Release Notes for the Industrial Ethernet 1000 Switch (Software Release 1.3)

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These release notes include important information about the Cisco Industrial Ethernet 1000 Switch, and any limitations, restrictions, and caveats that apply to it.

You can download the switch software from this site (registered Cisco.com users with a login password):

http://software.cisco.com/download/navigator.html

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Cisco Systems, Inc.
www.cisco.com

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Hardware Supported

Switch Models Supported

Model	FE Uplink Copper	Gig Uplink SFP	FE Downlink Copper	POE(+)	Description
IE-1000-4T1T-LM	1		4		IE1K with total of 5 FE ports 10/100
IE-1000-6T2T-LM	2		6		IE1K with total of 8 FE ports 10/100
IE-1000-4P2S-LM		2		4	IE1K with 2 GE SFP, 4 PoE 10/100 with total of 6 ports
IE-1000-8P2S-LM		2		8	IE1K with 2 GE SFP, 8 PoE 10/100 with total of 10 ports

SFP Modules Supported

The SFP modules are switch Ethernet SFP modules that provide connections to other devices. Depending on the switch model, these field-replaceable transceiver modules provide uplink interfaces. The modules have LC connectors for fiber-optic connections. For a complete list of supported SFP modules refer to the Data Sheet.

Express Setup Requirements

You need this equipment to set up the switch:

- Computer with Windows 7/Windows 10/Mac
- A Web browser (IE 11, Firefox 46.01 and 47.0) with JavaScript enabled (disable pop-up blockers and proxy settings).
- A straight-through or crossover Category 5 Ethernet cable to connect your computer to the switch port.
- A small paper clip to reach the express setup button.

Note: Before running Express Setup, disable any wireless client running on your computer.

Installation Notes

You can assign IP information to your switch by using these methods:

- Express Setup program, as described in the Hardware Installation Guide.
- DHCP-based setup

Note If the switch fails to acquire the IP address from the DHCP server, it may fall back to default IP 192.168.1.254. Please ensure the server is connected then reboot the switch.

Software Features

Web GUI interface only

Through a user-friendly web device manager, the Cisco IE 1000 provides easy out-of-the-box configuration and simplified operational manageability to deliver advanced and secure industrial networks.

BPDU Guard

The STP PortFast BPDU guard enhancement allows network designers to enforce the STP domain borders and keep the active topology predictable. The devices behind the ports that have STP PortFast enabled are not able to influence the STP topology. At the reception of BPDUs, the BPDU guard operation disables the port that has PortFast configured. The BPDU guard transitions the port into errdisable state, and a message appears on the console.

Cable diagnostics

Cable diagnostics helps determine if the ethernet cables attached to the switch have connectivity issues.

DHCP Server

The DHCP Server feature is a full DHCP Server implementation that assigns and manages IP addresses from specified address pools within the switch to DHCP clients.

Ether Channel LACP

Link Aggregation Control Protocol (LACP) allows the creation of Ethernet channeling with devices that conform to IEEE 802.3ad.

IGMP

IGMP is an IPv4 protocol that a host uses to request multicast data for a particular group. Using the information obtained through IGMP, the software maintains a list of multicast group or channel memberships on a per-interface basis. The systems that receive these IGMP packets send multicast data that they receive for requested groups or channels out the network segment of the known receivers.

HTTP/HTTPs, SSH, and Telnet

The Cisco IE 1000 Switch provides connectivity via HTTP/HTTPs, SSH and Telnet.

MST spanning tree mode

MST maps multiple VLANs into a spanning tree instance, with each instance having a spanning tree topology independent of other spanning tree instances. This architecture provides multiple forwarding paths for data traffic, enables load balancing, and reduces the number of STP instances required to support a large number of VLANs. MST improves the fault tolerance of the network because a failure in one instance (forwarding path) does not affect other instances (forwarding paths).

MST provides rapid convergence through explicit handshaking as each MST instance uses the IEEE 802.1w standard, which eliminates the 802.1D forwarding delay and quickly transitions root bridge ports and designated ports to the forwarding state.

QOS Priority port

The Priority Port feature allows the end user to specify a port which is connected to high priority end devices (eg: IP phone, or PLC), as a Priority Port. Once the Priority Port is configured, all the Ethernet packets received from that end device will have higher priority than packets received from other end devices connected to the IE1000.

