

Reader Management 1.0.1 FAQs

Business Questions

1. What does Reader Management do?

The Reader Management Specification 1.0.x, is targeted at monitoring the health of networked RFID readers. Specifically, RM provides mechanisms to get operational statistics for a broad range of RFID operations - including reading and writing of tags, network availability of the reader, and the status of specific antennas and peripherals that may be connected to the reader.

RM specifies two bindings, or network protocols, for implementing the standard. One is SNMP, a widely used protocol for monitoring network devices and servers. Commercial and open-source network management systems use SNMP, so readers that implement SNMP should be easy to integrate into existing network management systems.

The other binding is an XML-based protocol designed to extend the binding used by EPCglobal Reader Protocol 1.1. Both bindings were designed to provide equivalent visibility into reader operations, so as to provide end users and solution providers maximum flexibility in designing systems to fit their needs.

2. What do you mean by "Health Monitoring"?

In this context, health monitoring refers to information about reader operational states. As a concrete example, the RM specification provides data structures to count tag reads and writes at a per-antenna level, as well as providing data structures to indicate whether the reader believes those antennas are functional or not; how long the radio(s) have been on, what peripherals may be attached to a reader, and so on. Additionally, the RM specification defines optional mechanisms that allow readers to notify management systems of alert conditions based on configurable parameters.

3. I've noticed that the Reader Management specification references the Reader Protocol specification. Do I need to implement both? What if I want to use a different host-reader protocol, like LLRP?

Reader Management 1.0.x and Reader Protocol 1.1 share a common object model, or definition of what constitutes a reader device. They were designed to work together. However, most of the reader management specific elements concern hardware components and tag operations that are independent of the host-reader protocol chosen. Thus, whether you choose to implement RP 1.1, LLRP, or a non-standard host-reader protocol, the RM specification does not require that you implement any particular host-reader protocol, and will help you effectively monitor your RFID reader infrastructure. This also means that RM will co-exist with any host-reader protocol you may wish to use.

4. The standard seems to be very Reader-centric. What about other RFID devices, such as printers? Does the RM specification apply to them?

Absolutely. The Reader Management specification should be suitable for use on any device that has an RFID function - dedicated readers, printers, handheld scanners with embedded RFID readers, to name a few. In the EPCglobal architecture, "reader" is a general term that refers to any device that interacts with RFID tags, including reading and writing.

5. *Is Discovery, Configuration and Initialization (DCI) the same thing as Reader Management?*

Discovery, Configuration and Initialization were identified in the original Reader Management charter, but were by consensus regarded as secondary to health monitoring. The RM specification defines data structures and two network protocol bindings (SNMP and XML) to perform health monitoring tasks. RM does not provide mechanisms to configure or initialize readers. So while DCI can be considered "Reader Management" in a broader sense, the RM 1.0.x specification and forthcoming DCI specifications cover different ground. As is the case with most EPCglobal specifications, the RM and DCI specifications are not interdependent, and can exist simultaneously, individually, or not at all on the same reader.

Technical Questions

1. *Why SNMP? Why XML? What about other device management protocols?*

SNMP was chosen because it is a widely used network management protocol. XML was chosen because it seemed reasonable to extend the RP protocol to gather the necessary information for reader management purposes. Additionally, SNMP and XML both provide straightforward mechanisms to implement vendor extensions. The group's development methodology was to first determine what elements needed to be captured to effectively monitor the health of RFID readers, and then to develop bindings that captured that data. So there are really three parts to the RM specification:

- The abstract model, which provides a common model between RP and RM of reader operations
- The XML binding
- The SNMP binding

The intent of the design was to permit other bindings to be defined based on the same abstract model, but to date end users have not required other bindings. If sufficient interest is exhibited within EPCglobal, other protocol bindings will be developed for RM.

2. *My reader doesn't have the RP concept of Sources. What should my SNMP MIB do, since Sources are a mandatory RM feature?*

In RP, Sources are kind of like virtual readers, which can have antennas assigned. If your reader does not support the RP concept of sources, you can create a default source, and leave the counters associated with the source at 0. This will allow the MIB to have the structures required for RM compliance.

3. *My reader doesn't have the RP concept of Notification Channels or Triggers. What should my SNMP MIB do?*

Notification Channels and Triggers are optional in the RM SNMP binding, so you do not need to provide access to those objects.

4. *Can I add value by providing SNMP MIBs other than the EPCglobal MIB?*

Definitely! In fact, the specification recommends (though it does not require) several IETF-standard MIBs, including the Host Resources MIB (RFC 2790), which defines a number of general purpose device health monitoring structures, such as memory utilization, running processes, storage utilization, etc. In general, providers of the EPCglobal MIBs are free to include other MIBs with their agents, including MIBs that may be proprietary to that organization.

5. *What version of SNMP does the RM SNMP binding support?*

The SNMP version required is not explicit in the specification. The group's intention was to specify the standard such that either SNMP v2c or v3 (with its enhanced security features) could fulfill the conformance requirements.