

GLOSSARY

Numerals

3DES Triple Data Encryption Standard. A stronger version of DES, which is the default encryption method

for SSH version 1.5. Used when establishing an SSH session with the sensor. It can be used when the

sensor is managing a device.

802.x A set of IEEE standards for the definition of LAN protocols.

Α

authentication, authorization, and accounting. The primary and recommended method for access

control in Cisco devices.

AAA authentication, authorization, and accounting. Pronounced "triple a."

ACE Access Control Entry. An entry in the ACL that describes what action should be taken for a specified

address or protocol. The sensor adds/removes ACE to block hosts.

ACK acknowledgement. Notification sent from one network device to another to acknowledge that some

event occurred (for example, the receipt of a message).

ACL Access Control List. A list of ACEs that control the flow of data through a router. There are two ACLs

per router interface for inbound data and outbound data. Only one ACL per direction can be active at a time. ACLs are identified by number or by name. ACLs can be standard, enhanced, or extended. You

can configure the sensor to manage ACLs.

action The response of the sensor to an event. An action only happens if the event is not filtered. Examples

include TCP reset, block host, block connection, IP logging, and capturing the alert trigger packet.

active ACL The ACL created and maintained by ARC and applied to the router block interfaces.

adaptive security appliance

Combines firewall, VPN concentrator, and intrusion prevention software functionality in to one software image. You can configure the adaptive security appliance in single mode or multi-mode.

AlC engine Application Inspection and Control engine. Provides deep analysis of web traffic. It provides granular

control over HTTP sessions to prevent abuse of the HTTP protocol. It allows administrative control over applications that try to tunnel over specified ports, such as instant messaging, and tunneling applications, such as gotomypc. It can also inspect FTP traffic and control the commands being issued.

AIM IPS Asynchronous Interface Module. A type of IPS network module installed in Cisco routers.

AIP SSM Advanced Inspection and Prevention Security Services Module. The IPS plug-in module in the Cisco

ASA 5500 series adaptive security appliance. See ASA.

Alarm Channel The IPS software module that processes all signature events generated by the inspectors. Its primary

function is to generate alerts for each event it receives.

alert Specifically, an IPS event type; it is written to the Event Store as an evidsAlert. In general, an alert is

an IPS message that indicates a network exploit in progress or a potential security problem occurrence.

Also known as an alarm.

Analysis Engine The IPS software module that handles sensor configuration. It maps the interfaces and also the

signature and alarm channel policy to the configured interfaces. It performs packet analysis and alert

detection. The Analysis Engine functionality is provided by the SensorApp process.

anomaly detection AD. The sensor component that creates a baseline of normal network traffic and then uses this baseline

to detect worm-infected hosts.

API Application Programming Interface. The means by which an application program talks to

communications software. Standardized APIs allow application programs to be developed

independently of the underlying method of communication. Computer application programs run a set of standard software interrupts, calls, and data formats to initiate contact with other devices (for example, network services, mainframe communications programs, or other program-to-program communications). Typically, APIs make it easier for software developers to create links that an

application needs to communicate with the operating system or with the network.

application Any program (process) designed to run in the Cisco IPS environment.

application image Full IPS image stored on a permanent storage device used for operating the sensor.

application instance A specific application running on a specific piece of hardware in the IPS environment. An application

instance is addressable by its name and the IP address of its host computer.

application partition The bootable disk or compact-flash partition that contains the IPS software image.

ARC Attack Response Controller. Formerly known as Network Access Controller (NAC). A component of

the IPS. A software module that provides block and unblock functionality where applicable.

architecture The overall structure of a computer or communication system. The architecture influences the

capabilities and limitations of the system.

ARP Address Resolution Protocol. Internet protocol used to map an IP address to a MAC address. Defined

in RFC 826.

attack relevance

rating

ARR. A weight associated with the relevancy of the targeted OS. The Attack Relevance Rating is a derived value (relevant, unknown, or not relevant), which is determined at alert time. The relevant OSes

are configured per signature.

ASDM Adaptive Security Device Manager. A web-based application that lets you configure and manage your

ASA.

ASN.1 Abstract Syntax Notation 1. Standard for data presentation.

aspect version

Version information associated with a group of IDIOM default configuration settings. For example, Cisco Systems publishes the standard set of attack signatures as a collection of default settings with the S aspect. The S-aspect version number is displayed after the S in the signature update package file name. Other aspects include the Virus signature definitions in the V-aspect and IDIOM signing keys in the key-aspect.

atomic attack

Represents exploits contained within a single packet. For example, the "ping of death" attack is a single, abnormally large ICMP packet.

Atomic engine

There are two Atomic engines: Atomic IP inspects IP protocol packets and associated Layer-4 transport protocols, and Atomic ARP inspects Layer-2 ARP protocol.

attack

An assault on system security that derives from an intelligent threat, that is, an intelligent act that is a deliberate attempt (especially in the sense of method or technique) to evade security services and violate the security policy of a system.

attack severity rating

ASR. A weight associated with the severity of a successful exploit of the vulnerability. The attack severity rating is derived from the alert severity parameter (informational, low, medium, or high) of the signature. The attack severity rating is configured per signature and indicates how dangerous the event detected is.

authentication

Process of verifying that a user has permission to use the system, usually by means of a password key or certificate.

AuthenticationApp

A component of the IPS. It verifies that users have the correct permissions to perform CLI, IDM, or RDEP actions.

autostate

In normal autostate mode, the Layer 3 interfaces remain up if at least one port in the VLAN remains up. If you have appliances, such as load balancers or firewall servers that are connected to the ports in the VLAN, you can configure these ports to be excluded from the autostate feature to make sure that the forwarding SVI does not go down if these ports become inactive.

ΑV

Anti-Virus.

В

backplane The physical connection between an interface processor or card and the data buses and the power distribution buses inside a chassis.

distribution buses inside a chassis

base version A software release that must be installed before a follow-up release, such as a service pack or signature

update, can be installed. Major and minor updates are base version releases.

benign trigger A situation in which a signature is fired correctly, but the source of the traffic is nonmalicious.

