

# Advanced Insight Scripts (AI-Scripts) 2.1 Release Notes

**10 November 2009**  
**Revision 3**

These release notes accompany Release 2.1 of the Advanced Insight Scripts (AI-Scripts), JUNOS event scripts used to enable Juniper Networks J Series, M Series, MX Series, T Series, EX Series, and SRX Series routing platforms (devices) to:

- React to specific incident events that occur and provide relevant information for analysis.
- Periodically collect data on events that can be used to predict and prevent risks in the future.
- Package all incident and intelligence event data into a structured format, such as a Juniper Message Bundle (JMB), and send it to an archive location to be collected and displayed by the Advanced Insight Manager (AIM) application.

You can also find these release notes, the *Advanced Insight Scripts (AI-Scripts) Release Notes*, and the *AIS User Guide* on the Juniper Networks Technical Publications Web page, which is located at <http://www.juniper.net/support/>.

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## Release 2.1 Features

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This section describes key features of the current AI-Scripts release.

- AI-Scripts Operation on page 3
- AI-Script Modes on page 3

### AI-Scripts Operation

AI-Scripts do the following:

- React to specific incident events that occur on devices and provide relevant information about the problems for analysis.
- Periodically collect data on events that can be used to predict and prevent risks in the future.
- Package all incident and intelligence event data into a structured format, such as a Juniper Message Bundle (JMB), and send it to a remote archive location so that it can be collected and displayed by Advanced Insight Manager (AIM).

### AI-Script Modes

AI-Scripts operate in two distinct modes:

- Reactive (incident-driven)—A trigger event occurs and is detected on a device. An AI-Script is executed. An AI-Script builds a Juniper Message Bundle (JMB) with event and router data, and sends it to a designated AIM archive location.

Each AI-Script corresponds to a specific device event. The list of device problem events that can be detected and reported will evolve over time. See Table 1 on page 5.

- Proactive (intelligence-driven)—AI-Scripts monitor device system resources for fluctuations that could signal a future problem. AI-Scripts collect intelligence data for analysis. A tailored AI-Script builds a JMB with intelligence data, and sends it to a designated remote AIM archive location.

## AI-Scripts 2.1 New Features and Improvements

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### *Release 2.1R3*

The following new features and improvements have been added in this AI-Scripts release. Refer to Table 1 on page 5 for a more detailed description of each event:

- AI-Script support was added for high temperature events. (PR 476780)
- The behavior of the AI-Scripts installation commit script has been changed to print only an activation message when complete. It no longer prints a syslog message confirming activation of each individual event-script. (PR 479872)
- AI-Script support was added for event CHASSISD\_IFDEV\_DETACH\_FP. (PR 480185)

- AI-Script support was added for multiple uncorrectable ECC error events. (PR 482046)
- AI-Script support was added for multiple correctable ECC error events. (PR 482047)
- AI-Script support was added for event MIB2D\_RTSLIB\_READ\_FAILURE. (PR 482049)
- AI-Script support was added for event CHASSISD\_TIMER\_VAL\_ERR. (PR 482051)
- AI-Script support was added for PFE: RT: Failed prefix change. (PR 482101)
- AI-Script support was added for PFE: DFW: firewall addition failed. (PR 482102)
- AI-Script support was added for CHASSISD\_POWER\_CHECK. (PR 482103)
- AI-Script support was added for event CHASSISD\_MAC\_ADDRESS\_ERROR. (PR 482200)
- AI-Script support was added for event PPM\_READ\_ERROR. (PR 482489)
- AI-Script support was added for event BFDD\_READ\_ERROR. (PR 482493)
- AI-Script support was added for event KERNEL: rdp retransmit error. (PR 482507).

#### *Release 2.1R2*

The following new features and improvements were added in release 2.1R2:

- AI-Script support was added for event BCHIP multiple uncorrectable ECC error. (PR 473600)
- AI-Script support was added for event CCHIP SRAM parity error. (PR 473602)
- AI-Script support was added for event CHASSISD\_IPC\_WRITE\_ERR\_NULL\_ARGS. (PR 473604)
- AI-Script support was added for CMRFEB Fatal HSL2 errors. (PR 473606)
- AI-Script support was added for Fatal ASIC initialization error. (PR 473607)
- AI-Script support was added for RPD\_KRT\_Q\_RETRIES. (PR 473609)
- AI-Script support was added for RT\_PFE NH IPC op (no memory). (PR 473610)
- AI-Script support was added for SNMP\_PATRICIA\_ERROR. (PR 473611)
- AI-Script support was added for SDRAM ECC errors. (PR 473867)
- AI-Script support was added for common problem support for resource errors (PR 474606). For a description of each `RMON_EVENT`, see Table 1 on page 5.

#### *Release 2.1R1*

These items were added for release 2.1R1:

- AI-Script support was added for the event CHASSISD\_IFDEV\_DETACH\_PIC. (PR 429189)
- The AI-Scripts JMB event ID output was modified to use the chassis serial number instead of the midplane serial number. (PR 448656)

- AI-Scripts event JMBs were modified to remove **request support info** output for the SRX platform due to an excessive number of show commands. (PR 459448)
- AI-Scripts baseline platform support was added for the TX Matrix Plus. (PR 460131)
- AI-Scripts trend-data section for power consumption was added for the MX platform. (PR 461113)
- AI-Scripts standard attachments support was added for the TX Matrix Plus and EX-VC platforms. (PR 463698)
- AI-Scripts baseline platform support was added for the SRX210, SRX240, and SRX650 platforms. (PR 465946)
- AI-Script support was added for events PFE: Packet drop in Ichip and PFE: TOXIC SFP. (PR 467130)
- An AI-Scripts one-hour dampening policy was added to protocol adjacency related event scripts: RPD\_BGP\_NEIGHBOR\_STATE\_CHANGED, RPD\_ISIS\_ADJDOWN, RPD\_OSPF\_NBRDOWN, and RPD\_RSVP\_NBRDOWN. (PR 467548)
- AI-Scripts TX Matrix Plus JMBs were modified to change the chassis name from SFC to SCC due to a limitation in AIM and JSS support. (PR467556)

## Events Detected By AI-Scripts

Table 1 on page 5 lists the events detected by Release 2.1 of the AI-Scripts.

**Table 1: Events Detected by AI-Scripts**

Event ID	Description
ACCT_MALLOC_FAILURE	The accounting statistics process could not allocate memory from the heap.
ACCT_XFER_POPEN_FAIL	A failed call to the popen() function when the accounting statistics process invokes the indicated command to transfer the indicated file.
ASP_IDS_INV_CLEAR_QUERY	The intrusion detection services (IDS) receives a request to clear information from the IDS tables. The request includes the indicated type of query, which IDS cannot interpret.
ASP_IDS_INV_CLEAR_QUERY_VER	The intrusion detection services (IDS) receives a request to clear information from the IDS tables. The request version number did not match the version number of requests that IDS can service.
ASP_L2TP_OBJ_CAC_FAIL	The Layer 2 Tunneling Protocol (L2TP) could not allocate memory from an object cache for the flow defined by the indicated unit, tunnel, and session.
ASP_L2TP_NO_MEM	The Layer 2 Tunneling Protocol (L2TP) could not allocate the memory it needed to create a flow for the indicated tunnel and session.
ASP_PGCP_IPC_PIPE_WRITE_FAILED	The Packet Gateway Control Protocol (PGCP) client on the Services Port Interface Card failed to write an interprocess communication (IPC) message to the end of its pipe.

**Table 1: Events Detected by AI-Scripts (continued)**

ASP_PGCP_IPC_PIPE_WRITE_FAILED	The Packet Gateway Control Protocol (PGCP) client on the Services Port Interface Card failed to write the contents of its interprocess communication (IPC) pipe to the socket layer.
AUDITD_RADIUS_OPEN_FAILED	The audit process (auditd) could not create a RADIUS object handle used for various RADIUS operations.
AUDITD_RADIUS_REQ_CREATE_FAILED	The audit process (auditd) could not create a RADIUS accounting request for the indicated reason.
AUDITD_SOCKET_FAILURE	The audit process (auditd) listens on a Transmission Control Protocol (TCP) socket for system accounting events reported by other processes on the routing platform. The indicated socket operation failed with the indicated error.
AUTHD_AUTH_CREATE_FAILED	The generic authentication service process (authd) could not allocate an authentication object for the indicated reason.
AUTHD_SERVER_INIT_BIND_FAIL	The generic authentication service process (authd) could not bind the server to the address specified.
AUTHD_SERVER_INIT_LISTEN_FAIL	The generic authentication service process (authd) could not initialize listening on the server for the indicated socket.
AUTHD_SETSOCKOPT_FAILED	The generic authentication service process (authd) could not set socket options during the indicated operation.
AUTHD_SOCKET_FAILED	The generic authentication service process (authd) could not open a socket during the indicated operation.
AUTOD_RECV_FAILURE	The autoinstallation process (autod) received the indicated error when it tried to receive data on a socket.
AUTOD_SEND_FAILURE	The autoinstallation process (autod) receives the indicated error when it sends data on a socket.
AUTOD_SOCKET_CREATE_FAILURE	The autoinstallation process (autod) receives the indicated error when it creates a socket.
AV_PATTERN_KL_CHECK_FAILED	The device is unable to use the Kaspersky pattern file. The error message provides information to give Juniper Networks technical support.
AV_PATTERN_TOO_BIG	The pattern file size specified in the server initialization file (server.ini) exceeds the maximum prescribed limit.
AV_PATTERN_WRITE_FS_FAILED	The device is unable to save the contents of an antivirus pattern file to the file system.
BFDD_READ_ERROR	The Bidirectional Forwarding Detection process (bfd) could not read a message available on the indicated type of pipe.
BFDD_WRITE_ERROR	The Bidirectional Forwarding Detection process (bfd) could not write a message to the indicated type of pipe.
BOOTPD_HWDB_ERROR	The boot parameter process (tnp.bootpd) could not complete an operation in the hardware database maintained by the chassis process (chassisd), for the indicated reason.

