MOP For MW_BER_SD Alarm Troubleshooting

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A. Introduction

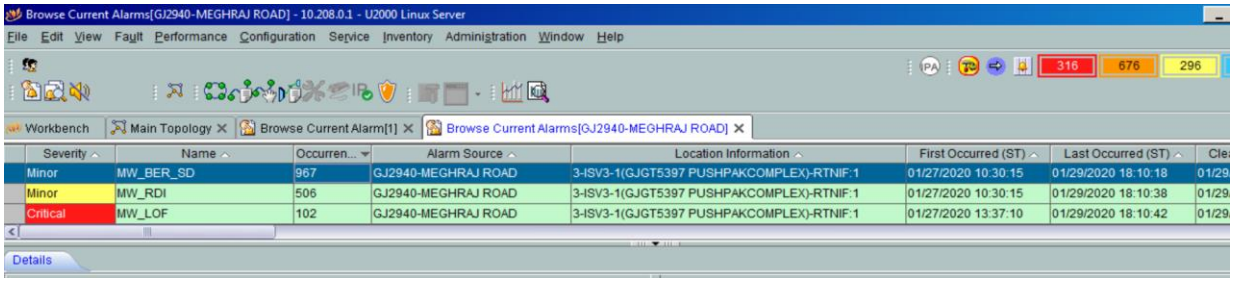
This document outlines the step-by-step process involved in MOP for MW_BER_SD Alarm Troubleshooting.

B. PRECHECK

- *Need to check the node reachability status of the node on which the alarm is observed and opposite end.*
- *Check the current alarms at both the ends for any hardware related alarms such as HARD_BAD, HARD_ERR, BD_STATUS, BD_OFFLINE, WRG_BD_TYPE etc. If the alarm exists then need to arrange field support with spare hardware such as IF board, ODU, IF cable and tested login accessories.*
- *If both the nodes are reachable then need to proceed to the next step else need to arrange filed support with spare hardware such as IF board, ODU, IF cable and tested login accessories.*

❖ *Please note that the method of procedure is prepared as the current scenario, available devices, and deployed software version. So, activity steps and impact can vary depending upon the scenario.*

