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RedMAX Product Support Certification Program

Redline Certified Support Associate (RCSA) –RedMAX Course Description

Course name:

RedMAX Deployment, Installation and Configuration Basics (DICB)

Objective:

The student attending this course should:

- Understand how to effectively deploy the RedMAX wireless systems
- Be capable of performing basic configurations on the RedMAX systems to ensure end-to-end data connectivity for user traffic streams including WiFi and VPN
- Be capable of integrating RedMAX into existing networks using network elements such as L2 and L3 devices

Certification Criteria:

In order to receive the certification, students must:

- Complete the RDIC course workshop
- Pass the RCSA exam

Course Duration:

2-days hands-on centric training

Target Audience:

The target audience for this workshop includes engineers who will design, install, configure and operate the RedMAX system. Students who receive RCSA Certification are eligible to take the next level of certification, Redline Certified Support Professional (RCSP).

Delivery format:

This course is Instructor Led (IL) in a workshop format.

Pre-requisite Knowledge Requirement:

- Basic knowledge of RF signals and systems, digital modulations schemes, RF link impairments such as multipath, fading, signal attenuation.
- Working knowledge of the TCP/IP networking model, hands on knowledge of working with L2 and L3 networking devices, the ability to use a computer in a network environment

RCSA Course Content Details

Module-1 (RedMAX Overview, Parameters and Deployment)

Module-1 begins with a deployment-focus review of the WiMAX and 802.16-2004 PMP network parameters. WiMAX specifications for the MAC, PHY and RF interfaces are discussed. WiMAX QoS and traffic type definitions are presented. Traffic flow between host devices on both sides of the WiMAX link is defined in terms of transport connections and QoS assignment on a per connection basis.

The RedMAX family of products is introduced. Details of the RedMAX Sector Controller (AN-100U), RedMAX outdoor subscriber (SU-O) and the RedMAX indoor subscriber (SU-I) are presented as network elements. Concepts including network, RF capacity, coverage and multipath mitigation capability attributes of the RedMAX family are fully explained. This module concludes with a review of the RedMAX product family evolution path.

Module-2 (RedMAX Management and Configuration)

Module-2 covers basic management and configuration of the RedMAX network elements for various applications, RF link conditions, link coverage, sector coverage, throughput and latency constraints integration of these network elements into a packet networks. Specifications of connectivity to the network elements for the purpose of remote and local management such as IP address assignment by a DHCP server and related topics are presented.

RF, PHY, MAC and other wireless parameters of the RedMAX SC and SU-O/SU-I are discussed in various networking environments. Product parameters configuration requirements for optimal performance under different link conditions and throughput requirements are explained and practiced in fully hands on set-up. Special configurations of the RedMAX such as PTP pass through mode of operation, supporting WiFi on WiMAX, setting the CINR thresholds for a link with a specific propagation profile, IP assignment through DHCP servers and subnetting of the service flows in sector are further emphasized in this module. Packet handling using the SU-O 802.1Q support is fully explained and enabling the SU-O for remote management is discussed using DHCP-Turbo.

Module- 3 (RedMAX Link Budget, Installation and Link Alignment)

Module-3 introduces the basic RF link and discusses briefly wireless link attributes such as multipath impairments and link budgeting. Important parameters of LOS, NLOS or OLOS RedMAX links are explained.

The module covers in a hands-on set-up the AN-100U, SU-O assembling and installation process, lightning protection installation, weather proofing and grounding of the equipment. Link alignment and fine-tuning is demonstrated and alignment tools such the RF-Monitor, SU-O buzzer are presented and shown. Symptoms of poor and sub-optimal alignment, interference on the link and wrong choice of product configuration parameters are discussed using the system event log. Co-channel and adjacent channel interference is explained and interference mitigation techniques including using of synchronization of the multiple Base Stations and multiple sector controllers with each base station is explained.

Module-4 (RedMAX Deployment and Configuration Exercises)

Module-4 consists of number of exercises of objective of which is to enable the trainees simulate real life situations in the context of product deployment and end-to-end connectivity. The exercises have been designed such that their completion leads to the product performance validation in most cases. Considerable emphasis has been given to service flow creation, QoS assignment on per flow basis, choice of appropriate classification for each traffic stream in the downlink and uplink, handling of externally inserted management information in the ingress packets such VID, protocol type, source and destination addresses, ToS parameters.

Some of the exercises are focused only to the product performance and control validation such SU-O transmit power control, link adaptation and multipath handling ability.

Module-5 (RedMAX Management Suite (RMS): Overview)

Module-5 covers in a brief high level overview fashion the RMS as a tool for management of the RedMAX network elements. RMS architecture is introduced. Database and OSS support as well as northbound interfacing concepts are explained. The RMS capabilities as fully developed FCAP EMS are elaborated up on. This module is only a slide presentation and is not intended to provide hands on experience to the trainees. Those interested in a first-level hands-on experience with RMS must attend Redline RMS-1 course.

More Information

For further information on training and certification, please contact the Redline Training Department at training@redlinecommunications.com.

About Redline Communications

Redline Communications is the leading provider of standards-based wireless broadband solutions. Redline's WiMAX Forum Certified™ systems and award-winning backhaul and transport products enable service providers and other network operators to cost-effectively deliver high-bandwidth services including voice, video and data communications. Redline is committed to maintaining its wireless industry leadership with the continued development of WiMAX and other advanced wireless broadband products. With more than 30,000 installations in 75 countries, and a global network of over 100 partners, Redline's experience and expertise helps service providers, enterprises and government organizations roll out the services and applications that drive their business forward. For more information, visit www.redlinecommunications.com.