**Table 1: Events Detected by AI-Scripts (continued)**

CFMD_RTsock_OPEN_FAILURE	The connectivity fault management process (cfmd) could not successfully open a routing socket to the kernel, for the indicated reason.
CHASSISD_BUS_DEVICE_OPEN_FAILURE	The chassis process (chassisd) could not open the indicated bus device for the indicated reason.
CHASSISD_CLOCK_FAILURE	The chassis process (chassisd) determined that the indicated clock source failed in the indicated way.
CHASSISD_COMMAND_ACK_ERROR	The chassis process requested that the indicated component (field-replaceable unit, or FRU) confirm that it was online. The indicated error occurred when the FRU sent its response. In the normal case, the chassis process performed any additional action necessary to guarantee that the FRU came online.
CHASSISD_COMMAND_ACK_SFM_ERROR	The chassis process (chassisd) requires an acknowledgment from each Switching and Forwarding Module (SFM) before it registers a Flexible PIC Controller (FPC) as online. The acknowledgment message from the indicated SFM failed for the indicated FPC.
CHASSISD_CMB_READBACK_ERROR	The chassis process (chassisd) could not read back information from the Chassis Management Bus (CMB) about the indicated component (field-replaceable unit, or FRU).
CHASSISD_FAN_FAILURE	The indicated fan or impeller failed. The chassis process (chassisd) raised an alarm and increased the speed of the remaining fans (and impellers, if applicable) to full speed.
CHASSISD_FASIC_FTOKEN_ERROR	The chassis process (chassisd) detected an underflow or overflow error on the indicated F chip on the indicated Control Board (CB).
CHASSISD_FASIC_PLL_ERROR	The chassis process (chassisd) could not lock a phased-lock loop (PLL) for the indicated F chip on the indicated Control Board (CB).
CHASSISD_FASIC_FTOKEN_INIT_ERROR	The chassis process (chassisd) encountered an error while initializing memory at the indicated address for the indicated F chip on the indicated Control Board (CB).
CHASSISD_FASIC_HSL_CONFIG_ERROR	The chassis process (chassisd) could not configure high speed links (HSL) for the indicated F chip on the indicated Control Board (CB).
CHASSISD_FASIC_HSL_LINK_ERROR	The chassis process (chassisd) detected an error for the indicated high-speed link (HSL) for the indicated F chip on the indicated Control Board (CB).
CHASSISD_FASIC_INIT_ERROR	The chassis process (chassisd) detected that F chips were not yet initialized on the Control Board (CB).
CHASSISD_FASIC_INPUT_DROP	The Packet Forwarding Engine divides packets into smaller units called cells for more efficient processing. As the indicated F chip on the indicated Control Board (CB) processed data that was received from the indicated Packet Forwarding Engine on the indicated Flexible PIC Concentrator (FPC), it dropped the indicated number of cells per second.
CHASSISD_FASIC_OUTPUT_DROP	The Packet Forwarding Engine divides packets into smaller units called cells for more efficient processing. As the indicated F chip on the indicated Control Board (CB) processed data before sending it to the indicated Packet Forwarding Engine on the indicated Flexible Port Concentrator (FPC) for outgoing transmission, it dropped the indicated number of cells per second.

**Table 1: Events Detected by AI-Scripts (continued)**

CHASSISD_FASIC_PIO_READ_ERROR	The indicated routine failed with a read error at the indicated address and register for the indicated F chip and link on the indicated Control Board (CB).
CHASSISD_FASIC_PIO_WRITE_ERROR	The indicated routine failed with a write error at the indicated address and register for the indicated F chip and link on the indicated Control Board (CB).
CHASSISD_FASIC_PLL_ERROR	The chassis process (chassisd) could not lock a phased-lock loop (PLL) for the indicated F chip on the indicated Control Board (CB).
CHASSISD_FASIC_RESET_ERROR	The chassis process (chassisd) could not reset the indicated F chip on the indicated Control Board (CB).
CHASSISD_FASIC_SRAM_ERROR	The chassis process (chassisd) detected that SRAM failed to initialize for the indicated F chip on the indicated Control Board (CB).
CHASSISD_FCHIP_CONFIG_MD_ERROR	The chassis process (chassisd) detected an invalid number of Md chips for the indicated F chip, Packet Forwarding Engine and Flexible PIC Concentrator (FPC).
CHASSISD_FCHIP_HSR_ERROR	The chassis process (chassisd) detected an error in the high-speed receiver (HSR) subsystem for the F chip with the indicated characteristics.
CHASSISD_FCHIP_HST_ERROR	The chassis process (chassisd) detected an error in the high-speed transmitter (HST) subsystem for the F chip with the indicated characteristics.
CHASSISD_FCHIP_LINK_ERROR	The chassis process (chassisd) detected an error for the indicated high-speed receiver (HSR) or high-speed transmitter (HST) link for an F chip on the indicated Switch Interface Board (SIB).
CHASSISD_FCHIP_MONITOR_ERROR	The chassis process (chassisd) detected an invalid F-chip module while enabling or disabling the monitoring of F-chip functional blocks.
CHASSISD_FCHIP_PIO_READ_ERROR	The indicated routine failed with a read error at the indicated address and register for the indicated F chip and link.
CHASSISD_FCHIP_PIO_WRITE_ERROR	The indicated routine failed with a write error at the indicated address and register for the indicated F chip and link.
CHASSISD_FHSR_READ_REG_ERROR	The high-speed receiver (HSR) read routine failed at the indicated address on an F-chip register.
CHASSISD_FHSR_WRITE_REG_ERROR	The high-speed receiver (HSR) write routine could not record the indicated value at the indicated address on an F-chip register.
CHASSISD_FHST_READ_REG_ERROR	The high-speed transmitter (HST) read routine failed at the indicated address on an F-chip register.
CHASSISD_FHST_WRITE_REG_ERROR	The high-speed transmitter (HST) write routine could not record the indicated value at the indicated address on an F-chip register.
CHASSISD_FILE_OPEN	The chassis process (chassisd) could not open the indicated file for the indicated reason.
CHASSISD_FM_ERROR	During execution of the indicated fabric management routine, the indicated error occurred between the indicated Switch Interface Board (SIB) and the indicated Packet Forwarding Engine on the indicated Flexible PIC Concentrator (FPC).

**Table 1: Events Detected by AI-Scripts (continued)**

CHASSISD_FM_ERROR_SIB_L_FB_HSR	In a routing matrix, packets traverse both electrical and optical media as they travel between the Switch Interface Boards (SIBs) in the T640 routing nodes (called SIB-Ls) and the SIBs in the TX Matrix platform (called SIB-Ss). The chassis process (chassisd) on the routing node that houses the indicated SIB-L detected an error in the electrical path between the indicated ports on the SIB-L and the corresponding SIB-S.
CHASSISD_FM_ERROR_SIB_L_FB_SMF	In a routing matrix, packets traverse both electrical and optical media as they travel between the Switch Interface Boards (SIBs) in the TX Matrix platform (the switch-card chassis, or SCC) and the SIBs in the T640 routing nodes (called SIB-Ls). The chassis process (chassisd) on the routing node that houses the indicated SIB-L detected the indicated error as packets that were traveling in the indicated direction were translated between electrical and optical media.
CHASSISD_FM_ERROR_SIB_S_FB_HSR	In a routing matrix, packets traverse both electrical and optical media as they travel between the Switch Interface Boards (SIBs) in the TX Matrix platform (called SIB-Ss) and the SIBs in the T640 routing nodes (called SIB-Ls). The chassis process (chassisd) on the TX Matrix platform detected an error in the electrical path between the indicated port on the indicated SIB-S and the indicated port on a SIB-L installed in the indicated routing node (line-card chassis, or LCC).
CHASSISD_FM_ERROR_SIB_S_FB_SMF	In a routing matrix, packets traverse both electrical and optical media as they travel between the Switch Interface Boards (SIBs) in the TX Matrix platform (called SIB-Ss) and the SIBs in the T640 routing nodes (line-card chassis, or LCCs). The chassis process (chassisd) on the TX Matrix platform detected the indicated error as packets that were traveling to or from the indicated LCC were translated between electrical and optical media.
CHASSISD_FM_SIB_ERROR	The chassis process (chassisd) detected the indicated type of error on the indicated Switch Interface Board (SIB) and performed the indicated action.
CHASSISD_FPC_PIC_DETECT_TIMEOUT	The chassis process (chassisd) expects to receive notification within a timeout period that each Flexible PIC Concentrator (FPC) has attached the Physical Interface Cards (PICs) that it houses. It did not receive notification from the indicated FPC.
CHASSISD_FRU_INVALID_SLOT	The chassis process (chassisd) detected that the indicated hardware component (field-replaceable unit, or FRU) was inserted in a slot that is not valid for that component type.
CHASSISD_GBUS_NOT_READY	The GBUS was not ready when the chassis process (chassisd) first tried to power it on, and the power-up operation timed out.
CHASSISD_GBUS_READBACK_ERROR	There was an error when the chassis process (chassisd) tried to read back information from the GBUS on the indicated component (field-replaceable unit, or FRU).
CHASSISD_HSR_FIFO_ERROR	A first-in, first-out (FIFO) read error occurred during execution of the indicated routine on the indicated high-speed receiver (HSR).
CHASSISD_I2C_BAD_IDEEPROM_FORMAT	The chassis process (chassisd) determined that the ID EEPROM format specified for the indicated type of hardware component (field-replaceable unit, or FRU) is not valid for it.
CHASSISD_I2C_READ_ERROR	The chassis process (chassisd) cannot read I2C data from the indicated device.

