

7705 Service Aggregation Router

Card and module support quick reference card

Release 24.4

Platform notes

All 7705 SAR chassis run the same system software. The main difference between the products is their hardware platforms.

Table 1: Platform notes



SAR-8 Shelf V2	SAR-18	SAR-A	SAR-Ax	SAR-H	SAR-Hc
60 Gb/s HD	140 Gb/s HD	10 Gb/s HD	10 Gb/s HD	8 Gb/s HD	5 Gb/s HD
Rack-mountable: 2 RU	Rack-mountable: 10 RU	Rack-mountable: 1 RU	Rack-mountable: 1 RU	Rack-mountable: 1.5 RU Wall-mountable	DIN rail-mountable Wall-mountable Panel-mountable
<p>The SAR-8 Shelf V2 is a fan-cooled, 8-slot chassis that supports:</p> <ul style="list-style-type: none"> • 2 CSMv2 modules • 1 Fan module (with alarm functionality) • 6 adapter cards 	<p>The SAR-18 is a fan-cooled, 18-slot chassis that supports:</p> <ul style="list-style-type: none"> • 2 CSMs • 1 Fan module • 1 alarm module • 16 adapter cards (up to 12 1-Gb/s and 2.5-Gb/s cards and up to 4 10-Gb/s cards) 	<p>The SAR-A is a passively cooled, fixed chassis with two variants:</p> <ul style="list-style-type: none"> • chassis with 12 Ethernet ports and 8 T1/E1 ports • chassis with 12 Ethernet ports and no T1/E1 ports 	<p>The SAR-Ax is a passively cooled, fixed chassis with 12 Ethernet ports:</p> <ul style="list-style-type: none"> • 4 combination (XOR) ports that can be configured as either RJ-45 10/100/1000 Ethernet ports or 100/1000 SPF Ethernet ports • 8 100/1000 Ethernet ports <p>The SAR-Ax chassis also has a factory-installed GNSS receiver and a GNSS RF faceplate connector. The GNSS RF connector can be cabled to an external GNSS antenna. When locked to the active antenna, the GNSS receiver can integrate GPS and GLONASS signals in the chassis.</p>	<p>The SAR-H is a passively cooled, fixed chassis that has:</p> <ul style="list-style-type: none"> • 2 SFP GigE ports • 2 combination SFP/RJ-45 10/100/1000 Ethernet ports • 4 PoE-capable RJ-45 10/100/1000 Ethernet ports • 2 module slots <p>Connecting a PoE Power Supply increases the number of Ethernet ports that can supply PoE to a connected device.</p> <p>There are two variants of the SAR-H chassis:</p> <ul style="list-style-type: none"> • high-voltage AC/DC for 100/240 VAC and 110-250 VDC installations (includes integrated AC input) • low-voltage DC for -48/-60 and +24 VDC installations 	<p>The SAR-Hc is a passively cooled, fixed chassis that has:</p> <ul style="list-style-type: none"> • 2 SFP GigE ports • 2 RJ-45 10/100/1000 Ethernet ports • 2 PoE-capable RJ-45 10/100/1000 Ethernet ports • 2 RS-232 ports

Table 1: Platform notes (Continued)