Current Alarms before activity

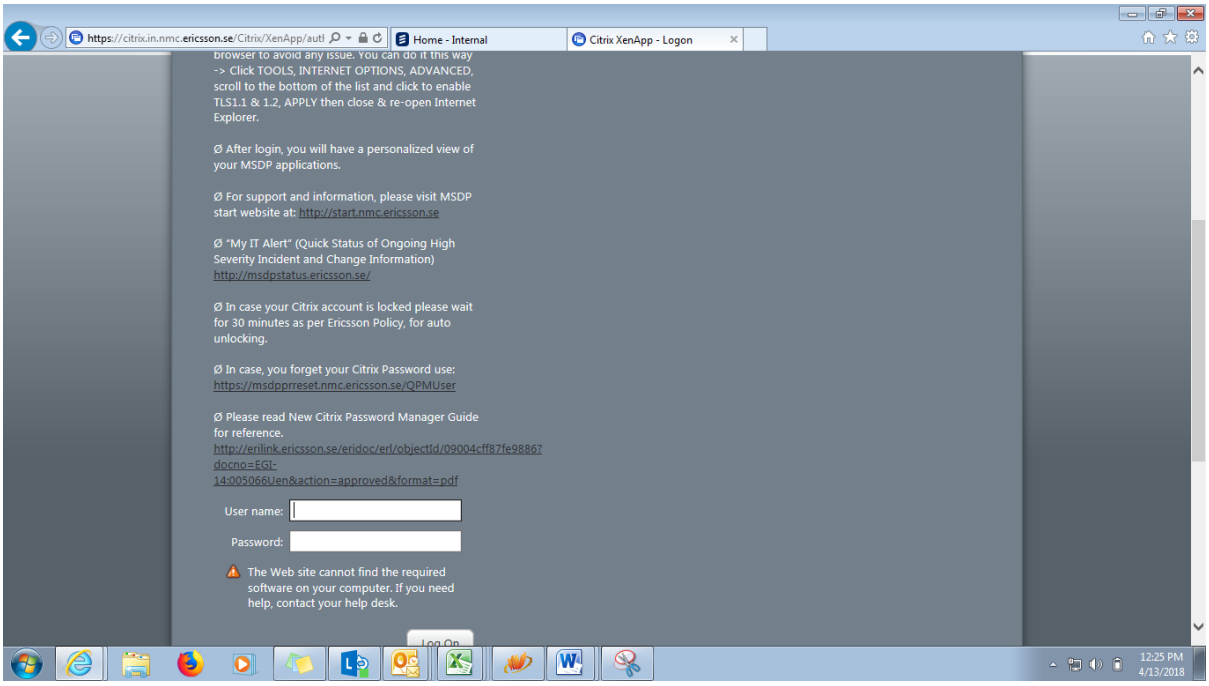


C. Procedure:

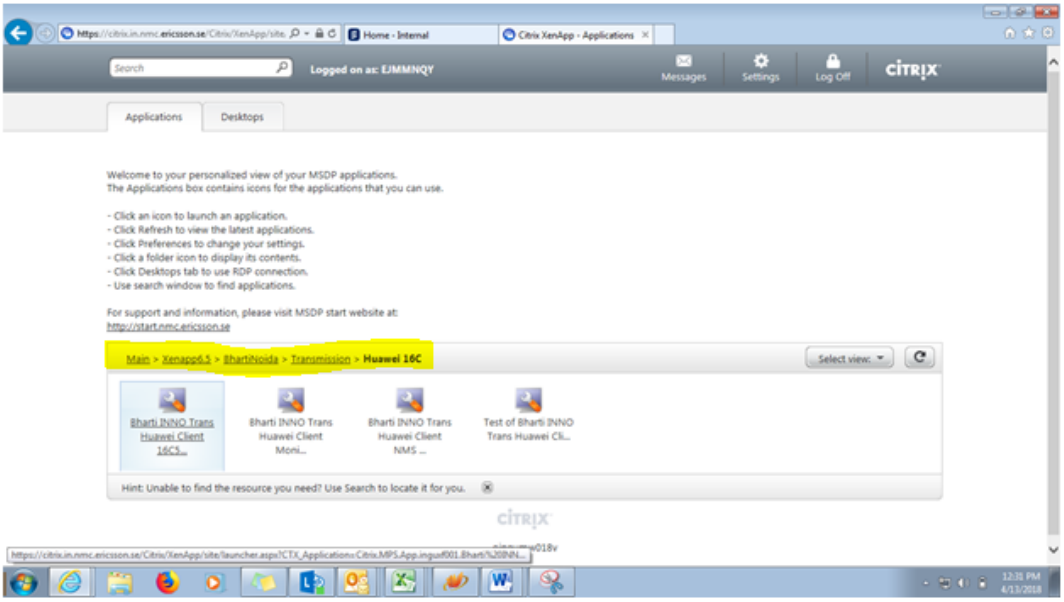
Steps for MW_BER_SD Alarm Clearance: -

1. Login MSDP through below mentioned link.
https://citrix.in.nmc.ericsson.se/

