

Aruba Support Advisory ARUBA-SA-20210901-PLVL04

# Wi-Fi Client Connectivity Failures in Large Client Environments

Confidentiality Level: Aruba Customers & Partners only | Rev-1 (September 01, 2021)

## PRODUCTS COVERED

Mobility Conductor (formerly Mobility Master) and Mobility Controller

## SUMMARY

Aruba has received reports of Wi-Fi devices experiencing connectivity (association) failures in large client environments. The Wi-Fi devices connectivity failures are experienced only during high bursts of client roaming events. The bursts of roaming events result in high CPU utilization by the Station Management (STM) process in the Mobility Controller(s).

Please refer to the 'Affected Products' and 'How to Determine if you are Impacted' - sections below for details on the extent of these failures in your network.

If impacted, please refer to the Resolution and Workaround sections for applicable remediation steps.

## AFFECTED PRODUCTS

Mobility Conductors & Controllers (HW and Virtual) running the following ArubaOS 8 versions:

- 8.3.0.12 and above
- 8.5.0.5 and above
- 8.6.0.0 and above
- 8.7.0.0 and above
- 8.8.0.0 and above
- 8.9.0.0 and above

## NOT AFFECTED PRODUCTS

- ArubaOS 8.3.0.11 and below
- ArubaOS 8.5.0.4 and below
- ArubaOS 6.x.x.x (all versions)
- Aruba InstantOS (all versions)

## HOW TO DETERMINE IF YOU ARE IMPACTED

To determine if your deployment is affected by this (Wi-Fi clients) connectivity failures issue, run the following diagnostic commands. If the values in the highlighted areas are rapidly increasing in 100+ increments within seconds, refer to the Resolution and/or Workaround sections.

```
(Mobility-Controller) #show papi kernel-socket-stats | include 8345,8222,8419,Drops
```

Port	RxSockbufSize	RxSockbufHimark	CurRxQLen	MaxRxQLen	Drops
8345(STM)	16777216	33552192	9228	14040	73223
8222(SAPM)	16777216	3649088	2	1347	0
8419(STM Low Priority)	16777216	33552192	6934	10516	2725223

```
(Mobility-Controller) #show papi kernel-socket-stats | include 8345,8222,8419,Drops
```

Port	RxSockbufSize	RxSockbufHimark	CurRxQLen	MaxRxQLen	Drops
8345(STM)	16777216	33552192	7086	14040	73223
8222(SAPM)	16777216	3649088	1	1347	0
8419(STM Low Priority)	16777216	33552192	6934	10516	2738655

The CPU load value associated with *stm* process (as highlighted below) will also be seen above 100% consistently.

```
(Mobility-Controller) #show cpuload current
```

```
top2 - 09:42:30 up 268 days, 8:56, 3 users, load average: 3.56, 2.57, 1.97
Tasks: 256 total, 10 running, 245 sleeping, 0 stopped, 1 zombie
Cpu(s): 10.6%us, 4.4%sy, 0.2%ni, 82.9%id, 0.2%wa, 0.0%hi, 1.6%si, 0.0%st
Mem: 13535936k total, 10833088k used, 2702848k free, 1287168k buffers
Swap: 2621312k total, 0k used, 2621312k free, 3366464k cached
```

PID	USER	PR	NI	VIRT	RES	SHR	S	%CPU	%MEM	TIME+	COMMAND
3688	root	20	0	1	352m	923m	335m R	194	7.0	226792:53	stm
9501	root	20	0	5632	2304	1408	R	101	0.0	0:03.16	gzip
3912	root	20	0	961m	642m	74m	S	93	4.9	9658:18	fw_visibility

## RESOLUTION

The root cause of this issue has been traced to code changes made to resolve bug ID AOS-125897. The code change was implemented in the following ArubaOS versions to improve synchronization of client visibility information between Mobility Controller(s) and their associated Mobility Conductor.

- 8.3.0.12 (released on 23-Feb-2020)
- 8.5.0.5 (released on 08-Dec-2019)
- 8.6.0.0 (released on 18-Nov-2019) and higher (including all 8.7.x.x, 8.8.x.x and 8.9.x.x)

Aruba is developing emergency ArubaOS software patches to remove the code changes made as part of AOS-125897 bug fix. These emergency ArubaOS patches will only need to be applied (installed) on

the Mobility Conductor. This will reintroduce some of the client visibility issues that were previously seen but it will address the client connectivity failures.

After the ArubaOS emergency patches are released, Aruba will begin development of a new fix to address AOS-125897. The new fix will be included as part of future maintenance patches. This advisory will be updated accordingly with the release information once it is available.

Until the emergency ArubaOS patches are available, implement the workaround provided below to address the client connectivity failures.