SAR-M	SAR-Wx	SAR-X
10 Gb/s HD	10 Gb/s HD	54 Gb/s HD
Rack-mountable: 1 RU	Pole-mountable Wall-mountable Cable strand-mountable	Rack-mountable: 1 RU
<p>The SAR-M is a fan-cooled, fixed chassis with two variants:</p> <ul style="list-style-type: none"> chassis with 7 GigE ports, 16 T1/E1 ports, and 1 module slot chassis with 7 GigE ports, no T1/E1 ports, and 1 module slot 	<p>The SAR-Wx is a passively cooled, fixed, ruggedized, environmentally hardened chassis with four variants:</p> <ul style="list-style-type: none"> chassis with 3 SFP GigE ports, 2 RJ-45 GigE ports, and an RJ-45 alarm input connector chassis with 3 SFP GigE ports, 2 RJ-45 GigE ports, an RJ-45 alarm input connector, and a GPS receiver chassis with 3 SFP GigE ports, 1 RJ-45 GigE port, 1 PoE+ RJ-45 GigE port, and an RJ-45 alarm input connector chassis with 3 SFP GigE ports, 1 RJ-45 GigE port, 1 PoE+ RJ-45 GigE port, an RJ-45 alarm input connector, and a GPS receiver 	<p>The SAR-X is a fan-cooled, fixed chassis that has:</p> <ul style="list-style-type: none"> 8 T1/E1 ports 4 combination (XOR) GigE ports (each can be configured either as RJ-45 or SFP) 8 SFP GigE ports 2 SFP+ 10-GigE ports <p>There are two variants of the SAR-X chassis:</p> <ul style="list-style-type: none"> AC variant can use a 100 to 240 VAC power source DC variant can use a single or dual +24/48/60 VDC power source

Adapter card support

Table 2 lists the adapter cards supported on the SAR-8 Shelf V2 and SAR-18. Adapter cards cannot be installed in the other chassis.

Table 2: Platform and adapter card support

Adapter card	SAR-8 Shelf V2	SAR-18
2-port 10GigE (Ethernet) card	Up to 4 cards	Up to 6 cards
2-port OC3/STM1 Channelized card ⁽¹⁾	Up to 6 cards	Up to 12 cards
4-port OC3/STM1 Clear Channel card	Up to 6 cards	Up to 12 cards
4-port OC3/STM1 / 1-port OC12/STM4 card ⁽¹⁾	Up to 6 cards	Up to 12 cards
4-port DS3/E3 card ⁽¹⁾	Up to 6 cards	Up to 12 cards
6-port E&M card	Up to 6 cards	Up to 12 cards
6-port Ethernet 10Gbps card	Up to 6 cards	Up to 12 cards
6-port Ethernet 10Gbps card-E	Up to 6 cards	Up to 12 cards
6-port FXS card	Up to 6 cards	Up to 12 cards
8-port C37.94 Teleprotection card	Up to 5 cards	Up to 11 cards
8-port FXO card	Up to 6 cards	Up to 12 cards
8-port Gigabit Ethernet card	Up to 6 cards	Up to 12 cards
8-port Voice & Teleprotection card	Up to 6 cards	Up to 12 cards
10-port 1GigE/1-port 10GigE X-Adapter card	—	Up to 4 cards
12-port Serial Data Interface card	Up to 6 cards	Up to 12 cards
16-port T1/E1 ASAP card, ver 2	Up to 6 cards	Up to 12 cards
32-port T1/E1 ASAP card	Up to 6 cards	Up to 12 cards
Auxiliary Alarm card	Up to 6 cards	Up to 12 cards
CWDM OADM card	Up to 6 cards	Up to 12 cards
GNSS Receiver card	Up to 2 cards	Up to 2 cards
Integrated Services card	Up to 6 cards	Up to 12 cards
Packet Microwave card	Up to 6 cards	Up to 12 cards
Power Injector card	Up to 4 cards	Up to 8 cards

Notes:

(1) The number of cards supported depends on channelization.

On a SAR-8 Shelf V2, a maximum of six 2-port OC3/STM1 Channelized Adapter cards or 4-port DS3/E3 Adapter cards can be installed in MDA slots 1 to 6 if DS3/E3 channelization is used (E3 channels are supported on the 4-port DS3/E3 Adapter card only). If DS1/E1 channelization is used, four 2-port OC3/STM1 Channelized Adapter cards, six 4-port OC3/STM1 / 1-port OC12/STM4 Adapter cards, or six 4-port DS3/E3 Adapter cards can be installed in MDA slots 1 to 6. If DS0 (64 kb/s) channelization is used, four 2-port OC3/STM1 Channelized Adapter cards or 4-port DS3/E3 Adapter cards can be installed in MDA slots 1 to 6.