BIOS Basic Input/Output System. The program that starts the sensor and communicates between the devices

in the sensor and the system.

block The ability of the sensor to direct a network device to deny entry to all packets from a specified network

host or network.

block interface The interface on the network device that the sensor manages.

BO BackOrifice. The original Windows back door Trojan that ran over UDP only.

BO2K BackOrifice 2000. A Windows back door Trojan that runs over TCP and UDP.

bootloader A small set of system software that runs when the system first powers up. It loads the operating system

(from the disk, network, external compact flash, or external USB flash), which loads and runs the IPS application. For AIM IPS, it boots the module from the network and assists in software installation and

upgrades, disaster recovery, and other operations when the module cannot access its software.

Bpdu Bridge Protocol Data Unit. Spanning-Tree Protocol hello packet that is sent out at configurable

intervals to exchange information among bridges in the network.

Bypass mode Mode that lets packets continue to flow through the sensor even if the sensor fails. Bypass mode is only

applicable to inline-paired interfaces.

C

CA certification authority. Entity that issues digital certificates (especially X.509 certificates) and vouches

for the binding between the data items in a certificate. Sensors use self-signed certificates.

CA certificate Certificate for one CA issued by another CA.

CEF Cisco Express Forwarding. CEF is advanced, Layer 3 IP switching technology. CEF optimizes network

performance and scalability for networks with large and dynamic traffic patterns, such as the Internet,

on networks characterized by intensive Web-based applications, or interactive sessions.

certificate Digital representation of user or device attributes, including a public key, that is signed with an

authoritative private key.

cidDump A script that captures a large amount of information including the IPS processes list, log files, OS

information, directory listings, package information, and configuration files.

CIDEE Cisco Intrusion Detection Event Exchange. Specifies the extensions to SDEE that are used by Cisco

IPS systems. The CIDEE standard specifies all possible extensions that may be supported by Cisco IPS

systems.

CIDS header The header that is attached to each packet in the IPS system. It contains packet classification, packet

length, checksum results, timestamp, and the receive interface.

cipher key The secret binary data used to convert between clear text and cipher text. When the same cipher key is

used for both encryption and decryption, it is called symmetric. When it is used for either encryption

or decryption (but not both), it is called asymmetric.

Cisco IOS Cisco system software that provides common functionality, scalability, and security for all products

under the CiscoFusion architecture. Cisco IOS allows centralized, integrated, and automated installation and management of internetworks while supporting a wide variety of protocols, media,

services, and platforms.

CLI command-line interface. A shell provided with the sensor used for configuring and controlling the

sensor applications.

command and control interface

The interface on the sensor that communicates with the IPS manager and other network devices. This interface has an assigned IP address.

community

In SNMP, a logical group of managed devices and NMSs in the same administrative domain.

composite attack

Spans multiple packets in a single session. Examples include most conversation attacks such as FTP, Telnet, and most Regex-based attacks.

connection block

ARC blocks traffic from a given source IP address to a given destination IP address and destination

console

A terminal or laptop computer used to monitor and control the sensor.

console port

An RJ45 or DB9 serial port on the sensor that is used to connect to a console device.

control interface

When ARC opens a Telnet or SSH session with a network device, it uses one of the routing interfaces of the device as the remote IP address. This is the control interface.

control transaction

An IPS message containing a command addressed to a specific application instance. Example control transactions include start, stop, getConfig.

cookie

A piece of information sent by a web server to a web browser that the browser is expected to save and send back to the web server whenever the browser makes additional requests of the web server.

CSA MC

Cisco Security Agent Management Center. CSA MC receives host posture information from the CSA agents it manages. It also maintains a watch list of IP addresses that it has determined should be quarantined from the network.

CSM

Cisco Security Manager, the provisioning component of the Cisco Self-Defending Networks solution. CS-Manager is fully integrated with CS-MARS.

CS-Manager

See CSM.

CS-MARS

Cisco Security Monitoring, Analysis and Reporting System. The monitoring component of the Cisco Self-Defending Networks solution. CS-MARS is fully integrated with CS-Manager

CVE

Common Vulnerabilities and Exposures. A list of standardized names for vulnerabilities and other information security exposures maintained at http://cve.mitre.org/.

D

Database Processor Maintains the signature state and flow databases.

datagram

Logical grouping of information sent as a network layer unit over a transmission medium without prior establishment of a virtual circuit. IP datagrams are the primary information units in the Internet. The terms cell, frame, message, packet, and segment also are used to describe logical information groupings at various layers of the OSI reference model and in various technology circles.

DCE

data circuit-terminating equipment (ITU-T expansion). Devices and connections of a communications network that comprise the network end of the user-to-network interface. The DCE provides a physical connection to the network, forwards traffic, and provides a clocking signal used to synchronize data transmission between DCE and DTE devices. Modems and interface cards are examples of DCE.

DCOM Distributed Component Object Model. Protocol that enables software components to communicate

directly over a network. Developed by Microsoft and previously called Network OLE, DCOM is designed for use across multiple network transports, including such Internet protocols as HTTP.

DDoS Distributed Denial of Service. An attack in which a multitude of compromised systems attack a single

target, thereby causing denial of service for users of the targeted system. The flood of incoming messages to the target system essentially forces it to shut down, thereby denying service to the system

to legitimate users.

Deny Filters Processor Handles the deny attacker functions. It maintains a list of denied source IP addresses.

DES Data Encryption Standard. A strong encryption method where the strength lies in a 56-bit key rather

than an algorithm.

destination address Address of a network device that is receiving data.

DIMM Dual In-line Memory Modules.

DMZ demilitarized zone. A separate network located in the neutral zone between a private (inside) network

and a public (outside) network.

DNS Domain Name System. An Internet-wide hostname to IP address mapping. DNS enables you to convert

human-readable names in to the IP addresses needed for network packets.

Dos Denial of Service. An attack whose goal is just to disrupt the operation of a specific system or network.

DRAM dynamic random-access memory. RAM that stores information in capacitors that must be refreshed

periodically. Delays can occur because DRAMs are inaccessible to the processor when refreshing their

contents. However, DRAMs are less complex and have greater capacity than SRAMs.