**Table 1: Events Detected by AI-Scripts (continued)**

CHASSISD_I2CS_READBACK_ERROR	The chassis process (chassisd) cannot read back information from the I2C slave (I2CS) about the indicated component (field-replaceable unit, or FRU).
CHASSISD_IFDEV_DETACH_FPC	The chassis process (chassisd) detached the interface devices for all Physical Interface Cards (PICs) on the indicated flexible PIC concentrator (FPC).
CHASSISD_IFDEV_DETACH_PIC	The chassis process (chassisd) detached the interface devices for the indicated Physical Interface Card (PIC).
CHASSISD_IPC_CONNECTION_DROPPED	The chassis process (chassisd) dropped the interprocess communication (IPC) connection to the indicated component (field-replaceable unit, or FRU).
CHASSISD_IPC_DAEMON_WRITE_ERROR	The chassis process (chassisd) could not write to a socket, because of the indicated error. The socket is for a connection to another process that runs on the Routing Engine and helps manage the chassis.
CHASSISD_IPC_MSG_DROPPED	The chassis process (chassisd) dropped an interprocess communication (IPC) message because the message queue had already reached maximum capacity.
CHASSISD_IPC_MSG_UNHANDLED	The chassis process (chassisd) received an interprocess communication (IPC) message about the indicated FRU. The message had the indicated characteristics. The chassisd process could not handle the message.
CHASSISD_IPC_WRITE_ERR_NULL_ARGS	The chassis process (chassisd) could not send a message to the indicated component (field-replaceable unit, or FRU) because one or more required parameters had a null value.
CHASSISD_MAC_ADDRESS_ERR	The chassis process (chassisd) could not obtain a media access control (MAC) address for the indicated interface because of an internal error.
CHASSISD_MAC_ADDRESS_FABRIC_ERR	The chassis process (chassisd) could not obtain a media access control (MAC) address for the indicated fabric interface because of an internal error.
CHASSISD_MALLOC_FAILURE	The chassis process (chassisd) could not allocate memory. The chassisd process tried to continue functioning, but the lack of memory usually causes the process to fail. An administrator needs to restart it.
CHASSISD_MBE_DETECTED	A multi-bit ECC parity error was detected in Routing Engine DRAM.
CHASSISD_OVER_TEMP_CONDITION	The temperature of one or more components (field-replaceable units, or FRUs) exceeded the indicated temperature, which is the upper of two thresholds. The fans (and impellers, if applicable) were in the indicated state. If the temperature does not go below the threshold within four minutes after the chassis process (chassisd) detects this condition, the chassisd process shuts down the routing platform. When this message was logged, the indicated number of seconds remained before shutdown.
CHASSISD_OVER_TEMP_SHUTDOWN_TIME	The chassis process (chassisd) shut down the routing platform because the temperature of one or more components exceeded the indicated threshold temperature for the indicated amount of time. Continued operation at the excessive temperature could damage the routing platform.
CHASSISD_PEM_OVERLOAD	The indicated power entry module (PEM) reported an output voltage overload condition.
CHASSISD_PEM_VOLTAGE	The indicated power entry module (PEM) reported a problem with its output voltage.

**Table 1: Events Detected by AI-Scripts (continued)**

CHASSISD_POWER_CONDITION	The temperature of the indicated Routing Engine exceeded the indicated temperature, which is the upper of two thresholds.
CHASSISD_RE_OVER_TEMP_CONDITION	The temperature of the indicated Routing Engine exceeded the indicated temperature, which is the upper of two thresholds.
CHASSISD_PSU_ERROR	The chassis process (chassisd) detected the indicated error condition for the indicated power supply unit (PSU).
CHASSISD_PSU_FAN_FAIL	The PSU fan-fail bit is set in the status for the indicated power supply unit (PSU).
CHASSISD_PSU_INPUT_BAD	The chassis process (chassisd) detected the input voltage/warning fault condition for the indicated power supply unit (PSU).
CHASSISD_PSU_OVERLOAD	The indicated power supply unit (PSU) reported an output voltage overload condition.
CHASSISD_PSU_TEMPERATURE	The chassis process (chassisd) detected that the temperature check bit was set in the status bit mask for the indicated power supply unit (PSU).
CHASSISD_PSU_VOLTAGE	The indicated power supply unit (PSU) reported a problem with its output voltage.
CHASSISD_RE_OVER_TEMP_SHUTDOWN	The chassis process (chassisd) performed the indicated action because the temperature of the indicated Routing Engine exceeded the maximum threshold for more than four minutes. Continued operation at the excessive temperature could damage routing platform components.
CHASSISD_RE_OVER_TEMP_WARNING	The temperature of the indicated Routing Engine exceeded the indicated temperature, which is the upper of two thresholds. If the temperature does not go below the threshold within four minutes after the chassis process (chassisd) detects this condition, the chassisd process shuts down the indicated component. When this message was logged, the indicated number of seconds remained before shutdown.
CHASSISD_SBE_DETECTED	Too many single-bit correctable ECC parity errors were detected in Routing Engine DRAM.
CHASSISD_SMB_INVALID_PS	The chassis process (chassisd) could not set the status (enabled or disabled) for a power supply, because it received the indicated power supply status code, which is invalid.
CHASSISD_SMB_IOCTL_FAILURE	The indicated ioctl() operation failed at the indicated address on the system management bus (SMB).
CHASSISD_SMB_READ_FAILURE	A read() operation failed at the indicated address on the system management bus (SMB).
CHASSISD_TEMP_SENSOR_FAILURE	The temperature sensor for the indicated component (field-replaceable unit, or FRU) either did not respond to a request from the chassis process (chassisd) for a temperature reading or sent a value that is outside the normal operating range.
CHASSISD_TIMER_VAL_ERR	The chassis process (chassisd) started a timer to track the timeout period for an event. The timer returned a null identifier, so the chassisd process could not clear the timer..

**Table 1: Events Detected by AI-Scripts (continued)**

CHASSISD_VOLTAGE_READ_FAILED	The chassis process (chassisd) could not read the voltage data from the indicated component (field-replaceable unit, or FRU).
CHASSISD_VOLTAGE_SENSOR_INIT	The chassis process (chassisd) could not initialize the voltage sensor for the indicated component (field-replaceable unit, for FRU).
CHASSISD_UNEXPECTED_EXIT	The chassis process (chassisd) exited unexpectedly and reported the indicated error.
COSD_MALLOC_FAILED	The class-of-service (CoS) process (cosd) could not dynamically allocate memory, for the indicated reason.
COSD_RTsock_LIB_ERR	COSD uses rtsock library for reading and writing data from and to kernel. The specified error occurred while using rtsock library to read/write data.
COSD_RTsock_WRITE_FAILED	COSD uses rtsock to read/write data from kernel. If the write fails kernel returns an error.
COSD_UNEXPECTED_EXIT	COSD waits for the event notifications and processes the events that it is registered for. There was an error during event-handling initialization.
COSD_UNKNOWN_TRANSLATION_TABLE	The class-of-service (CoS) process (cosd) did not recognize the indicated translation table type from the rtsock library.
Daemon Crash	A JUNOS daemon crash occurred with a core dump.
DCD_CONFIG_WRITE_FAILED	The DCD encountered an error while trying to send an interface configuration to the kernel over the routing socket.
DCD_PARSE_STATE_EMERGENCY	The interface process (dcd) encountered an unhandled internal state during interface parsing.
DCD_RTsock_READ_SYNC_NOBUF	The DCD communicates with the kernel by writing messages to and reading messages from routing sockets. The DCD could not allocate memory to use to read messages from the kernel.
DCD_RTsock_SEND_NOBUF	If the Routing Engine is busy or operating under a heavy load, messages between the DCD and the kernel may be dropped. To detect whether messages have been dropped, the DCD and the kernel place sequence numbers in messages. The DCD detected that a message was dropped. In an attempt to recover the message, the DCD retries the operation.
DFCD_GENCFG_MALLOC_FAILED	The dynamic flow capture process (dfcd) could not allocate memory for the gencfg message.
DFCD_GENCFG_WRITE_FAILED	The dynamic flow capture process (dfcd) could not send the gencfg message for the indicated reason.
DFCD_LINH_MALLOC_FAILED	The dynamic flow capture process (dfcd) could not allocate memory for the linh message.
DCD_TRASHED_RED_ZONE	When DCD is allocating heap memory, it uses a private memory allocator that writes a special pattern at the end of each allocated segment of heap memory. Later, when de-allocating this memory, DCD checks for the pattern. If it does not find the previously written pattern, it means the memory was overwritten, which indicates an error in DCD.

