

Restore Backup

OPERATING INSTRUCTIONS

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Restore Backup



1 Introduction

This document describes how to restore a backup.

1.1 Prerequisites

This section describes the prerequisites, which must be fulfilled before using the procedure.

1.1.1 Conditions

The following conditions must apply:

- No other backup operation is in progress.
- The name of the backup to restore is known.
- An Ericsson Command-Line Interface (ECLI) session in Exec mode is in progress.
- For the User Data restore operation that involves MySQL data:



Restore Backup



2 Procedure

2.1 Clean Up IMM Status

Before restoring a System or User Data backup, make sure that the Information Model Management (IMM) status for DHCP or AAA is cleaned up. The cleanup operation must be performed on all PL nodes.

1. Log on to SC node, and then connect to PL node.

```
# ssh <User Name>@<MIP_OAM_IP>
```

```
SC-X:~# ssh <PL hostname>
```

2. Check the status of IPWorks services.

```
PL-X:~# ipw-ctr status all
```

3. If the DHCP service is NOT running, clean up the DHCP related IMM status.

```
PL-X:~# /opt/ipworks/dhcp/scripts/ipworks.dhcpv4 cleanup
```

4. If the Radius AAA service is NOT running, clean up Radius AAA related IMM status.

```
PL-X:~# /opt/ipworks/aaa_radius/backend/script/ipworks.aaa_backend cleanup
```

```
PL-X:~# /opt/ipworks/aaa_radius/stack/script/ipworks.aaa_radius_stack cleanup
```

```
PL-X:~# exit
```

```
SC-X:~# /opt/ipworks/aaa_radius/csvengine/script/ipworks.aaa_csv_engine cleanup
```

5. If the Diameter AAA service is NOT running, clean up Diameter AAA related IMM status.

```
PL-X:~# /opt/ipworks/aaa_diameter/scripts/ipworks.aaa cleanup
```

2.2 Restore System Data Backup

To restore a System Data backup, do the following:

1. Navigate to the `BrmBackupManager` managed object, for example:

```
>dn ManagedElement=<Node Name>,SystemFunctions=1,BrM=1,BrmBackupManager=SYSTEM_DATA
```



- Specify the backup to restore:

```
(BrmBackupManager=SYSTEM_DATA)>BrmBackup=system_20150616
```

- Start the restore operation:

Note: Be careful to perform the restore operation. Because the restore operation cannot be cancelled after it starts.

```
(BrmBackup=system_20150616)>restore
```

The system returns output true or false.

Attention!

A cluster reboot is automatically triggered when restoring a System Data backup. The resulting in-service performance impact corresponds to the time required for a cluster to restart after reboot.

- Verify that the backup was successfully restored, for example:

```
(BrmBackup=system_20150616)>show -v
```

```
BrmBackup=system_20150616
backupDescriptor="version: 1.2\nbackupName: system_20150616\nbackupType: BRM_SYSTEM_DATA\ncreationType: MANUAL\nnc
backupName="system_20150616" <read-only>
brmBackupId="system_20150616"
creationTime="2015-06-16T09:17:51" <read-only>
creationType=MANUAL <read-only>
status=BRM_BACKUP_COMPLETE <read-only>
asyncActionProgress=[] <empty> <read-only> <deprecated>
progressReport <read-only>
  actionId=3 <read-only>
  actionName="RESTORE" <read-only>
  additionalInfo=[] <empty> <read-only>
  progressInfo="PERMIT_PHASE is completed" <read-only>
  progressPercentage=33 <read-only>
  result=NOT_AVAILABLE <read-only>
  resultInfo="" <read-only>
  state=RUNNING <read-only>
  timeActionCompleted="1970-01-01T13:00:00" <read-only>
  timeActionStarted="2015-06-16T10:35:52" <read-only>
  timeOfLastStatusUpdate="2015-06-16T10:35:56" <read-only>
swVersion[@1] <read-only>
  description="ERIC-COREMW_RUNTIME" <read-only>
  productionDate="2015-05-15T04:53:53" <read-only>
  productName="ERIC-COREMW_RUNTIME" <read-only>
  productNumber="CXP9020355_2" <read-only>
  productRevision="R1A16" <read-only>
  type="MW" <read-only>
```

Note: When performing a System Data backup restore, the restore progress can be monitored (refer to [View Progress Report](#)) until the system reboot is triggered. After the system is rebooted, the progress report is reset to default values.