Data Terminal Equipment. Refers to the role of a device on an RS-232C connection. A DTE writes data

to the transmit line and reads data from the receive line.

DTP Dynamic Trunking Protocol. A Cisco proprietary protocol in the VLAN group used for negotiating

trunking on a link between two devices and for negotiating the type of trunking encapsulation (ISL or

802.1q) to be used.

Ε

ECLB Ether Channel Load Balancing. Lets a Catalyst switch split traffic flows over different physical paths.

egress Traffic leaving the network.

encryption Application of a specific algorithm to data to alter the appearance of the data making it

incomprehensible to those who are not authorized to see the information.

engine A component of the sensor designed to support many signatures in a certain category. Each engine has

parameters that can be used to create signatures or tune existing signatures.

enterprise network Large and diverse network connecting most major points in a company or other organization. Differs

from a WAN in that it is privately owned and maintained.

escaped expression Used in regular expression. A character can be represented as its hexadecimal value, for example, \x61

equals 'a,' so \x61 is an escaped expression representing the character 'a.'

ESD electrostatic discharge. Electrostatic discharge is the rapid movement of a charge from one object to

another object, which produces several thousand volts of electrical charge that can cause severe damage

to electronic components or entire circuit card assemblies.

event An IPS message that contains an alert, a block request, a status message, or an error message.

Event Server One of the components of the IPS.

Event Store One of the components of the IPS. A fixed-size, indexed store (30 MB) used to store IPS events.

evidsAlert The XML entity written to the Event Store that represents an alert.

F

fail closed Blocks traffic on the device after a hardware failure.

fail open Lets traffic pass through the device after a hardware failure.

false negative A signature is not fired when offending traffic is detected.

false positive Normal traffic or a benign action causes a signature to fire.

Fast Ethernet Any of a number of 100-Mbps Ethernet specifications. Fast Ethernet offers a speed increase 10 times

that of the 10BaseT Ethernet specification while preserving such qualities as frame format, MAC mechanisms, and MTU. Such similarities allow the use of existing 10BaseT applications and network management tools on Fast Ethernet networks. Based on an extension to the IEEE 802.3 specification.

firewall Router or access server, or several routers or access servers, designated as a buffer between any

connected public networks and a private network. A firewall router uses access lists and other methods

to ensure the security of the private network.

Flood engine Detects ICMP and UDP floods directed at hosts and networks.

flooding Traffic passing technique used by switches and bridges in which traffic received on an interface is sent

out all the interfaces of that device except the interface on which the information was received

originally.

fragment Piece of a larger packet that has been broken down to smaller units.

fragmentation Process of breaking a packet in to smaller units when transmitting over a network medium that cannot

support the original size of the packet.

Fragment Reassembly Processor See FRP.

FRP Fragment Reassembly Processor. Reassembles fragmented IP datagrams. It is also responsible for

normalization of IP fragments when the sensor is in inline mode.

FTP File Transfer Protocol. Application protocol, part of the TCP/IP protocol stack, used for transferring

files between network nodes. FTP is defined in RFC 959.

FTP server File Transfer Protocol server. A server that uses the FTP protocol for transferring files between network

nodes.

full duplex Capability for simultaneous data transmission between a sending station and a receiving station.

FWSM Firewall Security Module. A module that can be installed in a Catalyst 6500 series switch. It uses the

shun command to block. You can configure the FWSM in either single mode or multi-mode.

G

GBIC GigaBit Interface Converter. Often refers to a fiber optic transceiver that adapts optical cabling to fiber

interfaces. Fiber-ready switches and NICs generally provide GBIC and/or SFP slots. For more

information, refer to the Catalyst Switch Cable, Connector, and AC Power Cord Guide.

Gigabit Ethernet Standard for a high-speed Ethernet, approved by the IEEE (Institute of Electrical and Electronics

Engineers) 802.3z standards committee in 1996.

GMT Greenwich Mean Time. Time zone at zero degrees longitude. Now called Coordinated Universal Time

(UTC).

GRUB Grand Unified Bootloader.

Н

H.225.0 An ITU standard that governs H.225.0 session establishment and packetization. H.225.0 actually

describes several different protocols: RAS, use of Q.931, and use of RTP.

H.245 An ITU standard that governs H.245 endpoint control.

H.323 Allows dissimilar communication devices to communicate with each other by using a standardized

communication protocol. H.323 defines a common set of CODECs, call setup and negotiating

procedures, and basic data transport methods.

half duplex Capability for data transmission in only one direction at a time between a sending station and a

receiving station. BSC is an example of a half-duplex protocol.

handshake Sequence of messages exchanged between two or more network devices to ensure transmission

synchronization.

hardware bypass A specialized NIC that pairs physical interfaces so that when a software error is detected, a bypass

mechanism is engaged that directly connects the physical interfaces and allows traffic to flow through the pair. Hardware bypass passes traffic at the network interface, does not pass it to the IPS system.

host block ARC blocks all traffic from a given IP address.

HTTP Hypertext Transfer Protocol. The stateless request/response media transfer protocol used in the IPS

architecture for remote data exchange.

HTTPS An extension to the standard HTTP protocol that provides confidentiality by encrypting the traffic from

the website. By default this protocol uses TCP port 443.

ICMP

Internet Control Message Protocol. Network layer Internet protocol that reports errors and provides

other information relevant to IP packet processing. Documented in RFC 792.

ICMP flood Denial of Service attack that sends a host more ICMP echo request ("ping") packets than the protocol

implementation can handle.

IDAPI Intrusion Detection Application Programming Interface. Provides a simple interface between IPS

architecture applications. IDAPI reads and writes event data and provides a mechanism for control

transactions.

IDCONF Intrusion Detection Configuration. A data format standard that defines operational messages that are

used to configure intrusion detection and prevention systems.

IDENT Ident protocol, specified in RFC 1413, is an Internet protocol that helps identify the user of a particular

TCP connection.

IDIOM Intrusion Detection Interchange and Operations Messages. A data format standard that defines the

event messages that are reported by intrusion detection systems and the operational messages that are

used to configure and control intrusion detection systems.

IDM IPS Device Manager. A web-based application that lets you configure and manage your sensor. The

web server for IDM resides on the sensor. You can access it through Internet Explorer or Firefox web

browsers.