On a SAR-18, a maximum of twelve 2-port OC3/STM1 Channelized Adapter cards or 4-port DS3/E3 Adapter cards can be installed in MDA slots 1 to 12 if DS3/E3 channelization is used (E3 channels are supported on the 4-port DS3/E3 Adapter card only). If DS1/E1 channelization is used, four 2-port OC3/STM1 Channelized Adapter cards, twelve 4-port OC3/STM1 / 1-port OC12/STM4 Adapter cards, or twelve 4-port DS3/E3 Adapter cards can be installed in MDA slots 1 to 12. If DS0 (64 kb/s) channelization is used, four 2-port OC3/STM1 Channelized Adapter cards or 4-port DS3/E3 Adapter cards can be installed in MDA slots 1 to 12.

The total number of channel groups that can be configured per card and per node is bound by release-specific system limits. For more information, please contact your Nokia technical support representative.

Module support

Table 3 lists the modules supported on the 7705 SAR platforms that support modules.

Table 3: Platform and module support

Module	SAR-8 Shelf V2	SAR-18	SAR-H	SAR-M
2-port 10GigE (Ethernet) module	—	—	—	1 module
4-port SAR-H Fast Ethernet module	—	—	Up to 2 modules	—
4-port T1/E1 and RS-232 Combination module	—	—	Up to 2 modules	—
6-port SAR-M Ethernet module ⁽¹⁾	—	—	—	1 module
Alarm module	—	1 module	—	—
CSM	—	Up to 2 modules	—	—
CSMv2	Up to 2 modules	—	—	—
CWDM OADM module	—	—	—	1 module
Fan module	1 module	1 module	—	—
GPS Receiver module	—	—	1 module	—

Note:

(1) The 6-port SAR-M Ethernet module supports PoE/PoE+.

AC and High Voltage DC power supply support

Nokia offers the following AC/DC and HVDC power supplies that can be used with 7705 SAR platforms.

100W High Voltage Power Supply

A 100W High Voltage Power Supply with integrated AC input is available for 100/240 VAC installations. The input can be modified to function as a high-voltage DC power supply for rated 110-250 VDC installations. The 100W High Voltage Power Supply can be mounted on a DIN rail, wall, or panel.

The following 7705 SAR platforms support AC or DC source-to-router connections through the 100W High Voltage Power Supply:

- SAR-A
- SAR-Ax
- SAR-Hc
- SAR-M

250W AC Power Supply

An external 250W AC Power Supply with integrated AC input is available for 100/240 VAC installations.

The SAR-8 Shelf V2 (–48 VDC systems only) supports AC connections through the 250W AC Power Supply.

2500W AC Power Supply Shelf

A 2500W AC Power Supply Shelf with integrated AC input is available for 240 VAC installations. The 2500W AC Power Supply Shelf can be mounted on a standard 19-inch rack and occupies one rack unit. It supports up to four power supplies for redundancy.

The following 7705 SAR platforms support AC connections through the 2500W AC Power Supply:

- SAR-8 Shelf V2 (–48 VDC systems only)
- SAR-18

CLI naming for adapter cards, modules, and platform ports

Table 4 lists the CLI name for each adapter card (MDA type) for the 7705 SAR platforms that support adapter cards.

Table 5 lists the CLI name for each module for the 7705 SAR platforms that support modules.

Note: All 7705 SAR platforms support the IOM, which uses the CLI naming convention `iom-sar`. The IOM is virtualized in the system software, and must be activated before any adapter cards or modules can be preprovisioned and configured.

Table 6 lists the CLI name for the group of ports on the 7705 SAR platforms that provide an integrated T1/E1, Ethernet, and/or other interface capability.