PoE Management

PoE Management Modes:

- Auto-LLDP: use LLDP for max power draw; reserves what is negotiated
- Auto-PD Class: PD class determines max power draw; reserves the class max
- Static: max power determined by value in 'max power field'; reserves based on max power field

Port-security

You can use the port security feature to restrict input to an interface by limiting and identifying MAC addresses of the end devices that are allowed to access the port. If you limit the number of MAC addresses to one and assign a single MAC address, the end device attached to that port is assured the full bandwidth of the port.

If a port is configured as a secure port and the maximum number of MAC addresses is reached, when the MAC address of a end device attempting to access the port is different from any of the identified MAC addresses, a security violation occurs.

SNMP v2/v3, trap

The switch supports SNMPv2 and SNMPv3 traps.

SNMP traps enable an agent to notify the management station of significant events by way of an unsolicited SNMP message.

STP port fast

Port Fast immediately brings an interface configured as an access or trunk port to the forwarding state from a blocking state, bypassing the listening and learning states.

You can use Port Fast on interfaces connected to a single end device or server, to allow those devices to immediately connect to the network, rather than waiting for the spanning tree to converge.

Interfaces connected to a single end device or server should not receive bridge protocol data units (BPDUs). An interface with Port Fast enabled goes through the normal cycle of spanning-tree status changes when the switch is restarted.

Virtual LAN (VLAN)

A VLAN is a group of devices on one or more LANs that are configured to 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.

VLANs define broadcast domains in a Layer 2 network. A broadcast domain is the set of all devices that will receive broadcast frames originating from any device within the set. Broadcast domains are typically bounded by routers because routers do not forward broadcast frames. Layer 2 switches create broadcast domains based on the configuration of the switch. Switches are multiport bridges that allow you to create multiple broadcast domains. Each broadcast domain is like a distinct virtual bridge within a switch.

Alarm *(PoE switches only)*

The switch software monitors switch conditions on a per port or a switch basis. If the conditions present on the switch or a port do not match the set parameters, the switch software triggers an alarm or a system message.

The Cisco IE 1000 PoE(+) switches have one external alarm port and supports one output relay.

Limitations and Restrictions

You should review this section before you begin working with the switch. These are known limitations that will not be fixed, and there is not always a workaround. Some features might not work as documented, and some features could be affected by recent changes to the switch hardware or software.

Important Notes

Express Setup Notes

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Note If the Express Setup failed in the Web Browser, press and hold the Express Setup button for 15-20 seconds to reset the switch to factory default

Caveats

The following sections provide information about caveats. You can click the issue number to view more information in the Cisco Bug Search tool (login required):

Open Caveats

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Issue	Description	Workaround
CSCux61698	Cable Diagnostics does not provide accurate cable length measurements for cable lengths under 10 meters.	None
CSCux72346	No Syslog message seen for DHCP Activities.	None
CSCux92757	IP Address conflict doesn't generate any warning/syslog msg.	None
CSCva21311	'Unresponsive Script' error if DM left idle for 2.5 hrs or more.	Select Continue and restart the browser session if needed.
CSCva34722	IE1000 cannot connect to the DHCP server if the switch is already operational, using the Default IP address.	Connect the IE1000 to a DHCP server and reboot the switch.
CSCva35263	Error when saving backup of running-config or startup-config to tftp server, if network is unstable.	Refresh the page and try again.
CSCva57787	When port receives badCRC errors along with regular traffic , the port utilization shows only error information and does not include Receive % traffic.	Use Port Statistics page to get the counter values.

Issue	Description	Workaround
CSCva58371	Discrepancy in Received Pkts when data has undersized packets.	None

Documentation Updates

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Related Documentation

Installation, Configuration, Maintenance, and Operation Guides

http://www.cisco.com/en/US/products/ps11245/tsd_products_support_series_home.html

Online Help (available on the switch)

- Device Manager online help

SFP Information

- Compatibility Information:
  www.cisco.com/en/US/products/hw/modules/ps5455/products_device_support_tables_list.html

- Installation Notes:
  www.cisco.com/en/US/products/hw/modules/ps5455/prod_installation_guides_list.html

Obtaining Documentation, Obtaining Support, and Security Guidelines

For information on obtaining documentation, submitting a service request, and gathering additional information, see the monthly *What's New in Cisco Product Documentation*, which also lists all new and revised Cisco technical documentation, at:

http://www.cisco.com/en/US/docs/general/whatsnew/whatsnew.html

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This document is to be used in conjunction with the documents listed in the "Related Documentation" section.