:

```
SC-x:~ # ./ipw_migrate_service.py DNS PL-3 ipwbackup_091108_040
12017_ipwm2ps1_for_DNS.tar.gz
```

A netconf XML file, “`dns_netconf_set_PL-3.xml`”, is generated in `/cluster/datamigrationtool/dest/` after the execution of the migration tool.

```
SC-x:~ # ./ipw_migrate_service.py DNS PL-4 ipwbackup_091108_040
12017_ipwm2ps2_for_DNS.tar.gz
```

A netconf XML file, “`dns_netconf_set_PL-4.xml`”, is generated in `/cluster/datamigrationtool/dest/` after the execution of the migration tool.



Note: If any error, refer to section 6.

4. Execute netconf command to import the netconf configuration.

```
SC-x:~ # netconf < /cluster/datamigrationtool/dest/dns_netconf_
_set_<PL node>.xml
```

For example:

```
SC-x:~ # netconf < /cluster/datamigrationtool/dest/dns_netconf_
_set_PL-3.xml
```

```
SC-x:~ # netconf < /cluster/datamigrationtool/dest/dns_netconf_
_set_PL-4.xml
```

Note: If any error, refer to section 6.

5. Change DNS server address for the two PLs.

```
#ipwcli
```

```
IPWorks> modify dnsserver <dnsserver name 1> -set
Address=169.254.100.3
```

```
IPWorks> modify dnsserver <dnsserver name 2> -set
Address=169.254.100.4
```

```
IPWorks> exit
```

6. Delete the DNS server whose IP address is not changed.

```
SC-x:~ # ipwcli
```

```
IPWorks> list dnsserver
```

If there are more than two DNS servers, delete the DNS sever whose IP address is not changed:

For example: [DnsServer dns3] (169.254.100.5) is not currently available. Operation update is interrupted.

```
IPWorks> delete dnsserver dns3
```

Working on 1 object(s).

The [DnsServer dns3] has been marked for deletion. If it is deleted then all the objects contained within this object will also be deleted as well. If there is a large number of objects this operation could take a while. Do you want to continue?
[yes] > yes

The [View default] has been marked for deletion. If it is deleted then all the objects contained within this object will



also be deleted as well. If there is a large number of objects this operation could take a while. Do you want to continue?
[yes] > **yes**

The [TSIGKey dns3-default-smkey] has been marked for deletion. If it is deleted then the Server Manager for the associated server may not be able to communicate correctly with the server. Do you want to continue? [yes] > **yes**

1 object(s) were updated.

After deletion of all DNS servers whose IP address is not changed, do:

```
IPWorks>update dnsserver -rebuild=true
```

```
IPWorks>exit
```

7. Restart the DNS service for each PLs.

Restart the DNS Server Manager.

```
SC-x:~ #ipw-ctr restart dnssm <PL node>
```

For example: ipw-ctr restart dnssm PL-3

```
SC-x:~ #ipw-ctr restart dnssm PL-3
```

Restart the DNS service.

```
SC-x:~ #ipw-ctr restart dns <PL node>
```

For more information on how to start and stop DNS service, refer to the Section Starting and Stopping DNS Service in [Configure DNS and ENUM](#).

```
IPWorks>update dnsserver -rebuild=true
```

```
IPWorks>exit
```

8. Start ASDNS monitor

Check that if ASDNS monitor function is configured.

```
SC-x:~ # ipwcli
```

```
IPWorks> list monitor
```

If no monitor listed, skip this step. Otherwise do as following:

Modify ASDNS monitor address to internal IP address.

```
SC-x:~ # ipwcli
```



```
IPWorks> modify monitor <monitor name 1> -set address=169.254  
.100.3
```

```
IPWorks> modify monitor <monitor name 2> -set address=169.254  
.100.4
```

```
IPWorks> exit
```

If there are more than two monitors, delete the monitor whose IP address is not changed.

For example:

```
IPWorks> delete monitor monitor3
```

Working on 1 object(s).

The [Monitor monitor3] has been marked for deletion. If it is deleted then all the objects contained within this object will also be deleted as well. If there is a large number of objects this operation could take a while. Do you want to continue?
[yes] > **yes**

1 object(s) were updated.

Restart ASDNS monitor.

```
SC-x:~ # ipw-ctr restart asdnssm PL-3
```

Stop asdnssm ==> success.

Start asdnssm ==> success.

```
SC-x:~ # ipw-ctr restart asdns PL-3
```

Stop asdns ==> success.

Start asdns ==> success.

```
SC-x:~ # ipw-ctr restart asdnssm PL-4
```

Stop asdnssm ==> success.

Start asdnssm ==> success.

```
SC-x:~ # ipw-ctr restart asdns PL-4
```

Stop asdns ==> success.

Start asdns ==> success.