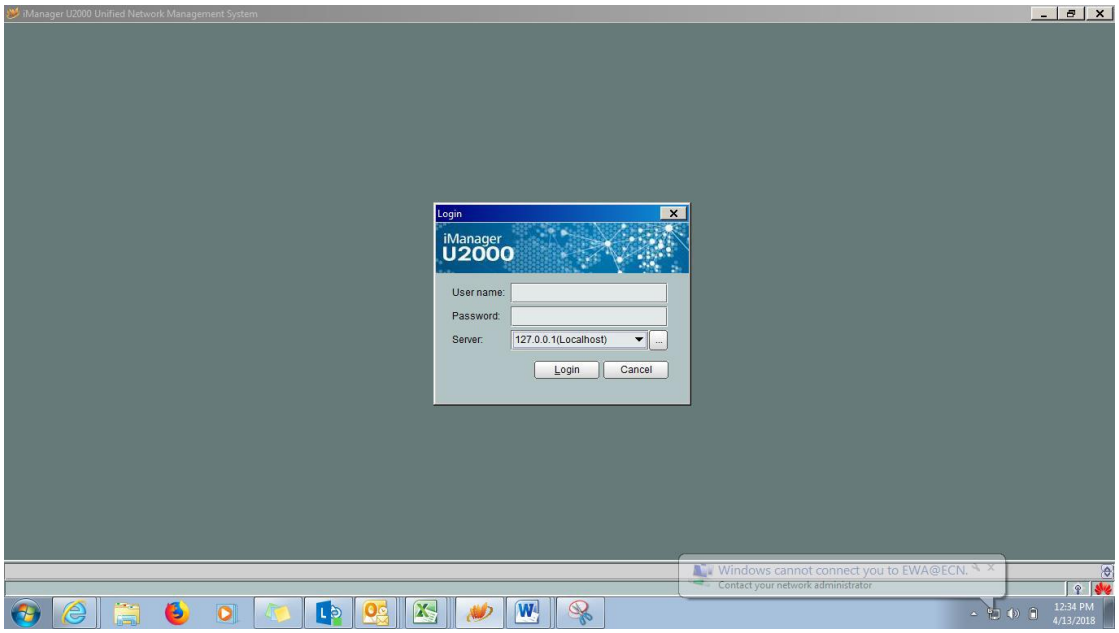
2. Provide CITRIX username and password.



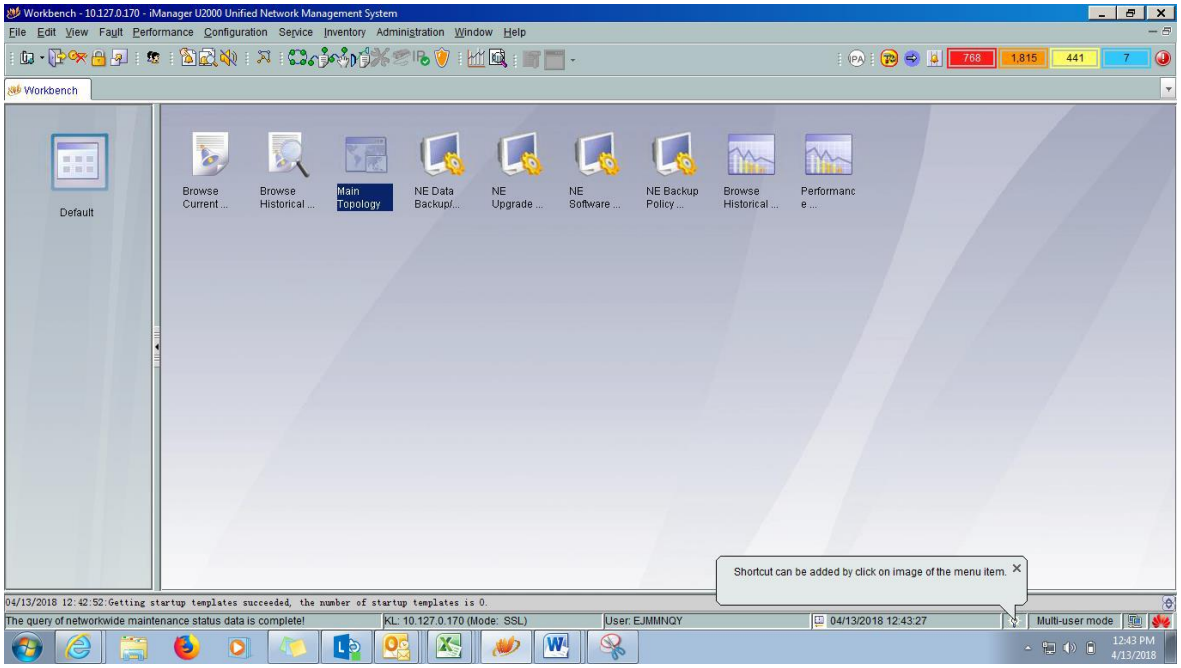
3. Click on "Xenapp6.5 >> BhartiNoida >> Transmission >> Huawei 16C/17C/18C >> Bharti INNO Trans Huawei client.