Proceed with the next step after the system is rebooted successfully.

The system is going down for reboot NOW! Remote host closes the connection to 192.168.10.11.

5. Create the link and folder for `ss7caf` on SC nodes manually.

Execute the following commands on both SC-1 and SC-2:

```
# ln -s /storage/system/config/ss7caf-ana90137/etc /opt/sign/etc
# ln -s /storage/no-backup/ss7caf-ana90137/log /opt/sign/log
# mkdir -p /opt/sign/cnf_template
```

6. Replace the `ipworks_sql.conf` file.

Execute the following command on SC-1 and SC-2.

```
# cp /opt/ipworks/ss/db/ipworks_sql.conf /opt/ipworks/mysql/db/ipworks_sql.conf
```

7. If the backup you restored contains the IPWorks software, do the following:

- a. Start MySQL NDB cluster manually on SC-1 or SC-2.

```
# /etc/init.d/ipworks.mysql start-ndbcluster
```

- b. Perform health check.

For information on how to check service status, refer to [IPWorks Manual Health Check](#).

If some of the services cannot work normally, you can choose a right user data to restore (see Section 2.3 on page 5), then IPWorks will be back to a health status.

8. Delete `LDE_BRF_USER_SC-1` and `LDE_BRF_USER_SC-2` on one SC node through commands:

```
#:/cluster/storage/system/config/coremw/csm/config-base/CSM/plugin/IPWBRFP-CXP9032085/scripts/remove_lde_brf_user.sh
```

Execute commands to verify that the user is deleted:

```
#:immfind | grep "brfPersistentStorageOwnerId=LDE_BRF_USER_SC"
```

The output should be empty, if not, execute the script again.

2.3 Restore User Data Backup

To restore a User Data backup:



1. For the user data restore that includes MySQL data, additional steps are required:

- a. Check drbd role on both SC nodes, make sure that SC-1 is the primary drbd.

```
SC-1:~ # lde-info -t drbd
```

```
Primary
```

```
SC-2:~ # lde-info -t drbd
```

```
Secondary
```

- b. If SC-2 is the primary drbd, run the following commands on SC-2.

```
SC-2:~ # systemctl stop lde-failoverd.service
```

```
SC-2:~ # systemctl start lde-failoverd.service
```

Then, check whether SC-1 changes to the primary drbd.

- c. Check whether MySQL is working normally on both SC-1 and SC-2 nodes.

```
SC-X:~ # /usr/local/mysql/bin/mysql -P 3307 --protocol=tcp -hipw_sql
```

For example:

```
Welcome to the MySQL monitor.  Commands end with ; or \g.
```

```
Your MySQL connection id is 191
```

```
Server version: 5.6.31-ndb-7.4.12-cluster-commercial-advanced MySQL
```

```
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```

```
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```

```
Type 'help;' or '\h' for help. Type '\c' to clear the current input statement.
```

```
mysql>
```

- d. Make sure the following file size is NOT 0 on SC nodes.

```
/cluster/ipworks/mysql-cluster/sqlnode/mysql/user.MYD
```

If the file size is already 0, consult the next level of maintenance support.

2. Navigate to the BrmBackupManager managed object, for example:



```
>dn ManagedElement=<Node Name>,SystemFunctions=1,BrM=1,BrmBackupManager=USER_DATA
```

3. Specify the backup to restore:

- Restore a backup that does not include MySQL data, for example:

```
(BrmBackupManager=USER_DATA)>BrmBackup=testBackup_20150616
```

- Restore a backup that includes MySQL data, for example:

```
(BrmBackupManager=USER_DATA)>BrmBackup=ndb_testBackup_20150616
```

4. Start the restore operation:

Note: Be careful to perform the restore operation. Because the restore operation cannot be cancelled after it starts.

```
(BrmBackup=testBackup_20150616)>restore
```

The system returns output true or false.