Update all ASDNS monitor based on the actual environment.



```
SC-x:~ # ipwcli

IPWorks> update monitor asndsmon1

IPWorks> exit
```

5.2.3 DNS Service Migration for Scenario 3: Single PS to Multiple PL

To execute the DNS service migration from single PS to multiple PL, do the followings:

1. Log on the active SC node.

```
#ssh <Username>@<MIP_OAM_IP>
```

```
Password:<Password>
```

2. Copy the DNS backup packages to /cluster/datamigrationtool/migration/.

For example:

The backup packages is:

```
idNS: ipwbackup_<time>_<date>_<hostname 1>_for_DNS.tar.gz
```

Because there is only 1 PS in HP platform, so there is only one backup package here.

3. Run the migration tool on the SC for the PL-3.

```
SC-x:~ # cd /cluster/datamigrationtool/migration/
```

```
SC-x:~ # ./ipw migrate service.py DNS PL-3 ipwbackup_<time>_<date>_<hostname n>_for_DNS.tar.gz
```

Example:

```
SC-x:~ # ./ipw_migrate_service.py DNS PL-3 ipwbackup_091108_04012017_ipwm2ps1_for_DNS.tar.gz
```

A netconf XML file, “dns_netconf_set_PL-3.xml”, is generated in /cluster/datamigrationtool/dest/ after the execution of the migration tool.

Note: If any error, refer to section 6.

4. Execute netconf command to import the netconf configuration.

```
SC-x:~ # netconf < /cluster/datamigrationtool/dest/dns_netconf_set_PL-3.xml
```

5. Change DNS server address for the PL node.



```
#ipwcli
```

```
IPWorks> modify dnsserver <dnsserver name 1> -set  
Address=169.254.100.3
```

```
IPWorks> exit
```

6. Restart the DNS service for PL-3.

For example,

- Restart the DNS Server Manager.

```
SC-x:~ #ipw-ctr restart dnssm PL-3
```

- Restart the DNS service.

```
SC-x:~ #ipw-ctr restart dns PL-3
```

For more information on how to start and stop DNS service, refer to the Section Starting and Stopping DNS Service in *Configure DNS and ENUM*.

7. Update the DNS server for PL-3.

For example,

```
SC-x:~ #ipwcli
```

```
IPWorks>update dnsserver <server name in PL-3> -rebuild=true
```

Result of performing an export is:

- Exported the zone [MasterZone iptelco.com]
- Exported configuration for [DnsServer dns1]
- Updated the configuration for 'DNS' server 'dns1'

```
IPWorks>exit
```

8. Create a new DNS server named dns2@PL-3.

Note: The DNS server name must be like “xxx@PL-3” format for replication.

For example,

```
SC-x:~ #ipwcli IPWorks>create dnsserver dns2@PL-3 -set  
address=169.2 54.100.4 IPWorks>exit
```

Enter "default" if the following output shows:

A default view is associated with this DNS server. Which area will the default area for Zones in the "default" view? This view is associated with DnsServer(s)[dns2@PL-3]. The areas that exist are



```
[default,RuncornInt,SloughInt]. >.
```

9. Restart the DNS service for PL-4 .

- a. Before updating the DNS server, restart DNS Server Manager and DNS server.

For example,

```
#ipw-ctr restart dnssm PL-4
```

```
#ipw-ctr restart dns PL-4
```

- b. Update the DNS server, and restart DNS server again.

For example,

```
SC-x:~ #ipwcli
```

```
IPWorks>update dnsserver <server name in PL-4>  
-rebuild=true #ipw-ctr restart dns PL-4
```

For more information on how to start and stop DNS service, refer to the Section Starting and Stopping DNS Service in [Configure DNS and ENUM](#).

5.3 ENUM Service Migration

To execute the ENUM service configuration data migration, do:

1. Log on the active SC node.

```
#ssh <Username>@<MIP_OAM_IP>
```

```
Password:<Password>
```

2. Copy the ENUM backup packages to /cluster/datamigrationtool/migration/.

For example:

The backup packages are:

```
ipwbackup_<time>_<date>_<hostname 1>_for_ENUM.tar.gz
```

```
ipwbackup_<time>_<date>_<hostname 2>_for_ENUM.tar.gz
```

```
...
```

Because ENUM service needs 2 PLs for the migration, choose only two backup packages.



For example:

```
ipwbackup_<time>_<date>_<hostname 1>_for_ENUM.tar.gz and
ipwbackup_<time>_<date>_<hostname 2>_for_ENUM.tar.gz for PL-3
and PL-4
```

3. Run the migration tool for the two PLs

```
SC-x:~ # cd /cluster/datamigrationtool/migration/
```

```
SC-x:~ # ./ipw_migrate_service.py ENUM <PL Node> ipwbackup_<ti
me>_<date>_<hostname n>_for_ENUM.tar.gz
```

For example:

```
SC-x:~ # ./ipw_migrate_service.py ENUM PL-3 ipwbackup_091108_04
012017_ipwm2ps1_for_ENUM.tar.gz
```

A netconf XML file, “enum_netconf_set_PL-3.xml”, is generated in /cluster/datamigrationtool/dest/ after the execution of the migration tool.

```
SC-x:~ # ./ipw_migrate_service.py ENUM PL-4 ipwbackup_091108_04
012017_ipwm2ps2_for_ENUM.tar.gz
```

A netconf XML file, “enum_netconf_set_PL-4.xml”, is generated in /cluster/datamigrationtool/dest/ after the execution of the migration tool.