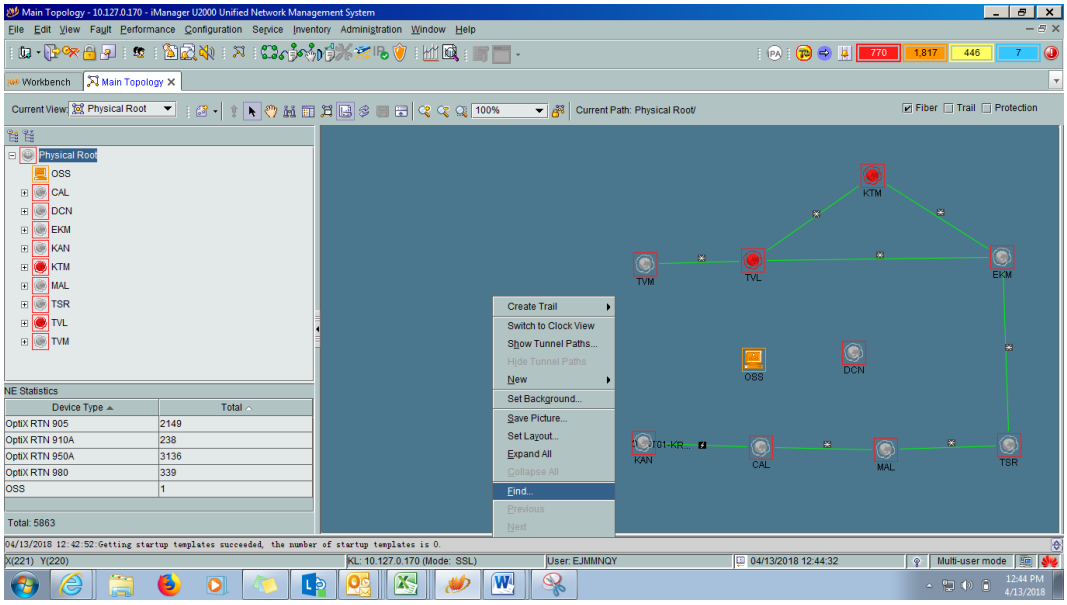
4. Now Huawei is launched enter the credentials and server IP of the circle must log in.



5. Click on "Main Topology" to open the Topology.



6. Right Click on the server and click on "FIND" to find the node.



Principle:

The MW_BER_SD alarm is generally generated when there is interference or there is signal fading

Traffic Impact:

Fluctuations are observed on the running services if the alarm is fluctuating and services completely down if the alarm is stable.

Possible Causes:

1. Signal fading on the radio link is heavy.
2. The receive unit at the local station is faulty.
3. The transmit unit at the opposite station is faulty.
4. Interference signals exist on the link.

Detailed Steps:

Cause 1: Signal attenuation on the radio link is very heavy.

a. At the local end, check whether the receive power of the ODU is normal. If yes, determine the abnormality and take proper measures. For details, see Querying the Historical Transmit Power and Receive Power

If...	*Then...*
The RSL is lower than the receiver sensitivity	*Follow the steps:* *a. Check the installation of the antenna to ensure that the azimuth of the antenna meets the requirement.* *b. Check the antenna direction. Check whether the received signal is from the main lobe.* *If the antenna direction does not meet the requirement, adjust the antenna in a wide range.* *c. Check whether the setting of the polarization direction of the antenna is correct. Adjust the incorrect polarization direction.* *d. Check whether the antenna gain at both the transmit and receive ends meets the specifications. Replace the antennas that do not meet the requirement.* *e. Check whether any mountain or building obstacle exists in the transmit direction.* *If yes, contact the network planning department for proper modification of the planning design, hence preventing the block of the mountain or building obstacle.*
The RSL is higher than the specified RSL of the network. The offset value is tens of decibels. The duration is from tens of seconds to several hours.	*Slow up fading occurs. Follow the steps:* *a. Follow instructions in Scanning Interfering Signals to scan the frequency spectrum around the radio link and check for co-frequency interference and bias-frequency interference.* *b. Use a spectrum analyzer to analyze the interference source.* *c. Contact the spectrum management department to clear the interference spectrum or change plans to minimize the interference.*