**Table 1: Events Detected by AI-Scripts (continued)**

DFWD_CONFIG_WRITE_FAILED	The DFWD encountered an error while trying to send an interface configuration to the kernel over the routing socket.
DFWD_MALLOC_FAILED	DFWD must dynamically malloc memory for its needs. This allocation request failed. The specific data structure that was being allocated is listed in the message.
DFWD_PARSE_STATE_EMERGENCY	The firewall process (dfwd) encountered an unhandled internal state while parsing an interface.
DFWD_TRASHED_RED_ZONE	When DFWD is allocating heap memory, it uses a private memory allocator that writes a special pattern at the end of each allocated segment of heap memory. Later, when de-allocating this memory, DFWD checks for the pattern. If it does not find the previously written pattern, it means the memory was overwritten, which indicates an error in DFWD.
DH_SVC_RTsock_OPEN_FAILURE	The Dynamic Host Configuration Protocol (DHCP) services process (dhcp-service) could not successfully open a routing socket to the kernel. The error string accompanying this log entry indicates the specific error.
DH_SVC_RTsock_REGISTER_FAILURE	The Dynamic Host Configuration Protocol (DHCP) services process (dhcp-service) could not successfully register a callback function with a routing socket. The error string accompanying this log entry indicates the specific error.
DH_SVC_SETSOCKOPT_FAILURE	The Dynamic Host Configuration Protocol (DHCP) services process (dhcp-service) could not set the indicated socket option.
DH_SVC_SOCKET_FAILURE	The Dynamic Host Configuration Protocol (DHCP) services process (dhcp-service) could not create a socket.
EVENTD_EVENT_SEND_FAILED	JUNOS processes can request that the event processing process (eventd) notify them when a specific event occurs. The eventd process could not send an event notification for the indicated reason.
EVENTD_FORK_ERR	The event processing process (eventd) could not create a child process for executing policies.
EVENTD_PIPE_ERR	The event processing process (eventd) could not create a pipe for interprocess communication.
EVENTD_VERSION_MISMATCH	The event processing process (eventd) received an event with the indicated version indicator, which does not match the indicated version expected by the eventd process.
FPCLOGIN_IP_ADDRESS_GET_FAILURE	The fpclogin module attempted to get the IP address of the physical interface module. The attempt failed.
FSAD_ERROR	The File System Access process (fsad) internal error message.
FUD_MEMORY_ALLOCATION_FAILURE	The UDP forwarding process (fud) could not allocate the indicated amount of memory from the heap.
FUD_RTsock_WRITE_FAILURE	The UDP Forwarding process (fud) could not write to its routing socket for the indicated reason.

**Table 1: Events Detected by AI-Scripts (continued)**

FUD_SENDMSG_FAILURE	The UDP Forwarding process (fud) could not send data to the indicated destination port and address using the indicated interface and routing instance, which it needs to do during normal operation.
FUD_SENDMSG_NOINT_FAILURE	The UDP Forwarding process (fud) could not send data to the indicated destination port and address using the indicated routing instance, which it needs to do during normal operation.
FUD_SETSOCKOPT_FAILURE	The UDP Forwarding process (fud) could not set the indicated socket option.
FUD_SOCKET_FAILURE	The UDP Forwarding process (fud) could not create a socket.
GGSN_ALARM_TRAP_SEND	An alarm trap to be relayed by the Services PICs process (serviced) failed to initialize.
GGSN_TRAP_SEND	The system sent a GGSN trap of an unrecognized type.
GRAPH_NO_MEMORY	The graphing process could not allocate memory while trying to create a graph.
IDP_DAEMON_INIT_FAILED	An attempt to start the IDP policy daemon failed because an error was encountered during initialization.
IDP_INTERNAL_ERROR	The IDP daemon encountered an internal error.
IKED_CFG_PATRICIA_ERROR	A call to a Patricia tree library function returned an error.
JCS_MM_COMMUNICATION_ERROR	The JCS process (jcsd) could not send an SNMP request to the Management Module because of the indicated error.
JCS_BBD_LOAD_FAILURE	The JCS process (jcsd) could not load blade bay data for the specified blade.
JCS_BBD_LOCAL_MISMATCH	The blade bay data retrieved for the specified blade does not match the data loaded during the reboot process. This error usually indicates that blade bay data in the JCS Management Module was changed since the last reboot.
JCS_BBD_NOT_FOUND	The blade bay data was not found for the specified blade.
JCS_BBD_NOT_VALID	The blade bay data for the specified blade is invalid.
JCS_BBD_PARSE_ERROR	The blade bay data for the specified blade did not parse correctly.
JCS_BBD_PEER_MISMATCH	The blade bay data retrieved for the specified peer blade does not match the data retrieved for the local blade. This error indicates that blade bay data in the JCS Management Module was not configured properly.
JCS_KERNEL_RSD_LINK_DOWN	The JCS process (jcsd) has disabled kernel RSD communication for the specified reason.
JCS_READ_BANDWIDTH_ERROR	The indicated error occurred when attempting to read the current switch bandwidth.
JCS_READ_BBD_ERROR	The indicated error occurred when attempting to read the current blade bay data via a sysctl call.
JCS_SWITCH_COMMUNICATION_ERROR	The JCS process (jcsd) could not send an SNMP request to the indicated Switch Module because of the indicated error.

**Table 1: Events Detected by AI-Scripts (continued)**

JSRPD_DAEMONIZE_FAILED	The jsrpd process (jsrpd) could not create a version of itself to run in the background as a daemon.
JSRPD_EVLIB_EXIT_FAILURE	The jsrpd process (jsrpd) returned from an event loop, which it should never do.
JSRPD_SOCKET_CREATION_FAILURE	The jsrpd process (jsrpd) could not successfully create a socket.
JSRPD_SOCKET_LISTEN_FAILURE	The jsrpd process (jsrpd) could not successfully listen on a socket.
JSRPD_SOCKET_RECV_HB_FAILURE	The jsrpd process (jsrpd) was not successfully received on a socket.
KERNEL: rdp retransmit error	The kernel is indicating that no system buffer space is available.
KERNEL:RT_PFE: NH IPC failed, err 6 (No Memory)	The kernel is reporting that the packet forwarding engine cannot install or change routing table entries because the PFE is running out of memory.
L2ALD_IPC_PIPE_WRITE_ERROR	The Layer 2 address learning process (l2ald) could not write to an interprocess communication (IPC) pipe for the indicated reason.
L2CPD_ABORT	The Layer 2 Control Protocol process (l2cpd) terminated because of an internal error.
L2CPD_ASSERT	The source code for the Layer 2 Control Protocol process (l2cpd) includes internal self-consistency tests. The l2cpd process with the indicated executable name and process ID (PID) terminated because the indicated test failed at the indicated line number in the indicated source file. The process created a diagnostic core file for analysis by technical support personnel.
L2CPD_ASSERT_SOFT	The source code for the Layer 2 Control Protocol process (l2cpd) includes internal self-consistency tests. The l2cpd process with the indicated executable name and process ID (PID) terminated because the indicated type of check failed at the indicated line number in the indicated source file. The process continued to run, but created a diagnostic core file for analysis by technical support personnel.
L2TPD_EVLIB_CREATE_FAILED	The Layer 2 Tunneling Protocol process (l2tpd) could not create a context for handling asynchronous events.
L2CPD_PPM_WRITE_ERROR	The Layer 2 Control Protocol process (l2cpd) could not write a message on the pipe to the periodic packet management process (ppmd).
L2CPD_SCHED_SLIP	L2CPD delayed an event, such as issuing an adjacency establishment message, that was supposed to occur at a particular time. The event did not occur at the right time.
L2TPD_SERVER_START_FAILED	The Layer 2 Tunneling Protocol (L2TP) server did not start.
L2CPD_SYSTEM_CALL_FAILED	A system call made by the Layer 2 control protocol process (L2CPD) failed.
LACPD_DAEMONIZE_FAILED	The Link Aggregation Control Protocol process (lacpd) could not create a version of itself to run in the background as a daemon.
LIBESPTASK_SNMP_CONN_PROG	The indicated error occurred while the process using libesptask was connecting to the SNMP master agent.

**Table 1: Events Detected by AI-Scripts (continued)**

LIBESPTASK_SNMP_SOCKET_RECVBUF	The process using libesptask could not set the size of the kernel receive buffer, which allows it to accept the largest possible packet from the Simple Network Management Protocol (SNMP) master agent.
LIBESPTASK_SNMP_SOCKET_SENDBUF	The process using libesptask could not set the size of the kernel send buffer, which allows it to send the largest possible packet to the Simple Network Management Protocol (SNMP) master agent.
LIBJNX_DEFAULT_IP_ADDR_NOT_SET	A JUNOS process could not retrieve the system default IP address from the kernel, because the address is not defined there.
LIBJNX_REPLICATE_RCP_ERROR	The rcp command failed during replication.
LIBJNX_EVLIB_FAILURE	A JUNOS process called the indicated function in the event library. The function failed for the indicated reason.
LIBJNX_SNMP_ENGINE_FILE_FAILURE	A JUNOS process could not perform the indicated operation on the indicated SNMP engine data file.
LIBJNX_SOCKET_FAILURE	Various system processes use Transmission Control Protocol (TCP), User Datagram Protocol (UDP), and Reliable Data Protocol (RDP) sockets. The indicated socket operation failed for the indicated reason.
LIBMSRPC_CLIENT_INIT_FAILED	A JUNOS process (mspinof) could not establish initialization of the RPC client.
LIBMSRPC_CLIENT_KCOM_FAILED	A JUNOS process (mspinof) could not establish initialization of the kcom subsystem.
LIBMSRPC_CLIENT_KCOM_NO_IF	A JUNOS process (mspinof) could not find any configured and active extension-provider interfaces.
LIBMSRPC_CLIENT_NO_CONNECTION	Remote execution of the command given from the Routing Engine to the PIC. The Routing Engine cannot connect to the PIC.
LIBMSRPC_CLIENT_NO_REPLY	Remote execution of the command given from the Routing Engine to the PIC failed. There was no reply from the PIC.
LIBMSRPC_CLIENT_PIC_DOWN	Remote execution of the command given from the Routing Engine to the PIC failed. The PIC is down.
LIBMSRPC_CLIENT_WRONG_OUTPUT	Remote execution of the command given from the Routing Engine to the PIC failed. The PIC returned unexpected output.
LIBSERVICED_CLIENT_CONNECTION	An attempt to establish a client connection failed.
LIBSERVICED_SOCKET_BIND	An attempt to bind a server socket for receiving client requests failed.
LIBSERVICED_SOCKET_PRIVATIZE	An attempt to attach a socket to the management routing instance for communication between the Routing Engine and GGSN-C PICs failed.
LICENSE_EXPIRED	A time-based license for a feature has expired. The feature will remain inactive until a new license is installed.
LICENSE_GRACE_PERIOD_APPROACHING	The grace period for a licensable feature is about to expire. Unless a new license is installed, the feature will become inactive after the grace period expires.