4. Execute netconf command to import the netconf configuration.

```
SC-x:~ # netconf < /cluster/datamigrationtool/dest/enum_netconf
_set_<PL Node>.xml
```

For example:

```
SC-x:~ # netconf < /cluster/datamigrationtool/dest/enum_netconf
_set_PL-3.xml
```

```
SC-x:~ # netconf < /cluster/datamigrationtool/dest/enum_netconf
_set_PL-4.xml
```

Note: If any error, refer to section 6.

5. Initial Configuration of ENUM Number Portability

Currently the data migration tool does not contain the configuration of ENUM Number Portability. If needed, do the following procedure manually.

For more information, refer to the following sections in IPWorks Initial Configuration:

Section 3.4.2 Initial Configuration of ENUM Number Portability via SS7



Section 3.4.3 Initial Configuration of ENUM Number Portability via LDAP

6. Delete the ENUM server, which is not used.

Delete the ENUM server, whose **id** is not set as 1.

```
IPWorks> delete enumserver <id>
```

For example:

```
IPWorks> delete enumserver 2
```

Working on 1 object(s).

1 object(s) were updated.

7. Restart ENUM service for the two PLs

For example:

```
SC-x:~ # ipw-ctr restart enum PL-3
```

For more information on how to start and stop ENUM service, refer to the Section Starting and Stopping ENUM Server in [Configure DNS and ENUM](#).

5.4 AAA Diameter Service Configuration Data Migration

The AAA Diameter service configuration data migration contains:

- Service Configuration Data Migration.
- Configure EPC AAA.
- Configure the Diameter Stack.
- Change Server Address to internal IP Address for all PLs.
- Restart the EPC AAA Service.

5.4.1 Service Configuration Data Migration

To execute the AAA Diameter service configuration data migration, do:

1. Log on the active SC node.

```
#ssh <Username>@<MIP_OAM_IP>
```

```
Password:<Password>
```

2. Copy the AAA diameter backup packages to /cluster/datamigrationto
ol/migration/.



The backup files are:

```
ipwbackup_<time>_<date>_<hostname 1>_for_AAA-Dia.tar.gz
```

```
ipwbackup_<time>_<date>_<hostname 2>_for_AAA-Dia.tar.gz
```

Because AAA Diameter service needs 2 PLs for the migration, choose only two backup packages.

For example:

```
ipwbackup_<time>_<date>_<hostname 1>_for_AAA-Dia.tar.gz and  
ipwbackup_<time>_<date>_<hostname 2>_for_AAA-Dia.tar.gz for PL-3  
and PL-4
```

3. Run the migration tool for PL-3 and PL-4.

```
SC-x:~ # cd /cluster/datamigrationtool/migration/
```

```
SC-x:~ # ./ipw_migrate_service.py DIAMETER <PL Node hostname>  
ipwbackup_<time>_<date>_<hostname n>_for_AAA-Dia.tar.gz
```

For example:

```
SC-x:~ # cd /cluster/datamigrationtool/migration/
```

```
SC-x:~ # ./ipw_migrate_service.py DIAMETER PL-3 ipwbackup_0911  
08_04012017_ipwm2ps1_for_AAA-Dia.tar.gz
```

A netconf XML file, “diameter_netconf_set_PL-3.xml”, is generated in /cluster/datamigrationtool/dest/ after the execution of the migration tool.

```
SC-x:~ # ./ipw_migrate_service.py DIAMETER PL-4 ipwbackup_0911  
08_04012017_ipwm2ps2_for_AAA-Dia.tar.gz
```

A netconf XML file, “diameter_netconf_set_PL-4.xml”, is generated in /cluster/datamigrationtool/dest/ after the execution of the migration tool.

Note: If any error, refer to section 6.

4. Execute netconf command to modify the netconf configuration.

```
SC-x:~ # netconf < /cluster/datamigrationtool/dest/diameter_net  
conf_set_PL-3.xml
```

```
SC-x:~ # netconf < /cluster/datamigrationtool/dest/diameter_net  
conf_set_PL-4.xml
```

Note: If any error, refer to section 6.



5.4.2 Configure EPC AAA

The prerequisites in section 1.1 in [Configure EPC AAA](#) must be fulfilled first.

Because currently the data migration tool does not support parts of EPC AAA configuration migration automatically, the following steps only can be done manually.

To configure EPC AAA, do:

1. Configuring EPC AAA Session Capacity License Type

Refer to section 2.1.3 in [Configure EPC AAA](#).

2. Configuring HSSHOST for EPC AAA

If the HSSHOST for EPC AAA Configuration is not used in HP, skip to next step.