Table 4: CLI naming for adapter cards

Adapter card	SAR-8 Shelf V2	SAR-18
2-port 10GigE (Ethernet) Adapter card	a2-10gb-xfp	a2-10gb-xfp
2-port OC3/STM1 Channelized Adapter card	a2-choc3	a2-choc3
4-port OC3/STM1 / 1-port OC12/STM4 Adapter card	a4-choc3/12	a4-choc3/12
4-port OC3/STM1 Clear Channel Adapter card	a4-oc3	a4-oc3
4-port DS3/E3 Adapter card, v1	a4-chds3	a4-chds3
4-port DS3/E3 Adapter card, v2	a4-chds3v2	a4-chds3v2
6-port E&M Adapter card	a6-em	a6-em
6-port FXS Adapter card	a6-fxs	a6-fxs
6-port Ethernet 10Gbps Adapter card	a6-eth-10G	a6-eth-10G
6-port Ethernet 10Gbps Adapter card-E	a6-eth-10G-e	a6-eth-10G-e
8-port C37.94 Teleprotection card	a8-c3794	a8-c3794
8-port FXO Adapter card	a8-fxo	a8-fxo
8-port Gigabit Ethernet Adapter card, v1	a8-1gb-sfp	a8-1gb-sfp
8-port Gigabit Ethernet Adapter card, v3	a8-1gb-v3-sfp	a8-1gb-v3-sfp
8-port Voice & Teleprotection card	a8-vt	a8-vt
10-port 1GigE/1-port 10GigE X-Adapter card, v2	—	x-10GigE-v2
12-port Serial Data Interface card, v2	a12-sdiv2	a12-sdiv2
12-port Serial Data Interface card, v3	a12-sdiv3	a12-sdiv3
16-port T1/E1 ASAP Adapter card, v2	a16-chds1v2	a16-chds1v2
32-port T1/E1 ASAP Adapter card	a32-chds1v2	a32-chds1v2
Auxiliary Alarm card	aux-alarm	aux-alarm

Table 4: CLI naming for adapter cards (Continued)

Adapter card	SAR-8 Shelf V2	SAR-18
CWDM OADM Adapter card	oadm-cwadm-1ch	oadm-cwadm-1ch
	oadm-cwadm-2ch	oadm-cwadm-2ch
	oadm-cwadm-4ch	oadm-cwadm-4ch
	oadm-cwadm-8ch	oadm-cwadm-8ch
GNSS Receiver card	a1-gnss	a1-gnss
Integrated Services card	isc	isc
Packet Microwave Adapter card	a8-pmc	a8-pmc
Power Injector card	mw-pic-2	mw-pic-2

Table 5: CLI naming for modules

Module	SAR-8 Shelf V2	SAR-18	SAR-H	SAR-M
2-port 10GigE (Ethernet) module	—	—	—	p2-10gb-xfp
4-port SAR-H Fast Ethernet module	—	—	p4-eth	—
4-port T1/E1 and RS-232 Combination module	—	—	p4-combo	—
6-port SAR-M Ethernet module	—	—	—	p6-eth
CSM ⁽¹⁾	—	csm-10g	—	—
CSMv2 ⁽¹⁾	csmv2-10g	—	—	—
CWDM OADM module	—	—	—	oadm-cwadm-1ch
GPS Receiver module	—	—	p1-gps	—

Note:

- (1) The SAR-A, SAR-Ax, SAR-H, SAR-Hc, SAR-M, SAR-Wx, and SAR-X replace the CSM found in the SAR-8 Shelf V2 and SAR-18 with a control and switching functional block that is integrated into the chassis and does not need to be provisioned. It is shown in the CLI as CSM A with a provisioned type of `csm-2.5g`.