The RSL is lower than the specified RSL of the network. The offset value is tens of decibels. The duration is from tens of seconds to several hours.	*Slow down fading occurs. Generally, the radio link may be faulty in both directions, because slow fading is imposed by the transmission path. Contact the network planning department to make the following changes:* • *Increase the installation height of the antenna.* • *Reduce the transmission distance.* • *Increase the antenna gain.* • *Increase the transmit power.*
If the RSL is lower than or higher than the specified RSL of the network and if the duration is from several milliseconds to tens of seconds.	*Fast fading occurs. Contact the network planning department to make the following changes:* • *Adjust the position of the antenna to block the reflected wave or make the reflection point fall on the ground that has a small reflection coefficient, therefore reducing the multipath fading.* • *Adjust the RF configuration to make the links in the 1+1 SD configuration.* • *If the links are configured with the 1+1 SD protection, adjust the height offset between two antennas to make the receive power of one antenna stronger than the receive power of the other antenna.* • *Increase the fading margin.*

Cause 2: The transmit unit of the opposite station is faulty.

Locate the fault by looping back the opposite station and excluding the position one by one. Follow the steps:

a. Perform an inloop on the IF port at the opposite end. For details, see Setting Loopback for the IF Board. Check whether the fault at the opposite end is rectified after the loopback.

If...	*Then...*
The fault at the opposite end is not rectified	*Replace the IF board.*

The fault at the opposite end is rectified	*Go to the next step.*

b. Check whether the cable connector is prepared according to the requirement. If any cable connector does not meet the requirement, make a new connector.

c. Check whether the IF cable is wet, broken, or pressed. Replace the cable that does not meet the requirement.

d. Then, check whether the fault at the opposite end is rectified.

If...	*Then...*
The fault at the opposite end is not rectified	*Replace the ODU at the opposite end.*
The fault at the opposite end is rectified	*End the alarm handling.*

Cause 3: The receive unit of the local site is faulty.

Locate the fault by looping back the opposite station and excluding the position one by one. Follow the steps:

a. Perform an inloop on the IF port at the local end. For details, see Setting Loopback for the IF Board. Check whether the fault at the local end is rectified after the loopback.

If...	*Then...*
The fault at the opposite end is not rectified	*Replace the IF board.*
The fault at the opposite end is rectified	*Go to the next step.*

b. Check whether the cable connector is prepared according to the requirement. If any cable connector does not meet the requirement, make a new connector.

c. Check whether the IF cable is wet, broken, or pressed. Replace the cable that does not meet the requirement.

d. Then, check whether the fault at the opposite end is rectified.

If...	*Then...*
The fault at the opposite end is not rectified	*Replace the ODU at the local end.*
The fault at the opposite end is rectified	*End the alarm handling.*

Cause 4: An interference event occurs.

a. Check whether any co-channel interference occurs.

1. *Mute the ODU at the opposite end.*

2. *Check the RSL at the local end. For details, see Configuring a Single-Hop Radio Link. If the RSL exceeds -90 dBm, it indicates that there is co-channel interference that may affect the long-term availability and errored-second performance of the system.*

b. Follow instructions in Scanning Interfering Signals to scan the frequency spectrum around the radio link and check for co-frequency interference and bias-frequency interference.

c. Use a spectrum analyzer to analyze the interference source.

d. Contact the spectrum management department to clear the interference spectrum or change plans to minimize the interference.

D. Post Activity Health Check:

Please check alarm will be clear and services also restored after confirmation from all stakeholders.

E. Fallback Procedure:

Need to shift the board to another free slot and configure the services manually.