Cisco ASR1002-X

Cisco ASR1002-X Aggregation Services Router User Manual

1. INTRODUCTION AND OVERVIEW

This manual provides essential information for the installation, operation, and maintenance of the Cisco ASR1002-X Aggregation Services Router. The ASR1002-X is designed for enterprise and service provider edge deployments, offering high performance, reliability, and advanced services for network aggregation.

This document is intended for network administrators, IT professionals, and anyone responsible for deploying or managing the Cisco ASR1002-X router.

2. SAFETY INFORMATION

Observe the following safety precautions to prevent injury and damage to the equipment:

- **Power:** Ensure the router is connected to a properly grounded power source. Use only the power cords supplied or approved by Cisco.
- **Ventilation:** Maintain adequate airflow around the router. Do not block ventilation openings.
- **Handling:** The router is heavy (approximately 39.3 pounds). Use proper lifting techniques or assistance when moving or installing the unit.
- **Environment:** Operate the router within the specified temperature and humidity ranges (e.g., upper temperature rating of 40 degrees Celsius).
- **Electrostatic Discharge (ESD):** Always use an ESD-preventive wrist strap when handling internal components to prevent damage.

3. PRODUCT COMPONENTS AND FEATURES

The Cisco ASR1002-X is a compact, rack-mountable router designed for high-performance networking. Key features include multiple Gigabit Ethernet ports, a dedicated management port, and expansion slots for network interface modules.

Figure 1: Rear view of the Cisco ASR1002-X Aggregation Services Router. This image displays the rear panel of the Cisco ASR1002-X router. Visible components include multiple RJ45 Ethernet ports, SFP/SFP+ slots, a console port, and two large module bays for network interface modules or other expansion cards. The design emphasizes ventilation for optimal performance.

3.1 Front Panel Indicators

The front panel typically includes LED indicators for system status, power, and port activity. Refer to the detailed product documentation for specific LED behavior and meanings.

3.2 Rear Panel Ports and Slots

The rear panel provides connectivity options:

- **Ethernet Ports:** Multiple RJ45 Gigabit Ethernet ports for data connectivity.
- **Management Port:** A dedicated RJ45 port for out-of-band management.
- **Console Port:** For initial configuration and direct access to the command-line interface (CLI).
- **USB Ports:** For software upgrades or configuration backup.
- **Module Slots:** Bays for installing Network Interface Modules (NIMs) or other expansion cards to customize connectivity and services.

4. SETUP AND INSTALLATION

4.1 Unpacking and Inspection

1. Carefully unpack the router and its accessories from the shipping carton.
2. Inspect all components for any signs of physical damage. Report any damage to your supplier immediately.
3. Verify that all items listed in the packing list are present.

4.2 Rack Mounting

The ASR1002-X is a 2U rack-mountable device. Follow these general steps for rack installation:

1. Attach the provided rack-mount brackets to the sides of the router using the supplied screws.
2. Align the router with the desired rack unit spaces in a standard 19-inch equipment rack.
3. Secure the router to the rack using appropriate rack screws. Ensure it is firmly seated and level.

4.3 Power Connection

1. Connect the power cord(s) to the power supply module(s) at the rear of the router.
2. Plug the other end of the power cord(s) into a grounded AC power outlet. The router supports 240 Volts AC input.
3. Ensure the power switch (if present) is in the 'ON' position. The power LED on the front panel should illuminate.

4.4 Initial Network Connections

1. **Console Connection:** For initial configuration, connect a console cable from your management workstation to the router's console port. Use a terminal emulation program (e.g., PuTTY, Tera Term) with appropriate settings (typically 9600 baud, 8 data bits, no parity, 1 stop bit, no flow control).
2. **Management Port:** Connect an Ethernet cable from the dedicated management port to your management network for out-of-band access.
3. **Data Ports:** Connect network cables to the Gigabit Ethernet data ports as required by your network topology.

5. OPERATING INSTRUCTIONS

The Cisco ASR1002-X router operates on Cisco IOS XE software. Configuration and management are primarily performed via the Command-Line Interface (CLI) accessed through the console port or SSH/Telnet via the management or data ports.

5.1 Basic Configuration

Upon initial boot, the router may enter a setup dialog. It is generally recommended to decline the initial setup dialog and configure the router manually via the CLI for precise control.

- **Hostname:** Configure a unique hostname for the router.
- **IP Addresses:** Assign IP addresses to interfaces as per your network design.
- **User Accounts:** Create local user accounts with appropriate privilege levels.
- **Routing Protocols:** Configure necessary routing protocols (e.g., OSPF, EIGRP, BGP) to enable network communication.
- **Security:** Implement security measures such as access control lists (ACLs), SSH for secure remote access, and disable unnecessary services.