Table 6: CLI naming for platform ports

Chassis	Ports		
	T1/E1 ports	Ethernet ports	Other ports
SAR-A	i8-chds1 ⁽¹⁾	i12-eth-xor	—
SAR-Ax	—	i12-1gb-xor	i1-gnss ⁽²⁾
SAR-H	—	i8-1gb	—

Table 6: CLI naming for platform ports (Continued)

Chassis	Ports		
	T1/E1 ports	Ethernet ports	Other ports
SAR-Hc	—	i6-1gb	i2-sdi ⁽³⁾
SAR-M	i16-chds ⁽¹⁾	i7-1gb	—
SAR-Wx	—	i5-1gb-b	i1-gps ⁽⁴⁾
SAR-X	i8-chds1-x	i7-mix-eth	—

Notes:

- (1) On the variant equipped with T1/E1 ports
- (2) GNSS RF port
- (3) RS-232 ports
- (4) GPS port, on the variants equipped with a GPS receiver

CLI card and port identifiers

In the CLI context for the SAR-8 Shelf V2 and SAR-18, adapter cards are referred to as MDAs. The cards are identified using the format `slot/mda`, where `slot` identifies the IOM slot ID (always 1) and `mda` identifies the physical slot in the chassis for the adapter card.

For the SAR-A, SAR-Ax, SAR-H, SAR-Hc, SAR-M, SAR-Wx, and SAR-X, the `mda` is a preset virtual slot number; configuration is not done at this level for these chassis.

Ports are identified using the format `slot/mda/port`, where `port` identifies the physical port on the adapter card or SAR-A, SAR-Ax, SAR-H, SAR-Hc, SAR-M, SAR-Wx, or SAR-X; for example, 1/5/1.

Channelized ports are identified using the format `slot/mda/port.channel-group-id`, where `channel-group-id` identifies the channel group ID; for example, 1/5/1.1.

Bundled channels are identified using the format `bundle-type-slot/mda.bundle-num`, where `bundle` is a keyword, `type` is either `ppp` (for MLPPP bundles) or `ima` (for IMA groups), and `bundle-num` is the bundle number; for example, `bundle-ima-1/5.1`.

Table 7 lists the available MDA slots per platform.

Table 7: MDA slots

Chassis	Available MDA slots
SAR-8 Shelf V2	Slots MDA 1 to 6
SAR-18	Slots MDA 1 to 12 and XMDA 1 to 4 (X1 to X4 or 13 to 16)
SAR-A	Slots 1 and 2 preconfigured as: <ul style="list-style-type: none"> Slot 1 for Ethernet ports (both variants) Slot 2 for T1/E1 ports (only on the variant equipped with T1/E1 ports)
SAR-Ax	Slots 1 and 2 preconfigured as: <ul style="list-style-type: none"> Slot 1 for Ethernet ports Slot 2 for the GNSS RF ports

Table 7: MDA slots (Continued)

Chassis	Available MDA slots
SAR-H	Slots 1 to 3 preconfigured as: <ul style="list-style-type: none"> Slot 1 for Ethernet ports Slot 2 for module slot position 1 Slot 3 for module slot position 2
SAR-Hc	Slots 1 and 2 preconfigured as: <ul style="list-style-type: none"> Slot 1 for Ethernet ports Slot 2 for RS-232 ports
SAR-M	Slots 1 to 3 preconfigured as: <ul style="list-style-type: none"> Slot 1 for Ethernet ports Slot 2 for T1/E1 ports (only on the variant equipped with T1/E1 ports) Slot 3 for modules
SAR-Wx	Slots 1 and 3 preconfigured as: <ul style="list-style-type: none"> Slot 1 for Ethernet ports Slot 3 for GPS RF ports (only on the variants that support GPS)
SAR-X	Slots 1 to 3 preconfigured as: <ul style="list-style-type: none"> Slot 1 for T1/E1 ports Slot 2 for Ethernet ports: XOR (either RJ-45 or SFP) GigE ports, SFP GigE ports, or SFP+ 10-GigE ports Slot 3 for Ethernet ports: XOR (either RJ-45 or SFP) GigE ports, SFP GigE ports, or SFP+ 10-GigE ports

Base part numbers

Table 8 lists the base part numbers of the 7705 SAR platforms and common equipment. Table 9 lists the base part numbers of the adapter cards and modules.

For full part numbers and details on variants, refer to the latest 7705 SAR Software Release Notes.

