

Alternate Pathing 2.0 Reference Manual

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NAME	Intro – AP special files
DESCRIPTION	This section describes AP files for your Sun server.
ap(7)	alternate pathing librarian driver, /dev/ap
ap_dmd(7)	AP disk meta-driver
ap_nmd(7)	AP network meta-driver group
mbf(7)	FDDI 2.0 special character device; see ap_nmd(7)
mhi(7)	HiPPI special character device; see ap_nmd(7)
mle(7)	Lance Ethernet special character device; see ap_nmd(7)
mnf(7)	FDDI 3.0.x and 4.x special character device; see ap_nmd(7)
mqe(7)	Quad Ethernet special character device; see ap_nmd(7)

NAME	ap – alternate pathing librarian driver, /dev/ap	
SYNOPSIS	ap	
DESCRIPTION	The AP driver provides a pseudo-driver interface to the kernel Alternate Pathing (AP) Librarian features.	
FILES	/kernel/drv/ap	AP driver module
	/kernel/drv/ap.conf	AP driver configuration file
SEE ALSO	<i>Alternate Pathing 2.0 User's Guide</i> ap(1M) , ap_daemon(1M)	

NAME	ap_dmd – AP disk meta-driver
SYNOPSIS	ap_dmd @target,lun:partition
DESCRIPTION	<p>The ap_dmd driver works with the AP software to support Alternate Pathing for physical devices handled by the ssd SCSI disk driver. See ssd(7) in <i>man Pages(7): Device and Network Interfaces</i> of the <i>SunOS Reference Manual</i>.</p> <p>The AP feature lets you configure alternate SCSI paths to a physical device. These paths are associated with a <i>meta-disk device</i>, which is one of the file system special nodes associated with a particular meta-driver.</p> <p>ap_dmd allows the AP Librarian, ap(7), to configure or unconfigure physical paths to a SCSI device via an interface that allows SET, UNSET, and SWITCH commands. These commands are issued by ap(7) at the behest of the user-invoked AP commands and AP daemon. To change the SCSI path information associated with a particular ap_dmd device, use apconfig(1M), apdb(1M) and apdisk(1M). For more information, see the <i>Alternate Pathing 2.0 User's Guide</i></p> <p>All device operations supported by the ssd driver are also valid on ap_dmd devices that have been created via AP commands. See the other AP commands for details regarding other components of AP software, and ssd(7) man page for information about block/character file accesses, I/O requests, disk partitioning schemes, CD-ROM support, and ioctl.</p>
ERRORS	<p>ENXIO No physical SCSI path to the target device exists.</p> <p><i>Other</i> For information on other errors, see sd(7).</p>
FILES	<p>apdmd.conf driver configuration file</p> <p>/dev/ap/dsk/mncntndnsn block files</p> <p>/dev/ap/rdisk/mncntndnsn raw files</p> <p>where m identifies the device as a meta-device and:</p> <p> cn Controller number</p> <p> tn Target number</p> <p> dn Logical unit number</p> <p> sn Slice (partition) number</p>
DIAGNOSTICS	See ssd(7) in <i>man Pages(7): Device and Network Interfaces</i> of the <i>SunOS Reference Manual</i> .
SEE ALSO	<p><i>Alternate Pathing 2.0 User's Guide</i></p> <p>apconfig(1M), apdb(1M), apdisk(1M), apnet(1M), ap_daemon(1M) in <i>man Pages(1M): Alternate Pathing Administration Commands</i></p>

ap(7), ap_nmd(7) in *man Pages(7): Alternate Pathing Special Files*

ssd(7) in *man Pages(7): Device and Network Interfaces of the SunOS Reference Manual*