## WORKAROUND

On the Mobility Conductor, implement a Control Path Firewall ACL to block specific ports on all Mobility Controller(s). This will result in a loss in centralized client visibility in the Mobility Conductor but client visibility in the Mobility Controller(s) themselves and in products like Airwave will still be available.

### IPv4 Only Deployments

```
(Mobility-Conductor) [mynode] #cd /md
(Mobility-Conductor) [md] #configure terminal
Enter Configuration commands, one per line. End with CNTL/Z
```

```
(Mobility-Conductor) [md] (config) #firewall cp
(Mobility-Conductor) ^[md] (config-submode)#ipv4 deny any proto 6 ports 15260 15261 position 1
(Mobility-Conductor) ^[md] (config-submode)#write memory
```

Saving Configuration...

```
Configuration Saved.
(Mobility-Conductor) [md] (config-submode)#
```

### IPv6 Only Deployments

```
(Mobility-Conductor) [mynode] #cd /md
(Mobility-Conductor) [md] #configure terminal
Enter Configuration commands, one per line. End with CNTL/Z
```

```
(Mobility-Conductor) [md] (config) #firewall cp
(Mobility-Conductor) ^[md] (config-submode)#ipv6 deny any proto 6 ports 15720 15721 position 1
(Mobility-Conductor) ^[md] (config-submode)#write memory
```

Saving Configuration...

```
Configuration Saved.
(Mobility-Conductor) [md] (config-submode)#
```

### Dual-Stack (IPv4 and IPv6) Deployments

```
(Mobility-Conductor) [mynode] #cd /md
(Mobility-Conductor) [md] #configure terminal
Enter Configuration commands, one per line. End with CNTL/Z

(Mobility-Conductor) [md] (config) #firewall cp
(Mobility-Conductor) ^[md] (config-submode)#ipv4 deny any proto 6 ports 15260 15261 position 1
(Mobility-Conductor) ^[md] (config-submode)#ipv6 deny any proto 6 ports 15720 15721 position 2
(Mobility-Conductor) ^[md] (config-submode)#write memory
```

Saving Configuration...

Configuration Saved.

```
(Mobility-Conductor) [md] (config-submode)#
```

Once the ACL(s) have been pushed down to the respective Mobility Controller(s), verify the policy is in place using the **show firewall-cp** command on the Mobility Controller(s).

### IPv4 Only Deployments

```
(Mobility-Controller) #show firewall-cp
```

CP firewall policies

```
-----
```

IP Version	Source IP	Source Mask	Protocol	Start Port	End Port	Action	hits	contract
ipv4	any		6	15260	15261	Deny	1	
ipv4	any		6	9190	9190	Permit	1	
ipv6	any		0	0	65535	Deny	0	
ipv6	any		6	9190	9190	Permit	0	
ipv6	any		6	15260	15260	Permit	0	
ipv4	any		6	6633	6633	Permit	1	

### IPv6 Only Deployments

```
(Mobility-Controller) #show firewall-cp
```

CP firewall policies

```
-----
```

IP Version	Source IP	Source Mask	Protocol	Start Port	End Port	Action	hits	contract
ipv6	any		6	15720	15721	Deny	1	
ipv4	any		6	9190	9190	Permit	1	
ipv6	any		0	0	65535	Deny	0	
ipv6	any		6	9190	9190	Permit	0	
ipv6	any		6	15260	15260	Permit	0	
ipv4	any		6	6633	6633	Permit	1	

### Dual-Stack (IPv4 and IPv6) Deployments

```
(Mobility-Controller) #show firewall-cp
```

```
CP firewall policies
```

```
-----
```

IP Version	Source IP	Source Mask	Protocol	Start Port	End Port	Action	hits	contract
ipv4	any		6	15260	15261	Deny	1	
ipv6	any		6	15720	15721	Deny	1	
ipv4	any		6	9190	9190	Permit	1	
ipv6	any		0	0	65535	Deny	0	
ipv6	any		6	9190	9190	Permit	0	
ipv6	any		6	15260	15260	Permit	0	
ipv4	any		6	6633	6633	Permit	1	

```
-----
```

Once the ACL has been implemented, the STM process needs to be restarted on the affected Mobility Controller(s). This is a service impacting event but is necessary for STM process to start functioning properly again.

The command to restart STM is “**process restart stm**”

```
(Mobility-Controller) #process restart stm
WARNING: Do you really want to restart process: stm (y/n): y
Restarting: stm
(Mobility-Controller) #
```

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This Support Advisory will be posted on Aruba Support Portal under the Products Notifications section and may be revised as applicable. Kindly ensure to check again for further updates.

Aruba is committed to communicating code revision, feature and function recommendations to ensure optimal network operation and high customer satisfaction. Please feel free to [contact](#) Aruba Global Support if you need further clarifications regarding this advisory. The Aruba Global Support team can facilitate further product related discussions with the Product Management team for customers who desire to do so.

Thank you,  
Aruba Global Support

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