Refer to section 2.2.7 in [Configure EPC AAA](#).

3. Configuring EPC AAA Certification and OCSP

To configure the EPC AAA PKI authentication, EPC AAA Certification and OCSP must be configured.

- a. Unpack ipwbackup_<time>_<date>_<hostname n>_for_AAA-Dia.tar.gz

```
SC-x:~ # tar -zxvf ipwbackup_<time>_<date>_<hostname n>_for_AAA-Dia.tar.gz
```

- b. Migrate the certificate files from backup file

Refer to Certificate Files on HP in backup package ipwbackup_<time>_<date>_<hostname n>_for_AAA-Dia.tar.gz, as the following table.

Certificate File	Directory
CA Root Certificate	/cluster/datamigrationtool/migration/tmp/ipwbackup/conf/ca_cert_path
Certificate For The Server	/cluster/datamigrationtool/migration/tmp/ipwbackup/conf/server_cert
Private Key of The Server	/cluster/datamigrationtool/migration/tmp/ipwbackup/conf/server_key

Refer to section 2.4.1 in [Configure EPC AAA](#).



c. Configuring OCSP in ECLI

For configuring OCSP CA server name and responder URL, refer to `/cluster/datamigrationtool/migration/tmp/ipwbackup/conf/aaa_ocsp.xml` in the backup package.

For example:

The contents in `/cluster/datamigrationtool/migration/tmp/ipwbackup/conf/aaa_ocsp.xml` as following:

```
<ocsp softfail="yes">

<server use_nonce="yes" name="/C=AU/ST=Some-State/O=Internet Widgits Pty Ltd/CN=CA">

<responder url="http://127.0.0.1:80/ocsp/" /> </server>

</ocsp>
```

Configure CA server name and responder URL according to `/cluster/datamigrationtool/migration/tmp/ipwbackup/conf/aaa_ocsp.xml`.

```
# ssh <username>@<MIP_OAM_IP> -t -s cli
```

```
>configure
```

```
(config)>dn ManagedElement=<Node Name>,IpworksFunction=1,IPWorksAAARoot=1,IPWorksDiameterAAARoot=1,DiameterAAAService=1,AAAPKIService=1,OCSPMgr=1
```

```
(config-OCSPMgr=1)>enableOcspCheck=true
```

```
(config-OCSPMgr=1)>OCSPServer=1
```

```
(config-OCSPServer=1)>name="/C=AU/ST=Some-State/O=Internet Widgits Pty Ltd/CN=CA"
```

```
(config-OCSPServer=1)>responderUrl="http://127.0.0.1:80/ocsp/"
```

```
(config-OCSPServer=1)>commit
```

```
(OCSPServer=1)>exit
```

d. Configuring APNs for EPC AAA PKI User

To Configure APNs for EPC AAA PKI User according to `/cluster/datamigrationtool/migration/tmp/ipwbackup/conf/aaa_apn.xml` in the backup package, refer to step 5 in section 2.4.4 in [Configure EPC AAA](#).



4. Configuring Wi-Fi Mobility Management

a. Configuring Geography IP Data

This step describes how to configure the geography IP data according to the defined CSV format for Wi-Fi Mobility Management.

Refer to section 2.5.5 in [Configure EPC AAA](#).

b. Configuring ISOCC to MCC Mapping Dictionary

Refer to section 2.5.6 in [Configure EPC AAA](#).

Note: Refer to `/cluster/datamigrationtool/migration/tmp/ipwbackup/conf/isocc_to_mcc.csv` in the backup package.

c. Configuring E164CC to MCC Mapping Dictionary

Refer to section 2.5.7 in [Configure EPC AAA](#).

Note: Refer to `/cluster/datamigrationtool/migration/tmp/ipwbackup/conf/e164cc_to_mcc.csv` in the backup package.

5.4.3 Configure the Diameter Stack

Because currently the data migration tool does not support the configuration of Diameter Stack automatically, the follow steps must be done manually.

To configure the Diameter Stack, Refer to [Diameter Stack Configuration Guide](#) and the `/cluster/datamigrationtool/migration/tmp/ipwbackup/conf/aaa_diameter.xml` file in backup package to set the parameters.

5.4.4 Change server address to internal IP address for PL-3 and PL-4

To change server address to internal IP address for all PLs, do:

```
SC-x:~ # ipwcli
```

```
IPWorks>modify aaaserver <aaadiameterserv1> -set Address=169.254.100.3
```

```
IPWorks>modify aaaserver <aaadiameterserv2> -set Address=169.254.100.4
```

```
IPWorks>exit
```

5.4.5 Restart the EPC AAA Service

The hostname of the payload changes according to the actual configuration environment.