IDMEF Intrusion Detection Message Exchange Format. The IETF Intrusion Detection Working Group draft

standard.

IDSM2 Intrusion Detection System Module. A switching module that performs intrusion detection in the

Catalyst 6500 series switch.

IDS MC Management Center for IDS Sensors. A web-based IDS manager that can manage configurations for

up to 300 sensors.

inline mode All packets entering or leaving the network must pass through the sensor.

inline interface A pair of physical interfaces configured so that the sensor forwards all traffic received on one interface

out to the other interface in the pair.

intrusion detection

system

A security service that monitors and analyzes system events to find and provide real-time or near

real-time warning of attempts to access system resources in an unauthorized manner.

IP address

32-bit address assigned to hosts using TCP/IP. An IP address belongs to one of five classes (A, B, C, D, or E) and is written as 4 octets separated by periods (dotted decimal format). Each address consists of a network number, an optional subnetwork number, and a host number. The network and subnetwork numbers together are used for routing, and the host number is used to address an individual host within the network or subnetwork. A subnet mask is used to extract network and subnetwork information from the IP address.

IPS

Intrusion Prevention System. A system that alerts the user to the presence of an intrusion on the network through network traffic analysis techniques.

IPS data or message Describes the messages transferred over the command and control interface between IPS applications.

iplog

A log of the binary packets to and from a designated address. Iplogs are created when the log Event Action is selected for a signature. Iplogs are stored in a libpcap format, which can be read by WireShark and TCPDUMP.

IP spoofing

IP spoofing attack occurs when an attacker outside your network pretends to be a trusted user either by using an IP address that is within the range of IP addresses for your network or by using an authorized external IP address that you trust and to which you want to provide access to specified resources on your network. Should an attacker get access to your IPSec security parameters, that attacker can masquerade as the remote user authorized to connect to the corporate network.

IPv6

IP version 6. Replacement for the current version of IP (version 4). IPv6 includes support for flow ID in the packet header, which can be used to identify flows. Formerly called IPng (next generation).

ISL

Inter-Switch Link. Cisco-proprietary protocol that maintains VLAN information as traffic flows between switches and routers.

J

Java Web Start

Java Web Start provides a platform-independent, secure, and robust deployment technology. It enables developers to deploy full-featured applications to you by making the applications available on a standard web server. With any web browser, you can launch the applications and be confident you always have the most-recent version.

JNLP

Java Network Launching Protocol. Defined in an XML file format specifying how Java Web Start applications are launched. JNLP consists of a set of rules defining how exactly the launching mechanism should be implemented.

K

KB

Knowledge Base. The sets of thresholds learned by anomaly detection and used for worm virus detection.

knowledge base

See KB.

L

Link Aggregation Control Protocol. LACP aids in the automatic creation of EtherChannel links by

exchanging LACP packets between LAN ports. This protocol is defined in IEEE 802.3ad.

LAN Local Area Network. Refers to the Layer 2 network domain local to a given host. Packets exchanged

between two hosts on the same LAN do not require Layer 3 routing.

Layer 2 Processor Processes layer 2-related events. It also identifies malformed packets and removes them from the

processing path.

Logger A component of the IPS.

logging Gathers actions that have occurred in a log file. Logging of security information is performed on two

levels: logging of events (such as IPS commands, errors, and alerts), and logging of individual IP

session information.

LOKI Remote access, back door Trojan, ICMP tunneling software. When the computer is infected, the

malicious code creates an ICMP tunnel that can be used to send small payload ICMP replies

M

MainApp The main application in the IPS. The first application to start on the sensor after the operating system

has booted.

maintenance partition

The bootable disk partition on IDSM2, from which an IPS image can be installed on the application partition. No IPS capability is available while the IDSM2 is booted in to the maintenance partition.

maintenance partition image

The bootable software image installed on the maintenance partition on an IDSM2. You can install the maintenance partition image only while booted in to the application partition.

A base version that contains major new functionality or a major architectural change in the product.

manufacturing image

major update

Full IPS system image used by manufacturing to image sensors.

master blocking sensor

A remote sensor that controls one or more devices. Blocking forwarding sensors send blocking requests to the master blocking sensor and the master blocking sensor executes the blocking requests.

MD5 Message Digest 5. A one-way hashing algorithm that produces a 128-bit hash. Both MD5 and Secure Hash Algorithm (SHA) are variations on MD4 and strengthen the security of the MD4 hashing

algorithm (SHA) are variations on MD4 and strengthen the security of the MD4 hashing algorithm. Cisco uses hashes for authentication within the IPSec framework. Also used for message authentication in SNMP v.2. MD5 verifies the integrity of the communication, authenticates the origin,

and checks for timeliness.

Meta engine Defines events that occur in a related manner within a sliding time interval. This engine processes

events rather than packets.

MIB Management Information Base. Database of network management information that is used and

maintained by a network management protocol, such as SNMP or CMIP. The value of a MIB object can be changed or retrieved using SNMP or CMIP commands, usually through a GUI network management system. MIB objects are organized in a tree structure that includes public (standard) and private

(proprietary) branches.

MIME Multipurpose Internet Mail Extension. Standard for transmitting nontext data (or data that cannot be

represented in plain ASCII code) in Internet mail, such as binary, foreign language text (such as

Russian or Chinese), audio, or video data. MIME is defined in RFC 2045.

minor update A minor version that contains minor enhancements to the product line. Minor updates are incremental

to the major version, and are also base versions for service packs.

module A removable card in a switch, router, or security appliance chassis. AIP SSM, IDSM2, and NM CIDS

are IPS modules.

monitoring interface

See sensing interface.

MPF Modular Policy Framework. A means of configuring security appliance features in a manner similar to

Cisco IOS software Modular QoS CLI.

MSFC, MSFC2 Multilayer Switch Feature Card. An optional card on a Catalyst 6000 supervisor engine that performs

L3 routing for the switch.

MSRPC Microsoft Remote Procedure Call. MSRPC is the Microsoft implementation of the DCE RPC

mechanism. Microsoft added support for Unicode strings, implicit handles, inheritance of interfaces (which are extensively used in DCOM), and complex calculations in the variable-length string and

structure paradigms already present in DCE/RPC.