Attention!

During restoring a backup that includes MySQL data, the traffic of ENUM, provisioning and EPC AAA will be impacted.

During restoring a backup of user data, the traffic of DHCP will be impacted.

5. Verify that the backup was successfully restored, for example:

```
(BrmBackup=testBackup_20150616)>show -v
```

The following is an example output:



```

BrmBackup=testBackup_20150616
  backupDescriptor="version: 1.2
backupName: testBackup_20150616
backupType: BRM_USER_DATA
creationType: MANUAL
creationTime: 2015-06-16 06:47:35
storageOwner: IPWorks_BRF
swVersion: ERIC-COREMW_RUNTIME-CXP9020355_1-R8C01|MW|2015-05-15T04:53:53|R8C01|CXP9020355_1|ERIC-COREMW_RUNTIME|ERIC-
" <read-only>
  backupName="testBackup_20150616" <read-only>
  brmBackupId="testBackup_20150616"
  creationTime="2015-06-16T06:47:35" <read-only>
  creationType=MANUAL <read-only>
  status=BRM_BACKUP_COMPLETE <read-only>
  asyncActionProgress <read-only>
    actionId=3 <read-only>
    actionName="RESTORE" <read-only>
    additionalInfo=[] <empty>
    progressInfo="PERMIT_PHASE is completed" <read-only>
    progressPercentage=33 <read-only>
    result=NOT_AVAILABLE <read-only>
    resultInfo="" <read-only>
    state=RUNNING <read-only>
    timeActionCompleted="1970-01-01T06:00:00" <read-only>
    timeActionStarted="2015-06-16T07:35:52" <read-only>
    timeOfLastStatusUpdate="2015-06-16T07:35:56" <read-only>
  progressReport <read-only>
    actionId=3 <read-only>
    actionName="RESTORE" <read-only>
    additionalInfo=[] <empty>
    progressInfo="PERMIT_PHASE is completed" <read-only>
    progressPercentage=33 <read-only>
    result=NOT_AVAILABLE <read-only>
    resultInfo="" <read-only>
    state=RUNNING <read-only>
    timeActionCompleted="1970-01-01T06:00:00" <read-only>
    timeActionStarted="2015-06-16T07:35:52" <read-only>
    timeOfLastStatusUpdate="2015-06-16T07:35:56" <read-only>
  swVersion[@1]
    description="ERIC-COREMW_RUNTIME" <read-only>
    productionDate="2015-05-15T04:53:53" <read-only>
    productName="ERIC-COREMW_RUNTIME" <read-only>
    productNumber="CXP9020355_1" <read-only>
    productRevision="R8C01" <read-only>
    type="MW" <read-only>

```

Note: If the restore failed, try to start MySQL NDB cluster by executing `/etc/init.d/ipworks.mysql start-ndbcluster`, and then perform the User Data restore again. If the issue still remains, consult the next level support.

6. Make the backup take effect.

Note: Check the ENUM/DNS/DHCP/SS/EPC AAA server:

- During the restore process, the used server will be stopped. After restore, the server will be started.
- But if the server is not used before the restore, the server is still stopped. Start them manually after restore if needed.

For DNS:

To make the DNS record work, update the dnsserver in IPWorks CLI, for example:



```

SC-1:~ # ipwcli
IPWorks>Login: <username>
IPWorks> Password:*****
Login to server successful.
If you aren't an authorized user, exit immediately.
The last successful login time of this user is 2018-06-08 11:00:34
IPWorks> list dnsserver
[DnsServer dns1]
  Partition: active
  Name: dns1
  Address: 169.254.100.3
  PrimaryAddress: 169.254.100.3
  DnsName: dns1.iptelco.com
  PrimaryDnsName: dns1.iptelco.com
  Filename: named.conf
  AlgServerType: false
  Status: On 06/08/18 at 11:00:20 server is 'running'
  ExportNeeded: true
[DnsServer dns2]
  Partition: active
  Name: dns2
  Address: 169.254.100.4
  PrimaryAddress: 169.254.100.4
  DnsName: dns2.iptelco.com
  PrimaryDnsName: dns2.iptelco.com
  Filename: named.conf
  AlgServerType: false
  Status: On 06/08/18 at 11:00:24 server is 'running'
  ExportNeeded: true
IPWorks> update dnsserver -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'.
Result of performing an export is:
Exported the zone [MasterZone iptelco.com]
Exported configuration for [DnsServer dns2]
Updated the configuration for 'DNS' server 'dns2'.