**Table 1: Events Detected by AI-Scripts (continued)**

LICENSE_GRACE_PERIOD_EXCEEDED	The grace period for a scale license is about to expire. Unless the scale license is upgraded, the license will scale back to the licensed limit after the grace period expires.
LICENSE_GRACE_PERIOD_EXPIRED	The grace period for a licensable feature has expired. Strict license enforcement will remain active until a new license is installed.
LICENSE_NEARING_EXPIRY	A time-based license for a feature is about to expire. Unless a new license is installed, the feature will become inactive after the license expires.
LPDFD_DYN_PDB_OPEN_FAILED	The local policy decision function process (lpdfd) failed to open the profile database.
LPDFD_DYN_REGISTER_FAILED	The local policy decision function process (lpdfd) failed to register with the dynamic configuration subsystem.
LPDFD_DYN_SDB_OPEN_FAILED	The local policy decision function process (lpdfd) failed to open the session database.
LPDFD_PCONN_SERVER	The local policy decision function process (lpdfd) pconn server failed to initialize.
LPDFD_RTsock_OPEN_FAILURE	The Local Policy Decision Function (LPDF) services process could not successfully open a routing socket to the kernel. The error string accompanying this log entry indicates the specific error.
MIB2D_RTSLIB_READ_FAILURE	A call to the indicated function in the routing socket library failed during the indicated operation on the indicated object.
MIB2D_SNMP_INDEX_ASSIGN	MIB2D cannot assign an SNMP index for each interface.
MIB2D_SNMP_INDEX_DUPLICATE	The first interface name was assigned the same SNMP index as the second interface name.
MIB2D_SNMP_INDEX_UPDATE_STAT	MIB2D cannot get the status of the SNMP index file.
MIB2D_SNMP_INDEX_WRITE	MIB2D cannot write to a file containing all the indices.
PFE Crash	Any PFE board crash that occurs in conjunction with a system exception message.
PFE: ASIC Initialization Error	Any PFE ASIC initialization error that occurs in conjunction with a system exception message, such as: router-name fpc5 CMG: Fatal ASIC initialization error, Offlining FPC
PFE: CMRFEB: Fatal HSL2 errors for FPC	A switching board (e.g., FEB) is reporting a bad fabric connection to an FPC.
PFE: DFW: jtree cutover failed	The firewall filter configuration cannot be applied due to insufficient amount of contiguous memory on the SRAM.
PFE: imq_stream_disable_stream	The I-chip wedge issue described in PR 277853, which can lead to packet corruption or packet loss. The Event trigger contains the string: imq_stream_disable_stream.
PFE: Multiple Correctable ECC	The PFE board is reporting multiple correctable ECC memory errors.
PFE: Multiple UnCorrectable EC.	The PFE board is reporting multiple uncorrectable ECC memory errors.

**Table 1: Events Detected by AI-Scripts (continued)**

PFE: Packet drop in Ichip	The Ichip packet writer drop counter is incrementing, possibly indicating packet drops which may, but not necessarily, be due to a faulty switching board.
PFE: RT: Failed prefix change	These messages indicate that the RE is trying to delete routes from the PFE, but it can't because the routes aren't there. This usually means the PFE has run out of memory. For example, if you bring up many BGP peers, the number of routes the RE can hold may surpass the number the PFE can hold. In this case, the PFE runs out of memory and can't add the routes. Later, when the RE tries to remove the routes, the prefix it's looking for is unknown.
PFE: SDRAM ECC Error	Any PFE SDRAM ECC error that occurs in conjunction with a system exception message, for example: router-name fpc0 ADPC: detected 1 DDR SDRAM Single-bit ECC errors in the last 30 seconds.
PFE: SRAM Parity Error	Any PFE SDRAM ECC error that occurs in conjunction with a system exception message, for example: router-name ssb CCHIP: %PFE-3: SRAM parity error 0x80000 bank 0x1
PFE: TOXIC SFP	The PFE error is due to a toxic SFP.
PFE: SDRAM ECC Error	Any PFE SDRAM ECC error that occurs in conjunction with a system exception message, for example: router-name fpc0 ADPC: detected 1 DDR SDRAM Single-bit ECC errors in the last 30 seconds
PFE: SRAM Parity Error	Any PFE SDRAM ECC error that occurs in conjunction with a system exception message, for example: router-name ssb CCHIP: %PFE-3: SRAM parity error 0x80000 bank 0x1
PPMD_ASSERT_SOFT	The source code for the periodic package management process (ppmd) includes internal self-consistency checks. As the ppmd process with the indicated process ID (PID) executed the binary compiled from the indicated source file, a check failed at the indicated line number in the file. The ppmd process created a diagnostic core file for analysis by technical support personnel and continued to run.
PPMD_READ_ERROR	The source code for the periodic package management process (ppmd) includes internal self-consistency checks. As the ppmd process with the indicated process ID (PID) executed the binary compiled from the indicated source file, a check failed at the indicated line number in the file. The ppmd process created a diagnostic core file for analysis by technical support personnel and continued to run.
problem-event-l2cacheerror	The PFE component is reporting that L2 Cache Single-bit ECC errors were detected in the last 30 seconds. If the problem persists, this is likely to result in a component crash or failure.
problem-event-ichipfcheck	The FPC is reporting a bad fabric connection to one or more destinations. Another FPC is likely to be causing the packet corruption.
problem-event-jbuserror	An error occurred on the FPC control bus used for packet memory allocation.
problem-event-lchipcrc	The outbound FPC is reporting a corrupt packet received on the Nchip-to-Lchip interface. Another FPC is likely to be causing the packet corruption.
problem-event-nfabrcrerror	The fabric connection to the ingress FPC is reporting a bad connection.

**Table 1: Events Detected by AI-Scripts (continued)**

RDD_EVLIB_CREATE_FAILURE	The redundant interfaces process (rdd) could not create a context used for handling all asynchronous events (such as timers and message availability).
RMON_EVENT_cfeb_high_buffer_utilization	Remote monitoring event reporting high buffer utilization on CFEB.
RMON_EVENT_cfeb_high_heap_utilization	Remote monitoring event reporting high heap utilization on CFEB.
RMON_EVENT_feb_high_buffer_utilization	Remote monitoring event reporting high buffer utilization on FEB.
RMON_EVENT_feb_high_heap_utilization	Remote monitoring event reporting high heap utilization on FEB.
RMON_EVENT_fpc_high_buffer_utilization	Remote monitoring event reporting high buffer utilization on FPC.
RMON_EVENT_fpc_high_heap_utilization	Remote monitoring event reporting high heap utilization on FPC.
RMON_EVENT_fwdd_high_buffer_utilization	Remote monitoring event reporting high buffer utilization on FWDD.
RMON_EVENT_fwdd_high_heap_utilization	Remote monitoring event reporting high heap utilization on FWDD.
RMON_EVENT_pfe_aged_notification	Remote monitoring event reporting PFE notification: aged packets.
RMON_EVENT_pfe_corrupt_notification	Remote monitoring event reporting PFE notification: corrupt packets.
RMON_EVENT_pfe_dmafail_notification	Remote monitoring event reporting 'PFE notification: DMAfail packets.
RMON_EVENT_pfe_getfail_notification	Remote monitoring event reporting PFE notification: Getfail packets.
RMON_EVENT_pfe_giant_notification	Remote monitoring event reporting PFE notification: Giant packets.
RMON_EVENT_pfe_illegal_notification	Remote monitoring event reporting PFE notification: Illegal packets.
RMON_EVENT_re_high_dram_utilization	Remote monitoring event reporting high DRAM CPU utilization on RE.
RMON_EVENT_sfm_high_buffer_utilization	Remote monitoring event reporting high buffer utilization on SFM.
RMON_EVENT_sfm_high_heap_utilization	Remote monitoring event reporting high heap utilization on SFM.
RMON_EVENT_spmb_high_buffer_utilization	Remote monitoring event reporting high buffer utilization on SPMB.
RMON_EVENT_spmb_high_heap_utilization	Remote monitoring event reporting high heap utilization on SPMB.
RMON_EVENT_ssb_high_buffer_utilization	Remote monitoring event reporting high buffer utilization on SSB.
RMON_EVENT_ssb_high_heap_utilization	Remote monitoring event reporting high heap utilization on SSB.
RPD_ABORT	The routing protocol process (rpd) terminated because of an internal error.
RPD_ACTIVE_TERMINATE	After receiving multiple termination requests, the routing protocol process (rpd) exited without performing the indicated cleanup tasks.
RPD_ASSERT	The source code for the routing protocol process (rpd) includes internal self-consistency checks. A check failed at the indicated line number in the indicated source file, causing the instance of rpd that was using the indicated binary and had the indicated process ID (PID) to terminate. The process created a diagnostic core dump for analysis by technical support personnel.