My Self-Defending Network. A Cisco.com site that contains security intelligence reports and other

security tools and related links.

N

NAC Network Access Controller. See ARC.

NAT Native Address Translation. A network device can present an IP address to the outside networks that is

different from the actual IP address of a host.

NBD Next Business Day. The arrival of replacement hardware according to Cisco service contracts.

Neighborhood Discovery Neighbor Discovery protocol for IPv6. IPv6 nodes on the same link use Neighbor Discovery to discover each other's presence, to determine each other's link-layer addresses, to find routers, and to maintain

reachability information about the paths to active neighbors.

network device A device that controls IP traffic on a network and can block an attacking host. An example of a network

device is a Cisco router or PIX Firewall.

never block address Hosts and networks you have identified that should never be blocked.

never shun address See never block address.

NIC Network Interface Card. Board that provides network communication capabilities to and from a

computer system.

NM CIDS A network module that integrates IPS functionality in to the branch office router.

NMS network management system. System responsible for managing at least part of a network. An NMS is

generally a reasonably powerful and well-equipped computer, such as an engineering workstation.

NMSs communicate with agents to help keep track of network statistics and resources.

node A physical communicating element on the command and control network. For example, an appliance,

an IDSM2, or a router.

Normalizer engine Configures how the IP and TCP normalizer functions and provides configuration for signature events

related to the IP and TCP normalizer.

NOS network operating system. Generic term used to refer to distributed file systems. Examples include

LAN Manager, NetWare, NFS, and VINES.

NTP Network Timing Protocol. Protocol built on top of TCP that ensures accurate local time-keeping with

reference to radio and atomic clocks located on the Internet. This protocol is capable of synchronizing

distributed clocks within milliseconds over long time periods.

NTP server Network Timing Protocol server. A server that uses NTP. NTP is a protocol built on top of TCP that

ensures accurate local time-keeping with reference to radio and atomic clocks located on the Internet. This protocol is capable of synchronizing distributed clocks within milliseconds over long time

periods.

NVRAM Non-Volatile Read/Write Memory. RAM that retains its contents when a unit is powered off.

0

OIR online insertion and removal. Feature that permits you to add, replace, or remove cards without

interrupting the system power, entering console commands, or causing other software or interfaces to

shutdown.

OPS Outbreak Prevention Service.

P

packet Logical grouping of information that includes a header containing control information and (usually)

user data. Packets most often are used to refer to network layer units of data. The terms datagram, frame, message, and segment also are used to describe logical information groupings at various layers

of the OSI reference model and in various technology circles.

PAgP Port Aggregation Control Protocol. PAgP aids in the automatic creation of EtherChannel links by

exchanging PAgP packets between LAN ports. It is a Cisco-proprietary protocol.

passive fingerprinting

Act of determining the OS or services available on a system from passive observation of network

ing interactions.

passive OS fingerprinting

The sensor determines host operating systems by inspecting characteristics of the packets exchanged

on the network.

PASV Port Spoof An attempt to open connections through a firewall to a protected FTP server to a non-FTP port. This

happens when the firewall incorrectly interprets an FTP 227 passive command by opening an

unauthorized connection.

PAT Port Address Translation. A more restricted translation scheme than NAT in which a single IP address

and different ports are used to represent the hosts of a network.

patch release Release that addresses defects identified in the update (minor, major, or service pack) binaries after a

software release (service pack, minor, or major update) has been released.

PAWS Protection Against Wrapped Sequence. Protection against wrapped sequence numbers in high

performance TCP networks. See RFC 1323.

PCI Peripheral Component Interface. The most common peripheral expansion bus used on Intel-based

computers.

PDU protocol data unit. OSI term for packet. See also BPDU and packet.

PEP Cisco Product Evolution Program. PEP is the UDI information that consists of the PID, the VID, and

the SN of your sensor. PEP provides hardware version and serial number visibility through electronic

query, product labels, and shipping items.

PER packed encoding rules. Instead of using a generic style of encoding that encodes all types in a uniform

way, PER specializes the encoding based on the date type to generate much more compact

representations.

PFC Policy Feature Card. An optional card on a Catalyst 6000 supervisor engine that supports VACL packet

filtering.

PID Product Identifier. The orderable product identifier that is one of the three parts of the UDI. The UDI

is part of the PEP policy.

ping packet internet groper. ICMP echo message and its reply. Often used in IP networks to test the

reachability of a network device.

PIX Firewall Private Internet Exchange Firewall. A Cisco network security device that can be programmed to

block/enable addresses and ports between networks.

PKI Public Key Infrastructure. Authentication of HTTP clients using the clients X.509 certificates.

POST Power-On Self Test. Set of hardware diagnostics that runs on a hardware device when that device is

powered up.

Post-ACL Designates an ACL from which ARC should read the ACL entries, and where it places entries after all

deny entries for the addresses being blocked.

Pre-ACL Designates an ACL from which ARC should read the ACL entries, and where it places entries before

any deny entries for the addresses being blocked.

promiscuous delta

PD. A weight in the range of 0 to 30 configured per signature.

promiscuous mode

A passive interface for monitoring packets of the network segment. The sensing interface does not have an IP address assigned to it and is therefore invisible to attackers.

Q

Q.931 ITU-T specification for signaling to establish, maintain, and clear ISDN network connections.

QoS quality of service. Measure of performance for a transmission system that reflects its transmission

quality and service availability.

R

rack mounting Refers to mounting a sensor in an equipment rack.

RAM random-access memory. Volatile memory that can be read and written by a microprocessor.

RAS Registration, Admission, and Status Protocol. Protocol that is used between endpoints and the

gatekeeper to perform management functions. RAS signalling function performs registration, admissions, bandwidth changes, status, and disengage procedures between the VoIP gateway and the

gatekeeper.

RBCP Router Blade Control Protocol. RBCP is based on SCP, but modified specifically for the router

application. It is designed to run over Ethernet interfaces and uses 802.2 SNAP encapsulation for

messages.

