RID IETF Draft Update

Kathleen M. Moriarty
INCH Working Group

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RID Updates

- Purpose
- RID and INCH
- Generalizing RID draft
  - Communication flow for all IODEF documents
  - Schema changes
  - Transport in a separate document
- Communication Mechanism for RID Documents
- RIDPolicy
Real-time Inter-network Defense (RID)

- Facilitate Communication of IODEF documents between Network Providers (NPs) and CSIRTs
- * Report incidents to NPs or CSIRTs
- Trace Security Incidents to the Source
- Stop or Mitigate the Effects of an Attack or Security Incident
  - Integrate with existing and future network components
    - Intrusion Detection Systems
    - Systems to trace traffic across a network
    - Network devices such as routers and firewalls
- Provide secure means to communicate IODEF documents
  - Consortia agree upon use and abuse guidelines
  - Consortia provide Public Key Infrastructure to support encryption and digital signing requirements
Generalization of RID for IODEF

• RID is used to communicate security incident handling information between CSIRTs or Network Providers (NPs)
• RID initially intended for:
  – Reporting and tracing security incident information to a RID system close to the attack source
  – Integration with traceback systems and intrusion detection
  – Method to stop attack traffic close to the source
• The generalization of RID specifies
  – Communication flow to facilitate RID messaging
• Major document updates include
  – RID no longer an extension of IODEF using the AddtionalData class
    Separate schema which acts as an XML wrapper for IODEF documents
  – Text changes
  – New message types
    Ability to send an incident report with no required action
    Ability to request information about an incident
• Are there any other cases that are not yet covered?
RID Envelope for IODEF

- All IODEF documents are enveloped in RID XML for transport
- Facilitates communication of IODEF documents and sets purpose
  - Reporting
  - Investigation
    - Source is known
  - Trace request
  - Incident Query
- The transport protocol will be defined in a separate document
  - SOAP and HTTPS
Communicating RID Messages

• RID serves as the message wrapper for all IODEF documents
• RID defines the communication flow of all IODEF documents using the defined RID message types
  – Trace Request
    Requires integration with traceback systems to identify upstream source
  – Trace Authorization
    Traceback approval status in upstream provider’s network
  – Result
    *Previously known as “Source Found“
    *Actions will be expanded in Data Model to support necessary options
  – Investigation
    *Previously Relay Request
    Incident Investigation for attack mitigation with a known source
  – *Report
    Statistics – no action necessary
  – * IncidentQuery
    Request a report on a particular incident or type of incident
• RID Systems Must Track the Requests by
  – * Incident Number and Instance ID
    The incident@ID is referenced in RIDPolicy from the data model
    Format: CSIRTname-IncidentID-Instance
  – Packet Contents
  – Completion Status
Schema Updates

• RID Schema
  – Envelope for the IODEF document
  – Separated out from IODEF extension
    Facilitates transport requirements
    Enables easy access to necessary document data to prevent the need to parse the entire document received
    RIDPolicy class can easily be pulled into the SOAP header

• Enumerated lists added for all relevant elements
  – Lists values changed from decimal type to string for readability of document where possible
Report Message

- Report is sent to CSIRT or NP
- No action is necessary for this message type
- Used for statistics and generating trending information
- Transport will use TCP (HTTPS), so there is no response necessary

IODEF report
In RID wrapper

RID System/
Incident DB
Investigation Message

- Investigation message is sent to CSIRT or NP
- An Investigation is requested where the source is known
- Purpose is to mitigate or stop the attack traffic
- A response via the Result message is required
  - Details the action(s) taken
Trace Request Message

- Trace Request is sent to CSIRT or NP
- A traceback investigation is requested to locate the source
- All upstream trace requests must decide if trace will be authorized
- Purpose is to mitigate or stop the attack traffic
- A response via the Result message is required
  - Details the action(s) taken

RID System

Trace Request

Trace Authorization

IODEF report
In RID wrapper

Result
IncidentQuery and Receive Report

- IncidentQuery request is sent to CSIRT or NP
- Purpose is to obtain information on a particular incident or a type of incident
- A response via the Report message is provided
- Note: A report message can also be used by itself to provide new information on security incident to a RID system
Transport in a New Draft

• SOAP Draft defines the transport protocol for RID documents
• RID will define the message communication flow and the transport document discusses SOAP and HTTPS for transport
• XML Security
  – Policy negotiated in RID message through the RIDPolicy, not in SOAP or other transport wrapper
  – Provide integrity, authentication, authorization
  – XML digital signature, encryption, and public key infrastructure
    Encryption of RID for privacy and security reasons should be via XML encryption and not through the security provided by a wrapper or higher level protocol
• SOAP Wrapper
  – Method to transport messages
  – HTTPS will be the mandatory protocol for implementation
    Not necessarily the most efficient transport for the IODEF messages, but was agreed upon by WG for ease of initial implementation
  – Other protocols may be added for optional support
RID Policy

• RID Policy
  – Ensures policy information is transferred between participating RID peers
  – Policy information in RID to prevent policy related issues from relying on the transport mechanism for enforcement
  – Message type is specified in the RIDPolicy class
    *Adding one for reporting/statistics
  – Incident number is referenced in RIDPolicy to facilitate transport

• RIDPolicy Information
  – Identifies where the traffic may have policy issues
    Client to NP
    NP to client
    Within a consortium
    Between peers
    Between consortiums
    Across national boundaries

• Purpose is to try to prevent abuse of the system
  – Address security, confidentiality, and privacy concerns listed in the draft
  – Must be complimented with policies formed by consortiums/federations, or between peers
  – New extension created to address issues raised at IETF-59

• Any comments on RIDPolicy?
Summary

• Updates from the previous version
  – Continuing work on generalization of RID to support transport of all IODEF documents
    Many text updates
    DTD was removed
• Near Future Updates will include
  – RID Schema
    Separate RID schema is an envelope for IODEF, not an extension
    RIDPolicy class references global IODEF attribute for incidentID
    Enumerated lists included for allowed values in schema definition
  – Added message types for incident query and response
  – Added information about IPFix
    IETF flow analysis standard emerging
  – Pending on release of IODEF data model
    Need to ensure documents flow
    Need to update the text sections of document to eliminate DTD references
  – Separate document for SOAP wrapper and transport