**Test the ntpd service on linux using local ntp server and local ntp client**

**Prerequirements :**

* Install linux os (tested using rhel 6.5) on two systems . Make sure both are communicating
* Check if ntpd is configured to run at system start, issue the following command:

# chkconfig --list ntpd

ntpd 0:off 1:off 2:on 3:on 4:on 5:on 6:off

By default, when ntpd is installed, it is configured to start at every system start.

Make sure ntpd is working in both systems

* If ntpd is not installed download the rpm and install it using

rpm –ivh packagename.rpm

* Disable Firewall (System enable firewall by default)

CLI->(First login as the root user.

Next enter the following three commands to disable firewall.

# service iptables save

# service iptables stop

# chkconfig iptables off

If you are using IPv6 firewall, enter:

# service ip6tables save

# service ip6tables stop

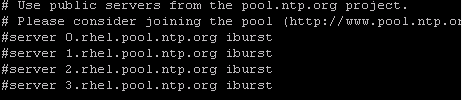
# chkconfig ip6tables off)

**Configure NTP SERVER(server.example.com)**

* Open ntp.conf file

#vi /etc/ntp.conf

Comment the section which displays list of servers because we are using the NTP servers local time as reference.



Add line which allows the NTP client to query the NTP servers time

Restrict client.example.com mask x.x.x.x nomodify notrap

* Restart the ntpd service



**Configure NTP CLIENT**

* Open ntp.conf file

#vi /etc/ntp.conf

Comment the section which displays list of servers because we are using only one local NTP server.

Add the following line

server 0 server.example.com iburst

* Restart the ntpd service



* Run the command

# ntpq -p

[root@localhost etc]# ntpq -p

remote refid st t when poll reach delay offset jitter

==================================================================

server.example.com .INIT. 16 u 8 16 0 0.000 0.000 0.000

#ntpdate server.example.com

5 May 14:36:01 ntpdate[5257]: adjust time server client.example.com offset -0.343242 sec

**Test Cases : All**

|  |  |
| --- | --- |
| TC001 | To test that a NTP client can synchronize to an external synchronization source |
| TC002 | To test the operation of a host running as an NTP server. |
| TC003 | To verify the operation of a host in client/server mode that looses its source of synchronization |
| TC004 | 1.To verify that the poll interval increases after the host first synchronizes to a server.  2To verify that the poll interval increases when a host looses its source of synchronization. |
| TC005 | To verify the operation of a host in broadcast server mode. |
| TC006 | To verify the operation of a host in broadcast client mode. |
| TC007 | To synchronize the ntp server and ntp client when ntp client time is less when compared to ntp server |
| TC008 | To synchronize the ntp server and ntp client when ntp client time is ahead when compared to ntp server |
| TC009 | To synchronize the ntp server and ntp client when ntp client time is equal to ntp server |
| TC010 | To synchronize with the ntp server which do not exists. |
| TC011 | Change min poll and max poll |
| TC012 | Set the values of poll with boundary values or negative values |
| TC013 | Synchronize using slew mode and stepped mode |

**Test case :Automated**

|  |  |
| --- | --- |
| Test Case ID | TC001 |
| Test Case Summary | To synchronize with the ntp **server which do not exists**. |
| Test Environment | OS: Rhel 6.5 |
| Prerequisites | 1.Ntp service should be installed in client  2.Root access to the client system is required  3. Ntp client setup should be done |
| Test Procedure | Try to update the ntp time to server which do not exist |
| Expected Result | 1.Synchronization not done |
| Actual Result | 1.Synchronization not done  ntpdate[7022]: no server suitable for synchronization found |
| Remarks | This is a sample test case. |

|  |  |
| --- | --- |
| Test Case ID | TC002 |
| Test Case Summary | Trying to get the ntp status , when **ntpd daemon services are not started** |
| Test Environment | OS: Rhel 6.5 |
| Prerequisites | 1.Ntp service should be installed  2.Root access to the client system is required  3. Ntp client setup should be done |
| Test Procedure | Stop the ntp service of client  Get the ntpd status using ntpdstat  After the process start the service again |
| Expected Result | Unable to talk to NTP daemon. Is it running? |
| Actual Result | Unable to talk to NTP daemon. Is it running? |
| Remarks | This is a sample test case. |

|  |  |
| --- | --- |
| Test Case ID | TC003 |
| Test Case Summary | To synchronize the ntp server and ntp client when **ntp client time is equal** to ntp server |
| Test Environment | OS: Rhel 6.5 |
| Prerequisites | 1.Ntp service should be installed  2.Root access to the systems is required  3.NTP server and Ntp client setup should be done |
| Test Procedure | 1.Get the time of ntp server and ntp client  2.Adjust the client time equal to that of the ntp server  3.Update the client or synchronize it to the ntp server |
| Expected Result | 1.Ntp Client time is synchronized to that of Ntp server  2.Synchronization not done |
| Actual Result | 1.If the ntpd is working fine and if the ntp server and client time difference is not too high then the synchronization is done  2.If the ntpd is not working fine and if the ntp server and client time difference is too high then the synchronization is not done or if there is any issue in the setup  ntpdate[11724]: no server suitable for synchronization found |
| Remarks | This is a sample test case. |

|  |  |
| --- | --- |
| Test Case ID | TC004 |
| Test Case Summary | Change min poll and max poll |
| Test Environment | OS: Rhel 6.5 |
| Prerequisites | 1.Ntp service should be installed  2.Root access to the systems is required  3.NTP server and Ntp client setup should be done |
| Test Procedure | Edit min and max polls in /etc/ntp.conf file of ntp client  Eg: [server.ip] minpoll 8 maxpoll 12  Get the output of Ntpq –p |
| Expected Result | Ntpq –p should display the new poll value |
| Actual Result | Ntpq –p should display the new poll value |
| Remarks | This is a sample test case. |

|  |  |
| --- | --- |
| Test Case ID | TC005 |
| Test Case Summary | To synchronize the ntp server and ntp client when when the **ntp client time and ntp server time difference is n is more** |
| Test Environment | OS: Rhel 6.5 |
| Test Procedure | Get the date of ntp server and ntp client  Stop ntp services on client , change the time  Update the client or synchronize it to the ntp server |
| Expected Result | If the delta value is too high synchronization is difficult |
| Actual Result | Synchronization not done |
| Remarks | This is a sample test case. |

**Run script :**

Folder contains sample ntp.conf file for server (server\_ntp.conf) and client(client\_ntp.conf) for reference

#Automate.bash <ntp server ip>

Test.log is the log generated from above script.

**Reference :**

<http://www.alliedtelesis.com/media/pdf/Resilient_EPSR_Network_Tested_Solution.pdf>

<https://lopsa.org/node/1480>

<http://www.cathayschool.com/-configuring-ntp-redundancy-a432.html>

http://www.ntp.org/ntpfaq/NTP-s-def.htm#S-DEF-OV