

ZebOS®  
Network Platform

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# XMRP Multicast Registration Protocol Module

## Overview

The ZebOS® Network Platform XMRP Multicast Registration Protocol Module contains both the GARP Multicast Registration Protocol (GMRP) and the Multiple Multicast Registration Protocol (MMRP) software. Both are Layer 2 protocols that leverage the command line interface (CLI) and the kernel management capabilities of the ZebOS Network Services Module (NSM).

## GARP Multicast Registration Protocol

GMRP provides a mechanism that allows end stations and MAC Bridges to dynamically register and de-register group membership information with the bridges attached to the same LAN, and disseminates that information across all bridges that support extended filtering services in a bridged LAN. Operation of GMRP relies on the services provided by the ZebOS Generic Attribute Registration Protocol (GARP). Information propagated by GMRP includes:

- Group membership information, which indicates the presence of GMRP participants that are members of a group (or groups), and carries any MAC address associated with the group (or groups). An extended filtering database manages the group membership information.
- Group service requirement information, which indicates that one or more GMRP participants require forward all groups or forward unregistered groups as the default group filtering behavior.

Registration of group membership information makes bridges aware that frames destined for a group MAC address should forward in the direction of the registered members of the group, including those ports on which group membership registration was received.

## Multiple Multicast Registration Protocol

MMRP allows ports and MAC bridges to dynamically register and de-register group membership information with all bridges attached to the same LAN, and disseminates that information across all Bridges that support extended filtering services. Operation of MMRP relies on the services provided by ZebOS Multicast Registration Protocol (MRP). Information propagated via MMRP includes:

- Group membership information, which indicates the presence of MMRP participants that are members of a particular group (or groups), and carries any of the group MAC addresses associated with the group (or groups). Exchange of group membership results in the creation or updating of entries in the Filtering Database to indicate the port(s) on which members of the group(s) were registered.
- Group service requirement information, which indicates that one or more MMRP participants require forward all groups or forward unregistered groups as the default group filtering behavior.

In VLAN Bridges, MMRP operates only when the bridge filtering mode is set to extended filtering mode. Bridges that are unable to operate in extended filtering mode, or have been set to operate in basic filtering mode, are transparent with respect to MMRP protocol exchanges, and forward MRPDUs destined for the MMRP application through all ports that are in forwarding mode.

## Features

- Robust and reliable implementation of MMRP and GMRP
- Tested interoperability with leading Layer 2 vendors

- Support for dynamic multicast group creation and management in GMRP
- Dynamic multicast pruning of unnecessary broadcast traffic between GMRP participants
- MMRP manages group MAC addresses and improves the convergence time of GMRP
- MMRP reduces the number of frames transmitted for propagating MAC address registration information

## Requirements

- ZebOS Network Services Manager
- ZebOS Layer 2 VLAN
- ZebOS GARP
- ZebOS Layer 2 Spanning Tree Protocols

## Standards Support

- IEEE 802.1ak/D4.0 — Multiple Multicast Registration Protocol (MMRP)
- IEEE 802.1ak/D4.0 — Multiple VLAN Registration Protocol (MVRP)
- IEEE 802.1Q (2003) — Virtual Bridged LANs

## Standard Deliverables

- Source Code (written in ANSI-standard C)
- Installation Guide
- Configuration Guides
- Command Reference Guide
- Developer Guide