**Table 1: Events Detected by AI-Scripts (continued)**

RPD_ASSERT_SOFT	The source code for the routing protocol process (rpd) includes internal self-consistency checks. A check failed at the indicated line number in the indicated source file, but the instance of rpd that was using the indicated binary and had the indicated process ID (PID) continued running. The process created a diagnostic core dump for analysis by technical support personnel.
RPD_BGP_NEIGHBOR_STATE_CHANGED	During the BGP negotiation with the local router, the state of the indicated BGP neighbor (peer) changed as indicated. The ESTABLISHED state is the final state in the neighbor negotiation.
RPD_DYN_CFG_BAD_REQ_OPCODE	The routing protocol process (rpd) received a dynamic configuration request with an unexpected operation code.
RPD_DYN_CFG_BUSY_SIGNAL_FAILED	The routing protocol process (rpd) failed to notify dynamic configuration clients about its availability to process dynamic configuration requests.
RPD_DYN_CFG_GET_PROFILE_FAILED	The routing protocol process (rpd) tried to load a profile from the database and failed.
RPD_DYN_CFG_GET_PROF_NAME_FAILED	The routing protocol process (rpd) tried to get the profile name from the session snapshot and failed.
RPD_DYN_CFG_GET_SES_STATE_FAILED	The routing protocol process (rpd) failed to get the session state from the session snapshot.
RPD_DYN_CFG_GET_SNAPSHOT_FAILED	The routing protocol process (rpd) tried to load client session data from the database and failed.
RPD_DYN_CFG_PDB_CLOSE_FAILED	The routing protocol process (rpd) tried to close the profile database and failed.
RPD_DYN_CFG_PDB_OPEN_FAILED	The routing protocol process (rpd) tried to open the profile database and failed.
RPD_DYN_CFG_PROCESSING_FAILED	The routing protocol process (rpd) tried to process dynamic configuration and failed.
RPD_DYN_CFG_REGISTER_FAILED	The routing protocol process (rpd) tried to register with the dynamic configuration subsystem and failed.
RPD_DYN_CFG_REQUEST_ACK_FAILED	The routing protocol process (rpd) tried to ACK a dynamic configuration request and failed.
RPD_DYN_CFG_SCHEMA_OPEN_FAILED	The routing protocol process (rpd) tried to open the configuration schema and failed.
RPD_DYN_CFG_SDB_CLOSE_FAILED	The routing protocol process (rpd) tried to close the session database and failed.
RPD_DYN_CFG_SDB_OPEN_FAILED	The routing protocol process (rpd) tried to open the session database and failed.
RPD_DYN_CFG_SES_RECOVERY_FAILED	The routing protocol process (rpd) tried to recover a session and failed.
RPD_ISIS_ADJDOWN	An IS-IS adjacency with the indicated neighboring router was terminated. The local router will no longer exchange routing information with, or direct traffic to, the neighboring router.

**Table 1: Events Detected by AI-Scripts (continued)**

RPD_ISIS_LSPCKSUM	The indicated IS-IS informational link-state PDU (LSP) failed an internal checksum validity test, implying that it was corrupted.
RPD_ISIS_OVERLOAD	The IS-IS link-state database is full and no additional memory can be allocated for it.
RPD_KRT_Q_RETRIES	The routing protocol process (rpd) attempted to update the kernel for the indicated times and failed. It will continue retrying.
RPD_LMP_UNEXPECTED_OPCODE	The routing protocol process (rpd) received the indicated type of message, which had the indicated invalid operation code.
RPD_OS_MEMHIGH	The routing protocol process (rpd) is using the indicated amount and percentage of Routing Engine memory, which is considered excessive.
RPD_OSPF_NBRDOWN	An OSPF adjacency with the indicated neighboring router was terminated. The local router will no longer exchange routing information with, or direct traffic to, the neighboring router.
RPD_RSVP_NBRDOWN	The RSVP neighbor to the indicated address was terminated.
RPD_RT_ERROR	A route in the routing table was found to be in an unrecoverable error state.
RPD_TASK_FORK	The routing protocol process failed to create the indicated child process.
RT_SCREEN_TCP	A TCP attack category.
RT_SCREEN_UDP	A UDP attack category.
RTPERF_CPU_THRESHOLD_EXCEEDED	The PFE CPU threshold has been exceeded.
RTLOGD_DAEMONIZE_FAILED	The JSR log daemon could not create a version of itself to run in the background as a daemon.
RTLOGD_EVLIB_FAILURE	The JSR log daemon called the indicated event library function. The function failed with the indicated error.
RTLOGD_GET_TNP_ADDRESS_FAILED	JSR log daemon failed to determine local TNP address used to receive JSR log.
RTLOGD_LOG_BIND_ERROR	The JSR log daemon received the JSR log from a JSR log forwarder. The JSR log daemon failed to connect to the forwarder.
RTLOGD_LOG_READ_ENABLE_ERROR	The JSR log daemon received the JSR log from a JSR log forwarder. The JSR log daemon failed to enable the reading of the JSR log from the forwarder.
RTLOGD_LOG_READ_ERROR	The JSR log daemon relayed the JSR logs from the dataplane to the system event daemon for logging. The JSR log daemon failed to read JSR logs for the indicated reason.
SAVAL_RTsock_FAILURE	The MAC SA Validate system process (jsavald) experienced the indicated error with a routing socket.
SDXD_DAEMONIZE_FAIL	The Service Deployment System process (sdx) could not create a version of itself to run in the background as a daemon.
SERVICED_CLIENT_DISCONNECTED	The remote client closed the connection or stopped responding.

**Table 1: Events Detected by AI-Scripts (continued)**

SERVICED_CLIENT_ERROR	An I/O error caused the termination of a connection with an interface client.
SERVICED_COMMAND_FAILED	An error caused a command being executed on an interface client to be cancelled.
SERVICED_CONNECTION_ERROR	The remote client closed the connection when data was expected.
SERVICED_EVENT_FAILED	The Services PICs process (serviced) could not continue processing a task because a call to a function in the event library failed.
SERVICED_INIT_FAILED	One of the steps in the initialization sequence for the Services PICs process (serviced) failed.
SERVICED_INTERNAL_INCONSISTENCY	An internal consistency check failed due to a mismatch between expected and received values for the specified object.
SERVICED_MALLOC_FAILURE	The Services PICs process (serviced) could not allocate the number of bytes needed to hold the indicated object.
SERVICED_PID_FILE_LOCK	As a part of normal startup, the Services PICs process (serviced) locks a file and writes its process ID (PID) into it. It could not lock the file.
SERVICED_PID_FILE_UPDATE	As a part of normal startup, the Services PICs process (serviced) locks a file and writes its process ID (PID) into it. It could not write to the file.
SERVICED_NETWORK_FAILURE	An attempt to use the indicated network library call failed with an error.
SERVICED_RTsock_SEQUENCE	The Services PICs process (serviced) encountered a sequence error while receiving messages from the routing socket library.
SERVICED_SIGNAL_HANDLER	As a part of normal functioning, the Services PICs process (serviced) attempted to initialize a signal-handling function. Part of the initialization failed with an error.
SERVICED_STDLIB_FAILURE	The value returned by a call to a library function indicated that an error occurred.
SERVICED_SOCKET_CREATE	An attempt by the Services PICs process (serviced) to create a new socket for communication with an interface client failed with an error.
SERVICED_SOCKET_IO	A call to a socket library function indicated that an error occurred while attempting to perform I/O.
SERVICED_SOCKET_OPTION	An attempt to set an option on a socket failed.
SPD_DAEMONIZE_FAILED	The adaptive services process (spd) could not create a version of itself to run in the background as a daemon.
SNMP_RTSLIB_FAILURE	A call to the indicated function in the routing socket library failed with the indicated error.
SNMPD_FILE_FAILURE	The Simple Network Management Protocol (SNMP) agent process (snmpd) could not access the indicated file.
SNMPD_RMONFILE_FAILURE	The indicated operation failed on the indicated remote monitoring (RMON) data file.

**Table 1: Events Detected by AI-Scripts (continued)**

SNMPD_SEND_FAILURE	The Simple Network Management Protocol (SNMP) agent process (snmpd) could not send either a protocol data unit (PDU) to the User Datagram Protocol (UDP) or a message to a subagent.
SNMPD_SOCKET_FATAL_FAILURE	The Simple Network Management Protocol (SNMP) agent process (snmpd) uses sockets for communication with subagents. The process exited after a socket operation, such as creation or removal, failed.
SNMPD_SUBAGENT_NO_RESOURCES	The Simple Network Management Protocol (SNMP) agent process (snmpd) uses certain resources for communication with subagents. However, the resources were not available for communication with the indicated subagent.
SNMP_PATRICIA_ERROR	A call to a Patricia tree library function returns an error.
SPD_EVLIB_CREATE_FAILURE	The adaptive services process (spd) could not create a context used for handling all asynchronous events (such as timers and message availability).
SPD_GEN_NUM_FAIL	The adaptive services process (spd) attempted to initialize the generation-number for the service sets. However, the memory allocation failed.
SYSTEM: writing kernel	A kernel crash event. A <b>writing kernel</b> message is captured after the router reboots.
SYSTEM: Alarm set: Temp Too Warm	The system is indicating that the sensor on an EX FPC is exceeding the temperature threshold.
TASK_OS_MEMHIGH	The process is using the indicated amount and percentage of Routing Engine memory, which is considered excessive.
TASK_SYSTEM	A system call made by this process failed.
UI_DBASE_REBUILD_FAILED	The management process (mgd) could not rebuild the configuration database file.
UI_DBASE_REBUILD_SCHEMA_FAILED	The management process (mgd) could not rebuild the schema for the configuration database.
UI_DBASE_REOPEN_FAILED	After rebuilding the schema file for the configuration database, the management process (mgd) closes the file and reopens it in read-only mode to prevent corruption. It could not reopen the file.
UI_SCHEMA_SEQUENCE_ERROR	The JUNOS user interface schema file records all CLI commands and configuration statements available in the JUNOS software. The management process (mgd) rebuilds the schema as necessary to be compatible with the JUNOS software installed on the routing platform. A sequence number in the schema acts as a checksum that represents its content and format. A JUNOS process attempted to access the schema but determined that the schema's sequence number means that it is incompatible with the process.
UTMD_MALLOC_FAILURE	The example process (utmd) could not allocate memory for a resource, possibly due to a lack of memory.
UTMD_SSAMLIB_FAILURE	The example process (utmd) encountered an error while calling a function or from a callback of the ssamlib library.