RDEP2 Remote Data Exchange Protocol version 2. The published specification for remote data exchange over

the command and control network using HTTP and TLS.

reassembly The putting back together of an IP datagram at the destination after it has been fragmented either at the

source or at an intermediate node.

recovery package An IPS package file that includes the full application image and installer used for recovery on sensors.

repackage release Used to address defects in the packaging or the installer.

regex See regular expression.

regular expression A mechanism by which you can define how to search for a specified sequence of characters in a data

stream or file. Regular expressions are a powerful and flexible notation almost like a

mini-programming language that allow you to describe text. In the context of pattern matching, regular

expressions allow a succinct description of any arbitrary pattern.

repackage release A release that addresses defects in the packaging or the installer.

risk rating RR. An risk rating is a value between 0 and 100 that represents a numerical quantification of the risk

associated with a particular event on the network. The risk of the attack accounts for the severity, fidelity, relevance, and asset value of the attack, but not any response or mitigation actions. This risk is

higher when more damage could be inflicted on your network.

RMA Return Materials Authorization. The Cisco program for returning faulty hardware and obtaining a

replacement.

ROMMON Read-Only-Memory Monitor. ROMMON lets you TFTP system images onto the sensor for recovery

purposes.

round-trip time See RTT.

RPC remote-procedure call. Technological foundation of client/server computing. RPCs are procedure calls

that are built or specified by clients and are executed on servers, with the results returned over the

network to the clients.

RSM Router Switch Module. A router module that is installed in a Catalyst 5000 switch. It functions exactly

like a standalone router.

RTP Real-Time Transport Protocol. Commonly used with IP networks. RTP is designed to provide

end-to-end network transport functions for applications transmitting real-time data, such as audio, video, or simulation data, over multicast or unicast network services. RTP provides such services as payload type identification, sequence numbering, timestamping, and delivery monitoring to real-time

applications.

RTT round-trip time. A measure of the time delay imposed by a network on a host from the sending of a

packet until acknowledgement of the receipt.

RU rack unit. A rack is measured in rack units. An RU is equal to 44 mm or 1.75 inches.

S

SCP Switch Configuration Protocol. Cisco control protocol that runs directly over the Ethernet.

SCEP Simple Certificate Enrollment Protocol. The Cisco Systems PKI communication protocol that

leverages existing technology by using PKCS#7 and PKCS#10. SCEP is the evolution of the enrollment

protocol.

SDEE Security Device Event Exchange. A product-independent standard for communicating security device

events. It is an enhancement to RDEP. It adds extensibility features that are needed for communicating

events generated by various types of security devices.

Secure Shell Protocol Protocol that provides a secure remote connection to a router through a Transmission Control Protocol

(TCP) application.

security context You can partition a single adaptive security appliance in to multiple virtual devices, known as security

contexts. Each context is an independent device, with its own security policy, interfaces, and

administrators. Multiple contexts are similar to having multiple standalone devices. Many features are supported in multiple context mode, including routing tables, firewall features, IPS, and management.

Security Monitor Monitoring Center for Security. Provides event collection, viewing, and reporting capability for

network devices. Used with the IDS MC.

sensing interface The interface on the sensor that monitors the desired network segment. The sensing interface is in

promiscuous mode; it has no IP address and is not visible on the monitored segment.

sensor The sensor is the intrusion detection engine. It analyzes network traffic searching for signs of

unauthorized activity.

SensorApp A component of the IPS. Performs packet capture and analysis. SensorApp analyzes network traffic for

malicious content. Packets flow through a pipeline of processors fed by a producer designed to collect packets from the network interfaces on the sensor. Sensorapp is the standalone executable that runs

Analysis Engine.

Service engine Deals with specific protocols, such as DNS, FTP, H255, HTTP, IDENT, MS RPC, MS SL. NTP, RPC,

SMB, SNMP, and SSH.

service pack Used for the release of defect fixes and for the support of new signature engines. Service packs contain

all of the defect fixes since the last base version (minor or major) and any new defects fixes.

session command Command used on routers and switches to provide either Telnet or console access to a module in the

router or switch.

SFP Small Form-factor Pluggable. Often refers to a fiber optic transceiver that adapts optical cabling to fiber

interfaces. See GBIC for more information.

shun command Enables a dynamic response to an attacking host by preventing new connections and disallowing

packets from any existing connection. It is used by ARC when blocking with a PIX Firewall.

Signature Analysis

Processor

Dispatches packets to the inspectors that are not stream-based and that are configured for interest in the

packet in process.

signature A signature distills network information and compares it against a rule set that indicates typical

intrusion activity.

signature engine A component of the sensor that supports many signatures in a certain category. An engine is composed

of a parser and an inspector. Each engine has a set of legal parameters that have allowable ranges or

sets of values.

signature engine

update

Executable file with its own versioning scheme that contains binary code to support new signature

updates.

Signature Event

Action Filter

Subtracts actions based on the signature event signature ID, addresses, and risk rating. The input to the Signature Event Action Filter is the signature event with actions possibly added by the SEAO.

Signature Event Action Filter is the signature event with actions possibly added by the SEAO.

Signature Event Action Handler Performs the requested actions. The output from the Signature Event Action Handler is the actions

being performed and possibly an evIdsAlert written to the Event Store.

Signature Event Action Override Adds actions based on the risk rating value. The Signature Event Action Override applies to all signatures that fall in to the range of the configured risk rating threshold. Each Signature Event Action

Override is independent and has a separate configuration value for each action type.

Signature Event Action Processor Processes event actions. Event actions can be associated with an event risk rating threshold that must

be surpassed for the actions to take place.

signature fidelity rating

SFR. A weight associated with how well a signature might perform in the absence of specific knowledge of the target. The signature fidelity rating is configured per signature and indicates how

accurately the signature detects the event or condition it describes.

signature update Executable file that contains a set of rules designed to recognize malicious network activities, such as

worms, DDOS, viruses, and so forth. Signature updates are released independently, are dependent on a

required signature engine version, and have their own versioning scheme.

Slave Dispatch Processor Process found on dual CPU systems.

SMB Server Message Block. File-system protocol used in LAN manager and similar NOSs to package data

and exchange information with other systems.