To restart the EPC AAA Service, do:

1. Restart the AAA Server Manager.

```
SC-x:~ # ipw-ctr restart aaasm PL-3
```

```
SC-x:~ # ipw-ctr restart aaasm PL-4
```

2. Restart the EPC AAA service.

```
SC-x:~ # ipw-ctr restart aaa_diameter PL-3
```

```
SC-x:~ # ipw-ctr restart aaa_diameter PL-4
```

For more information on how to start and stop the EPC AAA service, refer to the section Starting and Stopping AAA Server in [Configure EPC AAA](#).

5.5 AAA Radius Service Migration

The AAA Radius Service Migration contains:

- AAA Radius Service Configuration Data Migration
- Configure AAA Radius
- Radius AAA Initial Configuration
- Restart AAA Radius

5.5.1 AAA Radius Service Configuration Data Migration

To execute AAA Radius service configuration data migration, do:

1. Log on the active SC node.

```
# ssh <Username>@<MIP_OAM_IP>
```

```
Password: <Password>
```

2. Copy the AAA Radius backup file to /cluster/datamigrationtool/migration/.

The backup files are:

```
ipwbackup_<time>_<date>_<hostname 1>_for_AAA-Rad.tar.gz
```

```
ipwbackup_<time>_<date>_<hostname 2>_for_AAA-Rad.tar.gz
```

...

Because AAA Radius service needs 2 PLs for the migration, choose only two backup packages .



3. Run the migration tool for PL-3 and PL-4.

```
SC-x:~ # cd /cluster/datamigrationtool/migration/
```

```
SC-x:~ # ./ipw_migrate_service.py RADIUS <PL Node hostname>
ipwbackup_<time>_<date>_<hostname n>_for_AAA-Rad.tar.gz
```

For example:

```
SC-x:~ # cd /cluster/datamigrationtool/migration/
```

```
SC-x:~ # ./ipw_migrate_service.py RADIUS PL-3 ipwbackup_091108_
04012017_ipwm2ps1_for_AAA-Rad.tar.gz
```

A netconf XML file, “radius_netconf_set_PL-3.xml”, is generated in /cluster/datamigrationtool/dest/ after the execution of the migration tool.

```
SC-x:~ # ./ipw_migrate_service.py RADIUS PL-4 ipwbackup_091108_
04012017_ipwm2ps2_for_AAA-Rad.tar.gz
```

A netconf XML file, “radius_netconf_set_PL-4.xml”, is generated in /cluster/datamigrationtool/dest/ after the execution of the migration tool.

```
SC-x:~ # chmod +x ipw_migrate_conf_db.py
```

```
SC-x:~ # ./ipw_migrate_conf_db.py ipwbackup_<time>_<date>_
<hostname>_for_DB.tar.gz ipwbackup_<time>_<date>_<hostname
n>_for_AAA-Rad.tar.gz
```

A netconf XML file, “conf_db_netconf_set.xml”, is generated in /cluster/datamigrationtool/dest/ after the execution of the migration tool.

Note: If any error, refer to section 6.

4. Execute netconf command to import the netconf configuration.

```
SC-x:~ # netconf < /cluster/datamigrationtool/dest/radius_net
conf_set_PL-3.xml
```

```
SC-x:~ # netconf < /cluster/datamigrationtool/dest/radius_net
conf_set_PL-4.xml
```

```
SC-x:~ # netconf < /cluster/datamigrationtool/dest/conf_db_ne
tconf_set.xml
```

Note: If any error, refer to section 6.



5.5.2 Configure AAA Radius

Because currently the data migration tool does not support parts of AAA Radius configuration migration automatically, the following steps only can be done manually.

To configure AAA Radius, do:

1. Configuring FTP Server

Refer to section 3.5.2.2 Configuring FTP Server Configuring Dictionaries in [Configure Radius AAA](#).

2. Configure Dictionaries

Unpack ipwbackup_<time>_<date>_<hostname>_for_AAA-Rad.tar.gz

```
SC-x:~ # tar -zxvf ipwbackup_<time>_<date>_<hostname>_for_AAA-Rad.tar.gz
```

Copy the directory /cluster/datamigrationtool/migration/tmp/ipwbackup/conf/dict in backup package ipwbackup_<time>_<date>_<hostname>_for_AAA-Rad.tar.gz to overwrite the directory /etc/ipworks/aaa_radius/dict on IPWorks 2.

For more information, refer to section 3.6 Configuring Dictionaries in [Configure Radius AAA](#).

3. Configuring CUDB Connection Pool

CUDB connection configuration varies based on the actual environment for AAA-FE connects to the nodes.

If AAA-FE is not used in HP, skip this step.

For configuring the parameter values, refer to the backup file /cluster/datamigrationtool/migration/tmp/ipwbackup/conf/cu_db_connection_pool.xml in ipwbackup_<time>_<date>_<hostname>_for_AAA-Rad.tar.gz.

Refer to section 7.2 Configuring CUDB Connection Pool in [Configure Radius AAA](#).

4. Configuring Wi-Fi AAA

If Wi-Fi AAA is not used in HP, skip this step.

IPWorks 2 supports two EAP authentication method: EAP-SIM, EAP-AKA.