Table 8: 7705 SAR platforms and common equipment

Description	Nokia base part number
100W HV Power Supply	3HE06972
7705 SAR-18	3HE04991
7705 SAR-18 Alarm Module	3HE04994
7705 SAR-18 Control and Switching Module (CSM)	3HE04992

Table 8: 7705 SAR platforms and common equipment (Continued)

Description	Nokia base part number
7705 SAR-18 Fan Module	3HE04993
7705 SAR-8 CSMv2	3HE02774
7705 SAR-8 Shelf V2	3HE06791
7705 SAR-8 Shelf V2 Ext. Temp Fan Module	3HE06792
7705 SAR-A with 12 Ethernet ports	3HE06796
7705 SAR-A with 12 Ethernet ports, 8 T1/E1 ports	3HE06797
7705 SAR-Ax	3HE10329
7705 SAR-H	3HE06969
7705 SAR-H 100W 48 VDC Power Supply	3HE06970
7705 SAR-Hc	3HE07353
7705 SAR-M with 16 T1/E1 ports, 7 GigE ports	3HE05051
7705 SAR-M with 7 GigE ports	3HE05653
7705 SAR-Wx with 5 GigE ports and AC power	3HE07614
7705 SAR-Wx with 5 GigE ports, GPS Rx, and AC power	3HE07615
7705 SAR-Wx with 5 GigE ports (1 PoE+) and AC power	3HE07616
7705 SAR-Wx with 5 GigE ports, (1 PoE+), GPS Rx, and AC power	3HE07617
7705 SAR-X, AC power	3HE08533
7705 SAR-X, DC power	3HE08534

Table 9: 7705 SAR adapter cards and modules

Description	Nokia base part number
10-port 1GigE/1-port 10GigE X-Adapter card, v2	3HE06153
12-port Serial Data Interface card, v2	3HE03391
12-port Serial Data Interface card, v3	
16-port T1/E1 ASAP Adapter card, v2	3HE02775
2-port 10GigE (Ethernet) Adapter card	3HE06789

Table 9: 7705 SAR adapter cards and modules (Continued)

Description	Nokia base part number
2-port 10GigE (Ethernet) module	3HE06788
2-port OC3/STM1 Channelized Adapter card	3HE03127
32-port T1/E1 ASAP Adapter card, v2	3HE02781
4-port DS3/E3 Adapter card, v1	3HE04962
4-port DS3/E3 Adapter card, v2	
4-port OC3/STM1 Clear Channel Adapter card	3HE03125
4-port OC3/STM1 / 1-port OC12/STM4 Adapter card	3HE07938
4-port SAR-H Fast Ethernet module	3HE09303
4-port T1/E1 and RS-232 Combination module	3HE06973
6-port Ethernet 10Gbps Adapter card	3HE07943
6-port Ethernet 10Gbps Adapter card-E	3HE12433
6-port E&M Adapter card	3HE03126
6-port FXS Adapter card	3HE02780
6-port SAR-M Ethernet module	3HE09170
8-port C37.94 Teleprotection card	3HE12504
8-port FXO Adapter card	3HE06794
8-port Gigabit Ethernet Adapter card	3HE06151
8-port Gigabit Ethernet Adapter card, v3	
8-port Voice & Teleprotection card	3HE06006
Auxiliary Alarm card	3HE02772
CWDM OADM Adapter card (1-channel)	3HE06582
CWDM OADM Adapter card (2-channel)	3HE06583
CWDM OADM Adapter card (4-channel)	3HE06584
CWDM OADM Adapter card (8-channel)	3HE06585
CWDM OADM module (1-channel)	3HE06582
GNSS Receiver card	3HE07954
GPS Receiver module	3HE07955

Table 9: 7705 SAR adapter cards and modules (Continued)

Description	Nokia base part number
Integrated Services card	3HE07942
Packet Microwave Adapter card	3HE02782
Power Injector card	3HE07152

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