Configuring Route Processor Redundancy for PKI

Route Processor Redundancy provides an alternative to the High System Availability feature. HSA enables a system to reset and use a standby Route Switch Processor, if the active RSP fails. Using RPR, you can reduce unplanned downtime because RPR enables a quicker switchover between an active and standby RSP if the active RSP experiences a fatal error.

Route Processor Redundancy feature currently available on Cisco ASR platforms with dual RP support such as ASR 1006, ASR 1009. and ASR 1013.

Note Route Processor Redundancy supports trustpool import.

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Prerequisites for Configuring Route Processor Redundancy

- You must use the same memory in both RSPs because the secondary RSP must be able to support the primary RSP during a failover.

Restrictions for Configuring Route Processor Redundancy

- Route Processor Redundancy feature only supports platforms with dual RP support.
- Route Processor Redundancy is supported only on routers that support dual RSPs.
- It is not recomended to configure RA (Registration Authority) as it is not validated.

How To Configure Route Processor Redundancy

Configuring Route Processor Redundancy SSO Mode

```
configure terminal
redundancy
 mode sso
 main-cpu
  standby console enable
exit
```

Verifying Route Processor Redundancy

```
show redundancy states
show crypto pki server
show crypto pki certificates tname
```

Route Processor Redundancy SSO Mode Confuguration Example

Example for server side configuration:

```
asr1k(config)#ip http server

asr1k(config)#crypto pki trustpoint ROOTCA

asr1k(ca-trustpoint)#hash sha512

asr1k(ca-trustpoint)#revocation-check none

asr1k(ca-trustpoint)#rsakeypair  ROOTCA 2048

asr1k(ca-trustpoint)#crypto pki server ROOTCA

asr1k(cs-server)#issuer-name CN=ROOTCA C=pki

asr1k(cs-server)#lifetime certificate 00 00 15

asr1k(cs-server)#lifetime ca-certificate 00 00 25

asr1k(cs-server)#lifetime crl 6

asr1k(cs-server)#serial-number 0x1

asr1k(cs-server)#auto-rollover 00 00 24

% The archive password is not configured. Rollover CA keys and certificates will not be
automatically archived.

asr1k(cs-server)#grant auto

asr1k(cs-server)#database url tftp://<ip>//

% Server database url was changed. You need to move the

% existing database to the new location.
```

```
asr1k(cs-server)#database url p12 tftp://<ip>//
asr1k(cs-server)#database level complete
asr1k(cs-server)#database archive pkcs12 password <pwd>
asr1k(cs-server)#end
```

Example for client side configuration:

```
crypto pki trustpoint client
 enrollment url http://<ip>:80
 usage ike
 subject-name CN=R1 C=pki
 revocation-check crl
 rsakeypair client 2048
 hash sha512
```

Route Processor Redundancy SSO Mode Verification Example

```
show redundancy states
       my state = 13 -ACTIVE
     peer state = 8  -STANDBY HOT
           Mode = Duplex
           Unit = Primary
        Unit ID = 48

Redundancy Mode (Operational) = sso
Redundancy Mode (Configured)  = sso
Redundancy State              = sso
     Maintenance Mode = Disabled
    Manual Swact = enabled
 Communications = Up

   client count = 132
 client_notification_TMR = 30000 milliseconds
           RF debug mask = 0x0
```

```
show crypto pki server
Certificate Server ROOTCA:
    Status: enabled
    State: enabled
    Server's configuration is locked  (enter "shut" to unlock it)
    Issuer name: CN=ROOTCA C=pki
    CA cert fingerprint: F2BF3707 D9F6F5F3 E0D111D8 A8486437
    Granting mode is: auto
    Last certificate issued serial number (hex): 2
    CA certificate expiration timer: 14:15:50 IST Mar 31 2019
    CRL NextUpdate timer: 14:15:50 IST Mar 31 2019
    Current primary storage dir: tftp://9.45.3.3//
    Current storage dir for .p12 files: tftp://9.45.3.3//
    Database Level: Complete - all issued certs written as <serialnum>.cer
    Auto-Rollover configured, overlap period 0 days
    Autorollover timer: 13:51:50 IST Mar 31 2019
    Redundancy configured.  This is active.
```

Note Server is enabled only on active RP and is in disabled state in standby mode.

```
show crypto pki certificates client
Certificate
  Status: Available
  Certificate Serial Number (hex): 03
  Certificate Usage: General Purpose
  Issuer:
    cn=ROOTCA C=pki
  Subject:
    Name: asr1k
    hostname=asr1k
    cn=R1 C=pki
  Validity Date:
```

```
    start date: 00:42:04 IST Mar 11 2019
    end   date: 01:02:04 IST Mar 11 2019
  Associated Trustpoints: client


CA Certificate
  Status: Available
  Certificate Serial Number (hex): 02
  Certificate Usage: Signature
  Issuer:
    cn=ROOTCA C=pki
  Subject:
    cn=ROOTCA C=pki
  Validity Date:
    start date: 00:40:34 IST Mar 11 2019
    end   date: 00:40:34 IST Mar 9 2020
  Associated Trustpoints: client
```