Before the configuration, SS7 Stack must be configured for WiFi AAA, if the user case is 2G/3G USIM (SIM) based on UE authentication with HLR.

For more information, refer to [Configure SS7 for AAA](#).



a. Configuring Subscription Authorization Mode

The authorization mode can be APN_MODE or ODB_MODE , according to the actual configuration to configure the authorization mode.

Refer to section 8.3 Configuring Subscription Authorization Mode in *Configure Radius AAA*.

For configuring or modifying the parameter values, refer to the backup file `/cluster/datamigrationtool/migration/tmp/ipwbackup/conf/aaa_wifi_data.xml` in `ipwbackup_<time>_<date>_<hostname>_for_AAA-Rad.tar.gz`.

b. Configuring GT Convert

Sometimes, customers use the Mobile Global Title (MGT, E.214) to address the HLR. The MGT is a result of IMSI Series Analysis.

Refer to section 8.7 Configuring GT Convert in *Configure Radius AAA*.

5.5.3 Radius AAA Initial Configuration

To configure Radius AAA initial configuration, do:

1. Configure the eVIP flow policy for Radius AAA.

Note: This step can be skipped, when new IPWorks is deployed with Radius AAA.

- a. Check the instance of MO RadiusInterface to find the port numbers.

For example:

```
SC-X:~ # cliss
```

```
>ManagedElement=<Node Name>,IpworksFunction=1,IPWorksAAARoot=1,IPWorksRadiusAAARoot=1,RadiusStack=1,RadiusInterface=1
```

```
(RadiusInterface=1)>show -v
```

```
RadiusInterface=1
```

```
acctAddress="any" <default>
```

```
acctPort=1813 <default>
```

```
authAuthzAddress="any" <default>
```

```
authAuthzPort=1812 <default>
```

```
dmCoaPort=3799 <default>
```



```
localhostBindIPType=IPv4 <default>
proxyAddress="any" <default>
proxyBindIPType=IPv4 <default>
proxyPortsNumEachPL=100
proxyStartPort=10000 <default>
radiusInterfaceId="1"
```

The example shows that the default Radius listening ports 1812, 1813, and 3799 are configured.

- b. Check the instances of MO EvipFlowPolicy, whether the Radius listening ports (1812, 1813, and 3799) are configured already. If yes, skip to section 5.5.4.

For example:

```
SC-X:~ # cliss
```

```
>dn ManagedElement=<Node Name>,Transport=1,Evip=1,EvipAlbs=1,EvipAlb=ipw_sig_sp,EvipFlowPolicies=1
```

```
(EvipFlowPolicies=1)>show -v
```

```
EvipFlowPolicies=1
```

```
evipFlowPoliciesId="1"
```

```
EvipFlowPolicy=4diameter_port_3869_1
```

```
EvipFlowPolicy=4diameter_port_3869_2
```

```
EvipFlowPolicy=4sip_alb_tcp_fe_port_53
```

```
EvipFlowPolicy=4sip_alb_udp_fe_port_53
```

```
EvipFlowPolicy=4sctp_1
```

```
EvipFlowPolicy=4sctp_2
```

```
EvipFlowPolicy=4sctp_3
```

```
EvipFlowPolicy=4sctp_4
```

```
EvipFlowPolicy=4diameter_port_3868_1
```

```
EvipFlowPolicy=4diameter_port_3868_2
```



- c. Add the instances of MO EvipFlowPolicy for the 1812, 1813, and 3799 ports.

For example:

```
(EvipFlowPolicies=1)>configure

(config-EvipFlowPolicies=1)> EvipFlowPolicy=4sip_alb_udp_fe_port_1812

(config-EvipFlowPolicy=4sip_alb_udp_fe_port_1812)>addressFamily=ipv4

(config-EvipFlowPolicy=4sip_alb_udp_fe_port_1812)>dest=
"<VIP_TRF_IP1>"

(config-EvipFlowPolicy=4sip_alb_udp_fe_port_1812)>destPort="1812"

(config-EvipFlowPolicy=4sip_alb_udp_fe_port_1812)>protocol=udp

(config-EvipFlowPolicy=4sip_alb_udp_fe_port_1812)>targetPool=SIG_pools

(config-EvipFlowPolicy=4sip_alb_udp_fe_port_1812)>commit

(EvipFlowPolicy=4sip_alb_udp_fe_port_1812)>show -v

...
```

Where: <VIP_TRF_IP1> represents the Radius AAA traffic eVIP address.

Repeat the step for 1813 and 3799 ports respectively. Only the port number is different.

- d. Verify the configuration.