SMTP Simple Mail Transfer Protocol. Internet protocol providing e-mail services.

SN Serial Number. Part of the UDI. The SN is the serial number of your Cisco product.

SNAP Subnetwork Access Protocol. Internet protocol that operates between a network entity in the

subnetwork and a network entity in the end system. SNAP specifies a standard method of encapsulating IP datagrams and ARP messages on IEEE networks. The SNAP entity in the end system makes use of

the services of the subnetwork and performs three key functions: data transfer, connection

management, and QoS selection.

sniffing interface See sensing interface.

SNMP Simple Network Management Protocol. Network management protocol used almost exclusively in

TCP/IP networks. SNMP provides a means to monitor and control network devices, and to manage

configurations, statistics collection, performance, and security.

SNMP2 SNMP Version 2. Version 2 of the network management protocol. SNMP2 supports centralized and

distributed network management strategies, and includes improvements in the SMI, protocol

operations, management architecture, and security.

software bypass Passes traffic through the IPS system without inspection.

source address Address of a network device that is sending data.

SPAN Switched Port Analyzer. Feature of the Catalyst 5000 switch that extends the monitoring abilities of

existing network analyzers in to a switched Ethernet environment. SPAN mirrors the traffic at one switched segment onto a predefined SPAN port. A network analyzer attached to the SPAN port can

monitor traffic from any other Catalyst switched port.

spanning tree Loop-free subset of a network topology.

SQL Structured Query Language. International standard language for defining and accessing relational

databases.

SRAM Type of RAM that retains its contents for as long as power is supplied. SRAM does not require constant

refreshing, like DRAM

SSH Secure Shell. A utility that uses strong authentication and secure communications to log in to another

computer over a network.

SSL Secure Socket Layer. Encryption technology for the Internet used to provide secure transactions, such

as the transmission of credit card numbers for e-commerce.

Stacheldraht A DDoS tool that relies on the ICMP protocol.

State engine Stateful searches of HTTP strings.

Statistics Processor Keeps track of system statistics such as packet counts and packet arrival rates.

Stream Reassembly Processor

Reorders TCP streams to ensure the arrival order of the packets at the various stream-based inspectors. It is also responsible for normalization of the TCP stream. The normalizer engine lets you enable or disable alert and deny actions.

String engine A signature engine that provides regular expression-based pattern inspection and alert functionality for multiple transport protocols, including TCP, UDP, and ICMP.

subsignature A more granular representation of a general signature. It typically further defines a broad scope

signature.

surface mounting Refers to attaching rubber feet to the bottom of a sensor when it is installed on a flat surface. The rubber

feet allow proper airflow around the sensor and they also absorb vibration so that the hard-disk drive is

less impacted.

switch Network device that filters, forwards, and floods frames based on the destination address of each frame.

The switch operates at the data link layer of the OSI model.

SYN flood Denial of Service attack that sends a host more TCP SYN packets (request to synchronize sequence

numbers, used when opening a connection) than the protocol implementation can handle.

The full IPS application and recovery image used for reimaging an entire sensor.

T

TAC A Cisco Technical Assistance Center. There are four TACs worldwide.

TACACS+ Terminal Access Controller Access Control System Plus. Proprietary Cisco enhancement to Terminal

Access Controller Access Control System (TACACS). Provides additional support for authentication,

authorization, and accounting.

target value rating TVR. A weight associated with the perceived value of the target. The target value rating is a

user-configurable value (zero, low, medium, high, or mission critical) that identifies the importance of

a network asset (through its IP address).

TCP Transmission Control Protocol. Connection-oriented transport layer protocol that provides reliable

full-duplex data transmission. TCP is part of the TCP/IP protocol stack.

TCPDUMP The TCPDUMP utility is a free network protocol analyzer for UNIX and Windows. It lets you examine

data from a live network or from a capture file on disk. You can use different options for viewing summary and detail information for each packet. For more information see http://www.tcpdump.org/.

TCP reset interface

The interface on the IDS-4250-XL and IDSM2 that can send TCP resets. On most sensors the TCP resets are sent out on the same sensing interface on which the packets are monitored, but on the IDS-4250-XL and IDSM2 the sensing interfaces cannot be used for sending TCP resets. On the IDS-4250-XL the TCP reset interface is the onboard 10/100/100 TX interface, which is normally used on the IDS-4250-TX appliance when the XL card is not present. On the IDSM2 the TCP reset interface is designated as port 1 with Catalyst software, and is not visible to the user in Cisco IOS software. The TCP reset action is only appropriate as an action selection on those signatures that are associated with a TCP-based service.

Telnet

Standard terminal emulation protocol in the TCP/IP protocol stack. Telnet is used for remote terminal connection, enabling users to log in to remote systems and use resources as if they were connected to a local system. Telnet is defined in RFC 854.

terminal server

A router with multiple, low speed, asynchronous ports that are connected to other serial devices. Terminal servers can be used to remotely manage network equipment, including sensors.

TFN

Tribe Flood Network. A common type of DoS attack that can take advantage of forged or rapidly changing source IP addresses to allow attackers to thwart efforts to locate or filter the attacks.

TFN2K

Tribe Flood Network 2000. A common type of DoS attack that can take advantage of forged or rapidly changing source IP addresses to allow attackers to thwart efforts to locate or filter the attacks.

TFTP

Trivial File Transfer Protocol. Simplified version of FTP that lets files be transferred from one computer to another over a network, usually without the use of client authentication (for example, username and password).

threat rating

TR. A threat rating is a value between 0 and 100 that represents a numerical decrease of the risk rating of an attack based on the response action that depicts the threat of an alert on the monitored network.

three-way handshake Process whereby two protocol entities synchronize during connection establishment.

threshold

A value, either upper- or lower-bound that defines the maximum/minimum allowable condition before an alarm is sent.

Time Processor

Processes events stored in a time-slice calendar. Its primary task is to make stale database entries expire and to calculate time-dependent statistics.

TLS

Transport Layer Security. The protocol used over stream transports to negotiate the identity of peers and establish encrypted communications.