**Table 1: Events Detected by AI-Scripts** (continued)

WEB_ALLOCATE	The Web management process (httpd) could not allocate the indicated amount of memory, for the indicated reason.
WEB_MEMORY_ALLOC	The Web management process (httpd) could not allocate the indicated number of bytes of memory, for the indicated reason.
WEB_MGD_LISTEN_ERROR	The Web management process could not open the MGD listening socket.
WEBFILTER_CACHE_NOT_ENABLED	The category cache Web filter failed to enable.
WEBFILTER_REQUEST_NOT_CHECKED	The Web filtering failed to check a Web request.
WEB_SOCKET	The Web management process (httpd) could not create a socket, for the indicated reason.

## Current Software Release

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The current AI-Scripts release is Release 2.1 R3.

## Outstanding Issues

---

The following issues exist in the current AI-Scripts release:

- The AI-Scripts Juniper Message Bundle (JMB) does not include `chassis-re-disk-module` media information on the Routing Engine, such as the flash drive and hard drive. (PR 279109)
- J-series Services Routers or SRX-series Service Gateways running JUNOS-Enhanced Services in cluster node configurations must have AI-Scripts installed on each node separately. There is no method for installing the AI-Scripts on both nodes simultaneously with a single install command. (PR 409931/410417)
- Use JUNOScope 9.0R2 or later, in conjunction with AI-Scripts 1.1R2 or later, to automatically install AI-Scripts to multiple devices at once.
- To upgrade from AI-Scripts 1.0R2 to 1.1R2, follow these steps:
  1. Delete the existing scripts by using the `request system scripts delete` CLI command.
  2. At the `[edit groups juniper-ais event-options destinations]` hierarchy level, change and commit the event-options destinations name as follows :
 

```
user@host# [edit groups juniper-ais event-options destinations]
user@host# rename juniper-junoscope to juniper-aim
```
- Sometimes a device running AI-Script may not appear in the AIM Console. To view the device in AIM, do the following:
  1. From the device to the archive location, make an sFTP or scp connection.
  2. For a secure connection, ensure that the host authenticity to the AIM server is established. For example,

```

root@staging-sw1% scp test25 jadmin@66.129.225.17:/opt/jmb-archives1/
The authenticity of host '66.129.225.17 (66.129.225.17)' can't be
established. RSA key fingerprint is
40:16:92:af:d5:7e:54:4f:ad:f7:c8:9a:9a:90:1f:95. Are you sure you want
to continue connecting (yes/no)? yes Warning: Permanently added
'66.129.225.17' (RSA) to the list of known hosts. jadmin@66.129.225.17's
password:

```

- Intelligence JMBs (iJMBs) may not appear in an AIM archive location, and therefore may not appear in AIM Intelligence Manager. To resolve this issue, follow these steps:
  1. Log in to the device as `root` user.
  2. Connect to the AIM server using an SSH connection.
  3. Accept the security authentication.
  4. Change the archive directory (for example, `/var/aim/jmb-archives4/`) permissions from the default of 755 to 733 to allow JMB files to be written using the following command:

```
chmod 733 jmb-archives4
```

To confirm directory permissions, use the following command:

```
ls -l
drwx-wx-wx 2 root root 4096 Sep 16 12:01 jmb-archives4
```

## Issues Fixed Since Last Release

---

The following issues have been fixed in this AI-Scripts release:

- Invalid JMBs are no longer being generated due to empty tag in `show chassis hardwareoutput` (PR 485359). This empty tag in JUNOS for T-series routers running JUNOS 10.0 and above is now ignored in AIS scripts.
- AI-Script for event `RMON_EVENT_pfe_dmafail_notification` generated an illegal trend data section. (PR 476656). This has been fixed.
- AI-Scripts bundles are compatible with JUNOS 10.0 and above. (PR 443350)

## JUNOS PRs That Affect AI-Scripts

The following JUNOS PRs impact certain devices running AI-Scripts (See Table 2 on page 26).

**Table 2: JUNOS PRs Affecting Devices Running AI-Scripts**

PR/Summary	Fix Versions	Impact on Devices Running AI-Scripts
The AI-Scripts activation sequence repeats every hour on EX platforms. (PR 440360)	<ul style="list-style-type: none"> <li>■ JUNOS 9.6R1</li> <li>■ JUNOS 9.5R3</li> <li>■ JUNOS 10.0R1</li> <li>■ JUNOS 9.5S1</li> </ul>	Low-end devices without a hard drive may have frequent log file rollovers, which signals eventd internal times to reset, generating an iJMB.
Correct the transient-commit behavior. (PR 386499)	<ul style="list-style-type: none"> <li>■ JUNOS 9.5R1</li> <li>■ JUNOS 9.6R1</li> </ul>	Every commit signals eventd internal times to reset, generating an iJMB, as well as extending the normal commit time by approximately 20%.
AI-Scripts increase the commit time to approximately 10 times, even with and empty commit. (PR 294131)	<ul style="list-style-type: none"> <li>■ JUNOS 9.3R1</li> <li>■ JUNOS 9.0R4</li> <li>■ JUNOS 9.4R1</li> <li>■ JUNOS 9.2R3</li> <li>■ JUNOS 9.1R4</li> <li>■ JUNOS 9.5R1</li> </ul>	Every commit time may be extended up to 10 times the normal commit time.
The <code>logger</code> command causing an eventd crash. (PR 428256)	<ul style="list-style-type: none"> <li>■ JUNOS 9.5R2</li> <li>■ JUNOS 9.4R3</li> <li>■ JUNOS 9.6R1</li> </ul>	Any event-script that captures an event with two or more attributes may cause eventd to crash.

## Installing AI-Scripts



**NOTE:** See the “AIS Quick Setup Checklist” in the *AIS User Guide* for the sequence of installing all of the AIS components.

- AI-Scripts System Requirements on page 27
- AI-Scripts/AIM Compatibility on page 27
- AI-Scripts Installation Methods on page 27
- Downloading AI-Scripts Install Packages on page 27
- AI-Scripts Install Package Versioning on page 28
- AI-Scripts Install Locations on Devices on page 28
- Automatically Installing AI-Scripts Overview on page 28

- Automatically Installing AI-Scripts on page 29
- Manually Configuring and Installing AI-Scripts on Devices on page 29

## **AI-Scripts System Requirements**

Ensure that all devices on which you install AI-Scripts are running JUNOS Release 9.0 or later.

## **AI-Scripts/AIM Compatability**

Use AI-Scripts releases 1.3R1 or 1.3R2 in conjunction with Advanced Insight Manager (AIM) release 1.3R1 or higher.

## **AI-Scripts Installation Methods**

There are two ways to install AI-Scripts:

- Automatically, using the JUNOScope Script Management feature to automatically install AI-Scripts to multiple devices at once. For more information about automatically installing AI-Scripts, see “Automatically Installing AI-Scripts” on page 29.
- Manually by installing AI-Scripts on one device at time. For more information about manually installing AI-Scripts to devices, see “Manually Configuring and Installing AI-Scripts on Devices” on page 29.

## **Downloading AI-Scripts Install Packages**

AI-Scripts are released in AI-Scripts install packages. AI-Scripts install packages are available for download from the AIS download site. Download also the AI-Scripts Release Notes.

To download an AI-Scripts install package, follow these steps:

1. Using a Web browser, go to the following location:

<http://www.juniper.net/support/csc/swdist-encr/ais/>

2. Log in to the Juniper Networks authentication system using the username and password supplied by Juniper Networks.

To download the software, you must have a service contract and an access account. If you do not have an access account, complete the registration form at the Juniper Networks Web site, <https://www.juniper.net/registration/Register.jsp>.

3. Download the AI-Scripts install package. If you will install AI-Scripts manually, move the package to the `/var/sw/pkg` directory on the device.

If you do not move the AI-Script install package to the device, you have to use `ftp` or `scp` in conjunction with the `request system scripts add` command. (Optional) If you will use the JUNOScope software to automatically install an AI-Scripts package to a group of devices at once. Download the AI-Scripts install package on the same server as Advanced Insight Manager (AIM).

## AI-Scripts Install Package Versioning

AI-Scripts install packages are versioned as follows:

```
jais-m.nZx.x-signed.tgz
```

or

```
jais-1.OR1.5-signed.tgz
```

- *m.n* is two integers that represent the software release number; *m* denotes the major release number; *n* the minor.
- *Z* is a capital letter that indicates the type of software release. In most cases, it is an **R**, to indicate that this is released software. If you are involved in testing prereleased software, this letter might be a **B** (for beta-level software).
- *x.x* is the software build number and spin number.

The AI-Scripts files that in the install package are compressed into a **tgz** tarball file.

Each AI-Scripts install package supports up to 3 previous years of JUNOS software releases.

The **show version** CLI operational command displays the version of the AI-Scripts install package that is installed on a device.

The JMB contains the output of the **show version** CLI command to indicate the version of the AI-Scripts install package installed on a device.

## AI-Scripts Install Locations on Devices

AI-Scripts are installed on a device hard disk in the following location:

```
/var/db/scripts/
```

AI-Scripts are installed on a device flash drive in the following location:

```
/config/scripts
```



**NOTE:** If you configure the `load-scripts-from-flash` option, the system reads AI-Scripts from the `/config/scripts/` directory; otherwise, the system reads AI-Scripts from the `/var/db/scripts/` directory. The `/var/run/scripts` directory will always point to the right scripts directory.

---

## Automatically Installing AI-Scripts Overview

Automatically installing AI-Scripts install packages to one or more devices involves AIM interaction with JUNOScope software Script Management.

The automated AI-Scripts installation process requires the following key tasks :

- Install and set up JUNOScope 9.0 or later. See the *JUNOScope Software User Guide*.
- Install AIM. See the *AIS User Guide*.
- Set up AIM settings. See the *AIS User Guide*.
  - General settings.
  - JUNOScope settings (Settings > General > JUNOScope Settings).
  - Set up AI-Scripts bundles (Settings > General > Script Bundles).
  - Set up organizations.
  - Set up user groups.
  - Set up users.