```

For DHCP:

To make the restored DHCP configuration work, update the dhcpserver in IPWorks CLI, and restart dhcpserver, for example:

```

SC-1:~ # ipwcli
IPWorks>Login: <username>
IPWorks> Password:*****
Login to server successful.
The last successful login time of this user is 2015-06-16 07:45:07
IPWorks> list dhcpserver

```



```
[DhcpV4Server dhcp2]
  Partition: active
  Name: dhcp2
  Address: 169.254.100.4
  PrimaryAddress: 169.254.100.4
  Type: DhcpV4
  Primary: dhcp1
  Area: default
  Filename: dhcpd.conf
  Status: On 04/17/18 at 10:29:46 server is 'running normal'
  ExportNeeded: false
  EnableAuthentication: false
[DhcpV4Server dhcp1]
  Partition: active
  Name: dhcp1
  Address: 169.254.100.3
  PrimaryAddress: 169.254.100.3
  Type: DhcpV4
  Area: default
  Filename: dhcpd.conf
  Status: On 04/17/18 at 10:29:41 server is 'running normal'
  ExportNeeded: false
  EnableAuthentication: false
IPWorks>
IPWorks> update dhcpserver
Result of performing an update on the peer server is:
  Result of performing an export is:
    Exported configuration for [DhcpV4Server dhcp1]
    New configuration will be used after restart server 'dhcp1.
Result of performing an export is:
Exported configuration for [DhcpV4Server dhcp2]
New configuration will be used after restart server 'dhcp2.
Result of performing an update on the peer server is:
  Result of performing an export is:
    Exported configuration for [DhcpV4Server dhcp2]
    New configuration will be used after restart server 'dhcp2.
Result of performing an export is:
Exported configuration for [DhcpV4Server dhcp1]
New configuration will be used after restart server 'dhcp1.
IPWorks> exit
Exiting.
SC-1:~ # ipw-ctr restart dhcp PL-3
Stop dhcp ==> success.
Start dhcp ==> success.
SC-1:~ # ipw-ctr restart dhcp PL-4
Stop dhcp ==> success.
Start dhcp ==> success.
SC-1:~ #
```

For ENUM:



When ENUM uses the Number Portability (NP) function, to make the backup take effect, restart the SS7 stack manually on an SC. For example:

```
amf-adm lock safSu=PL-3,safSg=NWA,safApp=ERIC-ss7caf.core
amf-adm lock-in safSu=PL-3,safSg=NWA,safApp=ERIC-ss7caf.core
amf-adm unlock-in safSu=PL-3,safSg=NWA,safApp=ERIC-ss7caf.core
amf-adm unlock safSu=PL-3,safSg=NWA,safApp=ERIC-ss7caf.core
```

```
amf-adm lock safSu=PL-4,safSg=NWA,safApp=ERIC-ss7caf.core
amf-adm lock-in safSu=PL-4,safSg=NWA,safApp=ERIC-ss7caf.core
amf-adm unlock-in safSu=PL-4,safSg=NWA,safApp=ERIC-ss7caf.core
amf-adm unlock safSu=PL-4,safSg=NWA,safApp=ERIC-ss7caf.core
```

For EPC AAA:

To make the backup take effect, restart the SS7 stack manually as the same as the steps for ENUM.

For Geographic Redundancy:

After restoring the user data backup, the user data **MUST** be synchronized between two sites before implementing geographic redundancy function. For more information on who to synchronize data between two sites, refer to the section MySQL Replication for Geographic Redundancy Failed On All Sites in IPWorks Troubleshooting Guideline.