For example:

```
(EvipFlowPolicies=1)>show -v

EvipFlowPolicies=1

evipFlowPoliciesId="1"

EvipFlowPolicy=4diameter_port_3869_1

EvipFlowPolicy=4diameter_port_3869_2

EvipFlowPolicy=4sip_alb_tcp_fe_port_53
```



```
EvipFlowPolicy=4sip_alb_udp_fe_port_53
EvipFlowPolicy=4sctp_1
EvipFlowPolicy=4sctp_2
EvipFlowPolicy=4sctp_3
EvipFlowPolicy=4sctp_4
EvipFlowPolicy=4diameter_port_3868_1
EvipFlowPolicy=4diameter_port_3868_2
EvipFlowPolicy=4sip_alb_udp_fe_port_1812
EvipFlowPolicy=4sip_alb_udp_fe_port_1813
EvipFlowPolicy=4sip_alb_udp_fe_port_3799
```

5.5.4 Change server address to internal IP address for PL-3 and PL-4.

```
SC-x:~ # ipwcli
IPWorks>modify aaaserver <aaaserv1> -set Address=169.254.100.3
IPWorks>modify aaaserver <aaaserv2> -set Address=169.254.100.4
IPWorks>exit
```

5.5.5 Restart AAA Radius

To restart AAA Radius, do:

1. Log on SC node (SC-1 or SC-2).

```
# ssh <Username>@<MIP_OAM_IP>
```

2. Restart the AAA Server Manager.

```
SC-x:~ # ipw-ctr restart aaasm PL-3
```

```
SC-x:~ # ipw-ctr restart aaasm PL-4
```

3. Restart Radius Stack.

```
SC-X:~ # ipw-ctr restart aaa_radius_stack PL-3
```

```
SC-X:~ # ipw-ctr restart aaa_radius_stack PL-4
```

4. Restart Radius Backend.



```
SC-X:~ # ipw-ctr restart aaa_radius_backend PL-3
```

```
SC-X:~ # ipw-ctr restart aaa_radius_backend PL-4
```

5. Restart CSV Engine.

```
SC-X:~ # ipw-ctr restart csvengine SC-1
```

```
SC-X:~ # ipw-ctr restart csvengine SC-2
```

5.6 DHCP Service Migration

To execute the DHCP service configuration data migration, do as follows:

1. Do initial configuration for DHCP, refer to Section DHCPv4 Initial Configuration in *IPWorks Initial Configuration*.
2. Log on to the active SC node, and stop DHCP service.

```
#ssh <Username>@<MIP_OAM_IP>
```

```
Password:<Password>
```

In case of Normal Mode:

```
SC-x:~ # ipw-ctr stop dhcp PL-3
```

```
Stop dhcp ==> success.
```

In case of Failover Mode:

```
SC-x:~ # ipw-ctr stop dhcp PL-3
```

```
Stop dhcp ==> success.
```

```
SC-x:~ # ipw-ctr stop dhcp PL-4
```

```
Stop dhcp ==> success.
```

3. Copy the DHCP backup packages to /cluster/datamigrationtool/dest/.

For example:

The backup packages are:

In case of Normal Mode:

```
ipwbackup_<time>_<date>_<hostname 1>_for_DHCP.tar.gz for PL-3
```

In case Failover Mode:

```
ipwbackup_<time>_<date>_<hostname 1>_for_DHCP.tar.gz for PL-3
```



```
ipwbackup_<time>_<date>_<hostname 2>_for_DHCP.tar.gz for PL-4
```

4. Run the migration tool on the SC for the PL.

```
SC-x:~ # cd /cluster/datamigrationtool/migration/
```

```
SC-x:~ # ./ipw_migrate_service.py DHCP <PL Node hostname>
ipwbackup_<time>_<date>_<hostname n>_for_DHCP.tar.gz
```

For example:

In case of Normal Mode:

```
SC-x:~ # ./ipw_migrate_service.py DHCP PL-3 ipwbackup_091108_04
012017_ipwm2ps1_for_DHCP.tar.gz
```

A netconf XML file, “dhcp_netconf_set_PL-X.xml”, is generated in /cluster/datamigrationtool/dest/ after the execution of the migration tool.

In case of Failover Mode:

```
SC-x:~ # ./ipw_migrate_service.py DHCP PL-3 ipwbackup_091108_0
4012017_ipwm2ps1_for_DHCP.tar.gz
```

A netconf XML file, “dhcp_netconf_set_PL-3.xml”, is generated in /cluster/datamigrationtool/dest/ after the execution of the migration tool.

```
SC-x:~ # ./ipw_migrate_service.py DHCP PL-4 ipwbackup_091108_04
012017_ipwm2ps2_for_DHCP.tar.gz
```

A netconf XML file, “dhcp_netconf_set_PL-4.xml”, is generated in /cluster/datamigrationtool/dest/ after the execution of the migration tool.

Note: If any error occurs, see section 6.

5. If users need to configure the local disk for DHCP service, perform Step 5 and Step 6. Otherwise, perform Step 7.

Note: Before performing Step 5 and Step 6, the local disk must have been added for PL-3 and PL-4. For details, refer to Configure Local Disk for DHCP Service.