### **Automatically Installing AI-Scripts**

You can optionally use AIM to install AI-Script bundles (also known as AI-Scripts install packages) on devices as long as there is a JUNOScope software installation. AIM communicates with JUNOScope to install AI-Script bundles on JUNOS devices managed by JUNOScope.

To configure auto installation of AI-Script bundles to devices, follow these steps:

1. Configure the credentials used to communicate with JUNOScope.
2. Import devices that are managed by JUNOScope.
3. Configure Script Bundles settings.
4. Associate imported devices with a device group.
5. Configure the Script Bundle of the device group and set the No-copy and Unlink installation attributes
6. Add archive locations specifying the upload command password attributes. Use the archive location local directory for JMB files only.
7. Press the Save Changes button. AIM sends a message to JUNOScope to install the selected script bundle on the associated devices.

If you do not want to use AIM to install AI-Script bundles, you can manually configure and install AI-Script bundles to each device separately. To install AI-Script bundles manually, see “Manually Configuring and Installing AI-Scripts on Devices” on page 29.

### **Manually Configuring and Installing AI-Scripts on Devices**

Within AIM, devices that are configured for AIS manually are automatically added to the device group that is associated with the AIM archive location to which the JMB was sent. When the AIM detects a JMB for a device that is not managed by JUNOScope Script Management, it will note it.

To manually configure and install AI-Scripts on devices, follow these steps:

1. Download AI-Scripts install packages. See “Downloading AI-Scripts Install Packages” on page 27.
2. Configure the device configuration as follows to activate AI-Scripts:
  - a. Enter the device CLI configuration mode. Type the `configure` command or the `edit` command from the CLI operation mode. The CLI prompt changes from `user@host>` to `user@host#` and a banner appears to indicate the hierarchy level.
  - b. Configure an AIS destination under group `juniper-ais`:

```
user@host#set groups juniper-ais event-options destination juniper-aim {...}
```

This configuration determines the AIS archive location where JMBs are deposited for a device. The group name `juniper-ais` is mandatory. The group destination name `juniper-aim` is mandatory.

- c. Configure the commit script:

```
user@host#set groups juniper-ais system scripts commit file
jais-activate-scripts.slax optional
```

The AI-Scripts installer creates this script to activate AI-Scripts on the device. The `optional` setting is required to prevent the configuration from committing if the `jais-activate-scripts.slax` file is not present. That file is not present until the scripts bundle is installed.

- d. Configure the `allow-transients` option to allow transient changes:

```
user@host#set groups juniper-ais system scripts commit allow-transients
```

Transient changes are configuration changes made by commit scripts that do not appear in the configuration (except with a special command).

- e. Apply the `juniper-ais` group:

```
user@host#set apply-groups juniper-ais
```

- f. (Optional) Configure the `load-scripts-from-flash` option:

```
user@host#set groups juniper-ais system scripts load-scripts-from-flash
```



**NOTE:** If you configure the `load-scripts-from-flash` option, the system reads AI-Scripts from the `/config/scripts/directory`; otherwise, the system reads AI-Scripts from the `/var/db/scripts/directory`. The `/var/run/scripts` directory will always point to the right scripts directory.

---

3. Verify that the syntax of a configuration is correct by using the configuration mode `commit check` command:

```
[edit]
```

```
user@host# commit check
configuration check succeeds
```

4. Commit the configuration. To save software configuration changes to the configuration database and activate the configuration on the router, use the commit configuration mode command. You can issue the commit command from any hierarchy level.

```
[edit]
user@host# commit
commit complete
```

5. View the configuration:

```
groups {
  juniper-ais {
    system {
      scripts {
        commit {
          allow-transients;
          file jais-activate-scripts.slax {
            optional;
          }
        }
        load-scripts-from-flash;
      }
    }
    event-options {
      destinations {
        juniper-aim {
          archive-sites {
            "ftp://anonymous@10.7.0.124/aimdemo";
          }
        }
        . . .
      }
    }
  }
}
```

6. If you have not moved the AI-Scripts to the device, do so now. See “Downloading AI-Scripts Install Packages” on page 27.
7. Install the AI-Scripts package using the following command (see “AI-Scripts Commands” on page 32):

```
user@host# request system scripts add <package-name>
```

8. Verify that the AI-Scripts are activated:

```
user@host# show groups juniper-ais | display commit-scripts
```

```
system {
  scripts {
    commit {
      allow-transients;
      file jais-activate-scripts.slax {
        optional;
      }
    }
  }
}
event-options {
  event-script {
```

```

        file problem-event-pfecrash.slax;
        file problem-event-dcrash.slax;
        file intelligence-event-main.slax;
        file SPD_EVLIB_CREATE_FAILURE.slax;
        file SPD_DAEMONIZE_FAILED.slax;
        file RPD_TASK_FORK.slax;
        . . .}
    destinations {
        juniper-aim {
            archive-sites {
                "ftp://anonymous@10.7.0.124/aidemo";
            }
        }
    }
}

```

## AI-Scripts Commands

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- Installing an AI-Scripts Package on page 32
- Upgrading an AI-Scripts Package on page 32
- Deleting an AI-Scripts Package on page 32
- Rolling Back an AI-Scripts Package on page 32
- Not Saving Copies of AI-Scripts Package Files During Installation on page 33
- Removing AI-Scripts Packages After Installation on page 33

### ***Installing an AI-Scripts Package***

To install an AI-Scripts install package on a device, use the following command:

```
user@host> request system scripts add <package-name>
```

### ***Upgrading an AI-Scripts Package***

To upgrade an AI-Scripts package, perform steps 1, 7, and 8 of “Manually Configuring and Installing AI-Scripts on Devices” on page 29.

### ***Deleting an AI-Scripts Package***

To delete AI-Scripts from a router, use the following command:

```
user@host> request system scripts delete
```

### ***Rolling Back an AI-Scripts Package***

After the deletion of an AI-Scripts install package, you can roll back to the last installed package by using the following command:

```
user@host> request system scripts rollback
```

## Not Saving Copies of AI-Scripts Package Files During Installation

To prevent the installer from saving copies of AI-Scripts package files in the /var/sw/pkg directory, use the following command:

```
user@host> request system scripts add no-copy <package-name>
```



**NOTE:** If you use the no-copy option during the jais installation, the jais package cannot be rolled back.

---

You can specify the no-copy option in AIM Device Group settings by selecting the no-copy check box.

## Removing AI-Scripts Packages After Installation

To remove the AI-Script bundle after successful installation, use the following command:

```
user@host> request system scripts add unlink <package-name>
```

You can specify the unlink option in AIM Device Group settings by selecting the unlink check box.

## JUNOS Documentation and Release Notes

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For a list of related JUNOS documentation, see <http://www.juniper.net/techpubs/software/junos/>.

If the information in the latest release notes differs from the information in the documentation, follow the *JUNOS Software Release Notes*.

To obtain the most current version of all Juniper Networks® technical documentation, see the product documentation page on the Juniper Networks website at <http://www.juniper.net/techpubs/>.

Juniper Networks supports a technical book program to publish books by Juniper Networks engineers and subject matter experts with book publishers around the world. These books go beyond the technical documentation to explore the nuances of network architecture, deployment, and administration using JUNOS Software and Juniper Networks devices. In addition, the Juniper Networks Technical Library, published in conjunction with O'Reilly Media, explores improving network security, reliability, and availability using JUNOS configuration techniques. All the books are for sale at technical bookstores and book outlets around the world. The current list can be viewed at <http://www.juniper.net/books>.

## Requesting Technical Support

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Technical product support is available through the Juniper Networks Technical Assistance Center (JTAC). If you are a customer with an active J-Care or JNASC support contract, or are covered under warranty, and need post-sales technical support, you can access our tools and resources online or open a case with JTAC.

- JTAC policies—For a complete understanding of our JTAC procedures and policies, review the JTAC User Guide located at <http://www.juniper.net/customers/support/downloads/710059.pdf> .
- Product warranties—For product warranty information, visit <http://www.juniper.net/support/warranty/> .
- JTAC hours of operation—The JTAC centers have resources available 24 hours a day, 7 days a week, 365 days a year.

## Self-Help Online Tools and Resources

For quick and easy problem resolution, Juniper Networks has designed an online self-service portal called the Customer Support Center (CSC) that provides you with the following features:

- Find CSC offerings: <http://www.juniper.net/customers/support/>
- Search for known bugs: <http://www2.juniper.net/kb/>
- Find product documentation: <http://www.juniper.net/techpubs/>
- Find solutions and answer questions using our Knowledge Base: <http://kb.juniper.net/>
- Download the latest versions of software and review release notes: <http://www.juniper.net/customers/csc/software/>
- Search technical bulletins for relevant hardware and software notifications: <https://www.juniper.net/alerts/>
- Join and participate in the Juniper Networks Community Forum: <http://www.juniper.net/company/communities/>
- Open a case online in the CSC Case Management tool: <http://www.juniper.net/cm/>

To verify service entitlement by product serial number, use our Serial Number Entitlement (SNE) Tool: <https://tools.juniper.net/SerialNumberEntitlementSearch/>

## Opening a Case with JTAC

You can open a case with JTAC on the Web or by telephone.

- Use the Case Management tool in the CSC at <http://www.juniper.net/cm/> .
- Call 1-888-314-JTAC (1-888-314-5822 toll-free in the USA, Canada, and Mexico).

For international or direct-dial options in countries without toll-free numbers, see <http://www.juniper.net/support/requesting support.html> .

## Revision History

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10 November 2009—Advanced Insight Scripts (AI-Scripts) 2.1 R3

9 October 2009—Advanced Insight Scripts (AI-Scripts) 2.1 R2, Revision 2.

15 September 2009—Advanced Insight Scripts (AI-Scripts) 2.1 R1, Revision 1.

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