NAME	ap_nmd, mbf, mhi, mhme, mle, mnf, mqe – AP network meta-driver group
SYNOPSIS	<p>/devices/pseudo/clone@0:mbf – CS6400 server only</p> <p>/devices/pseudo/clone@0:mhi – CS6400 server only</p> <p>/devices/pseudo/clone@0:mhme – Enterprise 10000 server only</p> <p>/devices/pseudo/clone@0:mle – Enterprise 10000 and CS6400 servers</p> <p>/devices/pseudo/clone@0:mnf – FDDI 3 or 5 on CS6400 servers; FDDI 5 on Enterprise 10000 servers</p> <p>/devices/pseudo/clone@0:mqe – Enterprise 10000 and CS6400 servers</p>
DESCRIPTION	<p>ap_nmd is a group of multi-threaded, loadable, clonable, STREAMS meta-network device drivers that support the connectionless Data Link Provider Interface, dlpi(7), for bf(7) (FDDI 2.0), hi(7) (HiPPI), hme(7) (Sun FastEthernet 2.0), le(7) (Lance Ethernet), nf(7) (FDDI 3.0.x or 5.x) and qe(7) (Quad Ethernet).</p> <p>NOTE: The SunOS man pages bf(7) and nf(7) are available only on systems that run Sun's optional FDDI packages; hme(7) is available (by mid-1997) on systems that run Sun FastEthernet; hi(7) is available only on systems that run the optional HiPPI package.</p> <p>ap_nmd works with the AP software to support Alternate Pathing for physical network devices.</p> <p>Device operations of ap_nmd are an extension of the operations of the underlying network drivers. ap_nmd normally operates as a transparent pass-through module; it neither interprets nor modifies any of the STREAMS DLPI type messages. However, it does intercept and modify the DL_ATTACH_REQ and DL_INFO_ACK messages.</p> <p>DL_ATTACH_REQ messages are captured and used to drive the initial connection between logical and physical devices. DL_INFO_ACK messages are captured and responded to with a prebuilt response to eliminate the possibility of the message response timing out due to induced message delays.</p> <p>The cloning character-special device /dev/mxx is used to access all device-specific instances of the ap_nmd within the system.</p>
ap_nmd and AP	<p>The ap_nmd driver provides an interface to support Alternate Pathing. The APSET interface allows a user to provide a mapping between physical path and logical path. The APUNSET provides an interface to remove a physical-to-logical path mapping and APSWITCH provide a mechanism to switch a logical path from its existing physical path to a new physical path. For a more complete description of the AP capability, see the <i>Alternate Pathing 2.0 User's Guide</i>.</p>

ap_nmd and DLPI	The ap_nmd driver is a "style 2" Data Link Service provider. All DLPI processing is handled by the underlying physical device driver. See the man page that corresponds to each underlying driver.	
ERRORS	EBUSY	An attempt was made to unload a busy device, or to APUNSET an active device
	EEXIST	An attempt was made to APSET an existing logical-to-physical mapping and a logical path when the system was out of memory
	EIO	An attempt to switch between physical devices failed
	ENODEV	No physical mapping exists
	ENOMEM	System memory was exhausted during an attempt to create a mapping between a physical path and a logical path
FILES	mbf.conf	Driver configuration file
	mhi.conf	Driver configuration file
	mhme.conf	Driver configuration file
	mle.conf	Driver configuration file
	mnf.conf	Driver configuration file
	mqe.conf	Driver configuration file
	/dev/mbf	bf special character device
	/dev/mhi	hi special character device
	/dev/mhme	hme special character device
	/dev/mle	le special character device
	/dev/mnf	nf special character device
	/dev/mqe	qe special character device
DIAGNOSTICS	See hi(7) in the <i>HiPPI Reference</i> (available only with those systems that support the HiPPI option) le(7) , qe(7) in <i>man Pages(7): Device and Network Interfaces of the SunOS Reference Manual</i> .	
SEE ALSO	<i>Alternate Pathing 2.0 User's Guide</i> ap_daemon(1M) , apconfig(1M) , apdb(1M) , apnet(1M) in <i>man Pages(1M): Alternate Pathing Administration Commands</i> ap(7) , ap_dmd(7) , in <i>man Pages(7): Alternate Pathing Special Files</i> hi(7) in the <i>HiPPI Reference</i> (provided only with those systems that support HiPPI) driver.conf(4) in <i>man Pages(4): File Formats of the SunOS Reference Manual</i> dlpi(7) , le(7) , qe(7) in <i>man Pages(7): Device and Network Interfaces of the SunOS Reference Manual</i>	

bf(7), nf(7) in the FDDI Reference Manual (provided only with those systems that support FDDI)