PWG WIMS-CIM - Intro to CIM Alerts

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Quick Primer on CIM Alerting

- Quick overview, not details
- Just the alert objects themselves
  - Not the mechanisms for subscription, delivery, filtering, correlation, etc.

Alerts in CIM

- Embodied in the CIM_Indication class tree
- Two primary branches
  - InstIndication: changes in instance properties
  - AlertIndication: specific pre-defined alert conditions
  - We will use AlertIndications
    - Rich model, 25 properties

How an Alert Happens

- Instrumentation is given some interface that it can use to create asynchronous messages
- Alert condition happens
- Instrumentation creates Indication and sends it
- System management agent filters Indication
- System management agent finds subscribed listeners for this type of alert
- Protocol adapter renders Indication in correct format
- Protocol adapter forwards message to subscribers

(What we care about is in blue above)

AlertIndication Properties - 1

- string Description
  - "A short description…."
- string AlertingManagedElement
  - What CIM object caused the alert, who complained
- enum AlertType
  - Communications, QoS, Processing, Device Alert, Environmental, Model Change, Security

AlertIndication Properties - 2

- enum PerceivedSeverity
  - Information, Warning, Minor, Major, Critical, Fatal
- enum ProbableCause
  - Loooooong list
  - Also text string ProbableCauseDescription
  - Many conditions already present, but may need to add some printer-specific values
    - "Material Supply Exhausted" is there, okay
    - Add "Jammed" instead of using "Congestion"

AlertIndication Properties - 3

- **string MessageID**
  - Unique identifier in message registry
- **string array MessageArguments**
  - Dynamic content to be inserted into message
  - Examples: tray names or numbers, media names
- **string Message**
  - Fully formatted message
- **string OwningEntity**
  - Standards body that defines the alert format (= us)

(End of list of properties defining types of alerts)

AlertIndication Properties - 4

- string EventID
  - Ident assigned to real world event
  - Same ID == same underlying event
- datetime EventTime
  - When event first detected, local time
  - Null if device does not know time
- enum Trending
- string array RecommendedActions

AlertIndication Properties - 5

- string IndicationIdentifier
  - Globally unique, of the form <OrgId> ":" <LocalId>
    - So that future alerts can refer back to this one using this unique identifier
    - OrgId is something globally assigned, such as ticker symbol
    - LocalId something unique across devices
- string array CorrelatedIndications
  - IndicationIdentifier strings of other Indications that this one relates to
- datetime IndicationTime
  - When the indication (instance) was created
  - May be null for devices that don't know time

AlertIndication Properties - 6

- string SystemName
  - Scoping system, some name for the printer
- string ProviderName
  - The CIM provider (mapping layer between driver and

AlertIndication Properties - 7

- IndicationFilterName
  - Structural, for delivering alert messages

What Corresponds to Printer Alert

- Description, AlertType, PerceivedSeverity
- MessageID, MessageArguments (sources, not values)
- OwningEntity (= "Printer Working Group")
- ProbableCause maybe

Additional Properties for Provider to Fill In

- EventTime, IndicationTime, EventID
- MessageArguments (values), Message
- AlertingManagedElement
- Trending
- RecommendedActions
- ProviderName, SystemName
- Etc.

Still Not Done

- May define PrinterAlertIndication subclass of AlertIndication to include additional data
  - Depends on how much we can carry forward of the varbind of trap definition
    - SNMP row indices may not be easily translatable

CIM Alert Registry

- Large spreadsheet of messages
  - >500 currently, and growing
- Message, including parameters to be substituted
- Identified by number
  - Corresponding English text
  - Localizable of course
  - Parameters identified by number so they can be moved about when translated
- Take a quick look if anyone cares

Documents

- MOF
  - Definitions of relevant classes
  - As ever, read the "HTML Flat Classes" instead
- Indications Profile, DSP1054, published in dmtf.org
- Registry of Alert Codes, PlatformMessageRegistryVnn.xls

Questions?