Log on to PL-3, and move files dhcpd.leases and dhcpd.leases~.gz to the folder /localdisk.

```
PL-3:/localdisk # mv /etc/ipworks/PL-3/dhcp/dhcpd.leases
/localdisk/
```

```
PL-3:/localdisk # mv /etc/ipworks/PL-3/dhcp/dhcpd.leases~.gz
/localdisk/
```



6. Repeat Step 5 for PL-4.
7. If the lease count is more than 5 million, MUST delete part of the pool according to the lease distribution to ensure that the lease count is less than 5 million in a cluster node. Otherwise, DHCP can not work normally.

For example:

```
SC-x:~ #ipwcli

IPWorks>delete pool pool0

IPWorks>exit
```

8. Configure the DHCPv4Service MO.

Configure the interface ipw_sig_sp in arguments. You can either use the default setting or configure the parameters according to the requirements.

If the local disk is used for DHCP service, configure arguments as -lf /localdisk/dhcpd.leases ipw_sig_sp.

The default configuration is as below:

```
> dn ManagedElement=<Node Name>,IpworksFunction=1,IP
WorksDHCPRoot=1,DHCPv4Service=1
(DHCPv4Service=1)>configure
(config-DHCPv4Service=1)>arguments="ipw_sig_sp"
(config-DHCPv4Service=1)>commit
(DHCPv4Service=1)>show -v
DHCPv4Service=1
  arguments="ipw_sig_sp"
  authenticationLevel=NONE <default>
  dhcpServiceId="1"
  EnableAutoReconfig=false<default>
  lowTPSThreshold=0
  reconfigThreshold=0 <default>
```

The configuration with the local disk is as below:

```
> dn ManagedElement=<Node Name>,IpworksFunction=1,IP
WorksDHCPRoot=1,DHCPv4Service=1
(DHCPv4Service=1)>configure
(config-DHCPv4Service=1)>arguments="-lf /localdisk/dhcpd.leases ipw_sig_sp"
(config-DHCPv4Service=1)>commit
(DHCPv4Service=1)>show -v
DHCPv4Service=1
  arguments="-lf /localdisk/dhcpd.leases ipw_sig_sp"
  authenticationLevel=NONE <default>
  dhcpServiceId="1"
  EnableAutoReconfig=false<default>
```



```
lowTPSThreshold=0  
reconfigThreshold=0 <default>
```

Modify arguments according to the real requirement, and make sure that interface `ipw_sig_sp` is configured in attribute arguments.

9. Change the DHCP server address according to the real configuration.

In case of Normal Mode (take PL-3 for example):

```
SC-x:~ #ipw-ctr restart dhcpsm PL-3
```

```
Stop dhcpsm ==> success.
```

```
Start dhcpsm ==> success.
```

```
SC-x:~ #ipwcli
```

```
IPWorks> modify dhcpv4server <dhcpserver name 1> -set  
Address=169.254.100.3
```

```
IPWorks> update dhcpv4server
```

```
IPWorks> exit
```

Note: If PL-3 is used, Address=169.254.100.3. If PL-4 is used, Address=169.254.100.4.

In case of Failover Mode:

```
SC-x:~ #ipw-ctr restart dhcpsm PL-3
```

```
Stop dhcpsm ==> success.
```

```
Start dhcpsm ==> success.
```

```
SC-x:~ #ipw-ctr restart dhcpsm PL-4
```

```
Stop dhcpsm ==> success.
```

```
Start dhcpsm ==> success.
```

```
SC-x:~ #ipwcli
```

```
IPWorks> modify dhcpv4server <dhcpserver name 1> -set  
Address=169.254.100.3
```

```
IPWorks> modify dhcpv4server <dhcpserver name 1> -set  
Address=169.254.100.4
```

```
IPWorks> update dhcpv4server
```



```
IPWorks> exit
```

10. Start DHCP service.

In case of Normal Mode:

```
SC-x:~ #ipw-ctr start dhcp PL-3
```

```
Start dhcp ==> success
```

In case of Failover Mode:

```
SC-x:~ #ipw-ctr start dhcp PL-3
```

```
Start dhcp ==> success
```

```
SC-x:~ #ipw-ctr start dhcp PL-4
```

```
Start dhcp ==> success
```





6 Trouble Shooting

If any issue occurs during backup and migration, refer to:

- backup and migration log

Backup log: `/var/ipworks/logs/ipworks_backup.log`

Migration log: `/var/ipworks/logs/migration.log`

- IPWorks Troubleshooting Guideline





Reference List

Ericsson Online References

- [1] CEE Technical Description, 221 02-FGC 101 3095 UEN
- [2] IPWorks Deployment Guide, 21/1553-AVA 901 33/2 UEN
- [3] Ericsson Command-Line Interface User Guide
- [4] Configure DNS and ENUM
- [5] IPWorks Initial Configuration, 5/1553-AVA 901 33/2 UEN
- [6] Configure EPC AAA
- [7] Diameter Stack Configuration Guide
- [8] Configure Radius AAA
- [9] Configure SS7 for AAA
- [10] IPWorks Troubleshooting Guideline
- [11] Configure Local Disk for DHCP Service