TNS

Transparent Network Substrate. Provides database applications with a single common interface to all industry-standard network protocols. With TNS, database applications can connect to other database applications across networks with different protocols.

topology

Physical arrangement of network nodes and media within an enterprise networking structure.

TPKT

Transport Packet. RFC 1006-defined method of demarking messages in a packet. The protocol uses ISO transport services on top of TCP.

traceroute

Program available on many systems that traces the path a packet takes to a destination. It is used mostly to debug routing problems between hosts. A traceroute protocol is also defined in RFC 1393.

traffic analysis Inference of information from observable characteristics of data flow(s), even when the data is

encrypted or otherwise not directly available. Such characteristics include the identities and locations of the source(s) and destination(s), and the presence, amount, frequency, and duration of occurrence.

Traffic ICMP engine Analyzes traffic from nonstandard protocols, such as TFN2K, LOKI, and DDOS.

Transaction Server A component of the IPS.

Transaction Source A component of the IPS.

trap Message sent by an SNMP agent to an NMS, a console, or a terminal to indicate the occurrence of a

significant event, such as a specifically defined condition or a threshold that was reached.

Trojan engine Analyzes traffic from nonstandard protocols, such as BO2K and TFN2K.

trunk Physical and logical connection between two switches across which network traffic travels. A backbone

is composed of a number of trunks.

trusted certificate Certificate upon which a certificate user relies as being valid without the need for validation testing;

especially a public-key certificate that is used to provide the first public key in a certification path.

trusted key Public key upon which a user relies; especially a public key that can be used as the first public key in

a certification path.

tune Adjusting signature parameters to modify an existing signature.

U

UDI Unique Device Identifier. Provides a unique identity for every Cisco product. The UDI is composed of

the PID, VID, and SN. The UDI is stored in the Cisco IPS ID PROM.

UDP User Datagram Protocol. Connectionless transport layer protocol in the TCP/IP protocol stack. UDP is

a simple protocol that exchanges datagrams without acknowledgments or guaranteed delivery, requiring that error processing and retransmission be handled by other protocols. UDP is defined in

RFC 768.

unblock To direct a router to remove a previously applied block.

unvirtualized sensing interface

An unvirtualized sensing interface has not been divided in to subinterfaces and the entire interfaces can

be associated with at most one virtual sensor.

UPS Uninterruptable Power Source.

UTC Coordinated Universal Time. Time zone at zero degrees longitude. Formerly called Greenwich Mean

Time (GMT) and Zulu time.

V

VACL VLAN ACL. An ACL that filters all packets (both within a VLAN and between VLANs) that pass

through a switch. Also known as security ACLs.

VID Version identifier. Part of the UDI.

VIP Versatile Interface Processor. Interface card used in Cisco 7000 and Cisco 7500 series routers. The VIP

provides multilayer switching and runs Cisco IOS. The most recent version of the VIP is VIP2.

virtual sensor A logical grouping of sensing interfaces and the configuration policy for the signature engines and

alarm filters to apply to them. In other words, multiple virtual sensors running on the same appliance,

each configured with different signature behavior and traffic feeds.

virtualized sensing

interface

A virtualized interface has been divided in to subinterfaces each of which consists of a group of VLANs. You can associate a virtual sensor with one or more subinterfaces so that different intrusion prevention policies can be assigned to those subinterfaces. You can virtualize both physical and inline

interfaces.

virus Hidden, self-replicating section of computer software, usually malicious logic, that propagates by

infecting—that is, inserting a copy of itself in to and becoming part of—another program. A virus

cannot run by itself; it requires that its host program be run to make the virus active.

virus update A signature update specifically addressing viruses.

VLAN Virtual Local Area Network. Group of devices on one or more LANs that are configured (using

management software) so that they can communicate as if they were attached to the same wire, when in fact they are located on a number of different LAN segments. Because VLANs are based on logical

instead of physical connections, they are extremely flexible.

VTP VLAN Trunking Protocol. Cisco Layer 2 messaging protocol that manages the addition, deletion, and

renaming of VLANs on a network-wide basis.

VMS CiscoWorks VPN/Security Management Solution. A suite of network security applications that

combines web-based tools for configuring, monitoring, and troubleshooting enterprise VPN, firewalls,

network intrusion detection systems and host-based intrusion prevention systems.

VoIP Voice over IP. The capability to carry normal telephony-style voice over an IP-based internet with

POTS-like functionality, reliability, and voice quality. VoIP enables a router to carry voice traffic (for example, telephone calls and faxes) over an IP network. In VoIP, the DSP segments the voice signal in to frames, which then are coupled in groups of two and stored in voice packets. These voice packets

are transported using IP in compliance with ITU-T specification H.323.

VPN Virtual Private Network(ing). Enables IP traffic to travel securely over a public TCP/IP network by

encrypting all traffic from one network to another. A VPN uses "tunneling" to encrypt all information

at the IP level.

VTP VLAN Trunking Protocol. A Cisco Layer 2 messaging protocol that manages the addition, deletion,

and renaming of VLANs on a network-wide basis.

vulnerability One or more attributes of a computer or a network that permit a subject to initiate patterns of misuse

on that computer or network.

W

WAN wide-area network. Data communications network that serves users across a broad geographic area and

often uses transmission devices provided by common carriers. Frame Relay, SMDS, and X.25 are

examples of WANs.

watch list rating WLR. A weight associated with the CSA MC watch list in the range of 0 to 100 (CSA MC only uses

the range 0 to 35).

Web Server A component of the IPS.

Wireshark Wireshark is a free network protocol analyzer for UNIX and Windows. It lets you examine data from a

live network or from a capture file on disk. You can interactively browse the capture data, viewing summary and detail information for each packet. Wireshark has several powerful features, including a rich display filter language and the ability to view the reconstructed stream of a TCP session. For more

information, see http://www.wireshark.org.

worm A computer program that can run independently, can propagate a complete working version of itself

onto other hosts on a network, and can consume computer resources destructively.

X

X.509 Standard that defines information contained in a certificate.

XML eXtensible Markup Language. Textual file format used for data interchange between heterogeneous

hosts.

Z

zone A set of destination IP addresses sorted in to an internal, illegal, or external zone used by anomaly

detection.

Glossary