For detailed configuration procedures, refer to the official Cisco IOS XE documentation specific to the ASR1000 series.

5.2 Monitoring Router Status

Use various CLI commands to monitor the router's operational status:

- show version: Displays software version and hardware information.
- show interface: Shows status and statistics for all interfaces.
- show ip route: Displays the routing table.
- show processes cpu: Monitors CPU utilization.
- show environment: Provides information on power supplies, fans, and temperature.

6. MAINTENANCE

Regular maintenance ensures the longevity and optimal performance of your Cisco ASR1002-X router.

- **Environmental Control:** Ensure the operating environment remains within specified temperature and humidity limits.
- **Cleaning:** Periodically clean the exterior of the router and ventilation openings with a soft, dry cloth to prevent dust buildup. Do not use liquid cleaners directly on the device.
- **Software Updates:** Keep the Cisco IOS XE software updated to the latest stable release to benefit from new features, security patches, and bug fixes. Refer to Cisco's official website for update procedures.

- **Configuration Backup:** Regularly back up your router's configuration to an external server or USB device.
- **Hardware Inspection:** Periodically inspect cables and connections for wear or damage.

7. TROUBLESHOOTING

This section provides basic troubleshooting steps for common issues.

7.1 Power Issues

- **No Power:** Verify power cord connections, check the power outlet, and ensure the power switch is on. Check the power supply LEDs.
- **System LED Error:** Consult the Cisco documentation for the specific meaning of error codes or LED patterns.

7.2 Connectivity Issues

- **Interface Down:** Check cable connections, verify interface configuration (no shutdown command), and check link status LEDs.
- **No IP Connectivity:** Verify IP address configuration, subnet mask, default gateway, and routing table entries. Use ping and traceroute commands for diagnostics.
- **Console Access Failure:** Ensure correct console cable connection and terminal emulation settings.

For advanced troubleshooting, refer to Cisco's official support resources and documentation.

8. SPECIFICATIONS

The following table details the technical specifications for the Cisco ASR1002-X Aggregation Services Router:

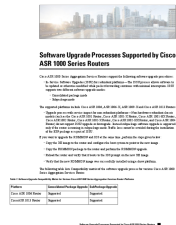| Feature	Specification
Brand	Cisco
Model	ASR1002-X
Manufacturer	CISCO
Product Dimensions	17.22 x 18.15 x 3.5 inches
Item Weight	39.3 pounds
Case Material	Metal
Number of Ports	6 (plus management port)
Interface Type	RJ45, SFP/SFP+ (via modules)
Voltage	240 Volts
Upper Temperature Rating	40 Degrees Celsius
Compatible Devices	Desktop, Laptop, Printer (for management/connectivity)
UPC	647213678826

9. WARRANTY AND SUPPORT

Related Documents - ASR1002-X

High Availability Configuration Guide for Cisco IOS XE 17
This guide details the configuration of High Availability (HA) features, including Stateful Switchover (SSO) and Nonstop Forwarding (NSF), within Cisco IOS XE software. It is designed for network professionals managing Cisco ASR 1000 Series routers to enhance network resilience and minimize service downtime.

Cisco ASR 1000 Series: Software Upgrade Process Using install Commands
This document outlines the In-Service Software Upgrade (ISSU) process for Cisco ASR 1000 Series Aggregation Services Routers using the 'install' command. It details prerequisites, restrictions, various upgrade modes (Super Package and Subpackage), and step-by-step workflows for different router configurations (Dual RP, Dual IOS, Consolidated Platforms). The guide also covers crash handling, rollback procedures, and feature information related to the ISSU process.

Cisco ASR 1000 Series Release Notes for IOS XE Amsterdam 17.3.x
Detailed release notes for Cisco ASR 1000 Series routers running Cisco IOS XE Amsterdam 17.3.x, covering new software features, resolved bugs, and ROMmon release requirements.

Software Upgrade Processes for Cisco ASR 1000 Series Routers
This document details the software upgrade processes supported by Cisco ASR 1000 Series Routers, including In-Service Software Upgrades (ISSU) for redundant and non-redundant platforms, and provides step-by-step instructions for performing consolidated package upgrades.

Carrier Ethernet Configuration Guide, Cisco IOS XE Fuji 16.7.x
A comprehensive guide for configuring Carrier Ethernet services on Cisco IOS XE Fuji 16.7.x, detailing Ethernet Operations, Administration, and Maintenance (OAM), Connectivity Fault Management (CFM), link aggregation, and advanced networking features for service provider environments.

[Cisco Router Guide: Solutions for Small Offices, Businesses, and Enterprises](#)
Explore the comprehensive Cisco Router Guide detailing Integrated Services Routers and Aggregation Routers. Discover solutions for teleworkers, small to medium-sized businesses, and enterprise branch offices, featuring advanced security, performance, and connectivity.