

# Telemetry Record/Retrieve Requirements

OMG

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**Telemetry  
Record/Retrieve Facility  
Workshop**

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# DTFs Interested in Telemetry Record/Retrieve Facility

- Health
- Utilities
- Manufacturing
- Transportation
- Electronic Commerce
- Finance
- C4I
- Space

Multiple domains have realized they have a common need for a Telemetry Record/Retrieve facility.

# Telemetry Definition

- (IEEE Std 1000 [1972]) “measurement with the aid of intermediate means that permit the measurement to be interpreted at a distance from the primary detector”

# Requirements Scope

Includes:

- Telemetry Recording
- Retrieval of Telemetry

Does not include:

- Modifications to stored values
- Facility configuration
- User interface

# Record Requirements

- Guaranteed recording, with ability to specify reliability
- Periodic sampling
- Event driven
- Periodic capture of multiple inputs
- Presentation of an event (data) to the interface
- Store data in any form: sound clips, image data, files, dictation, scalar, vector
- Telecom logging
- Each keystroke (air traffic control) and time

# Record Requirements

- Time stamps—possibly sequence of events from origin to user access/knowledge (Time stamping events at origin is perhaps out of scope)
- Ability to accommodate surges of events, buffer data
- Record attributes along with the data source identity, integrity of input, non-repudiation
- Capture information about data source
  - - Associating attributes about groups of data
  - - Metadata

# Record Requirements

- Latency—network, human, of transmission and of recording
- Interfaces to specify quality of recording service with various levels, up to guaranteed recording  
Bundled events? (individual time stamps)
- No requirement for acknowledgement from the recorder to the source
- Negative acknowledgement from the recorder to the source, so it could retransmit

# Retrieve Requirements

- Retrieval based on a variety of attributes
- Retrieval based on the context in which an action occurred, e.g., time stamp or operator interaction
  - Recent events
  - Current state
  - Relevant facts
- Logical associations vs. device-dependent attributes (e.g., screen coordinates)
- Synchronous and asynchronous retrieval provided

# Retrieve Requirements

- All events within a period (could be relative), as in the ability to retrieve all events within a specified time frame
- Specific events identified by attribute, ID or time stamp
- Specific events identified by type
- Ability to browse through events sequentially, either by time or by relationship

# Retrieve Requirements

- Ability to retrieve next event, either by time or by relationship (metadata attribute)
- User-based context of interest—user profile characterizes interest/qualifies requests
- Notification based on standard events, monitored conditions, thresholds, pattern of events
- Present for later or immediate analysis, i.e., immediately analyze events as well as query at any point following recording

# Other Requirements

- Security
  - Record attributes to be used for security
  - Record authorization (as in, who has the authorization to retrieve the record) (also as in, not allowed to record certain data, such a Visa credit card number)
  - Encrypted recording
- Exception service
  - Provide an interface
- Information on metadata, Metadata discovery

# Optional Requirements

- Self-describing data
  - Metadata
  - Schema
- Recording validity
  - Answer the question -- Has recording been tampered with?
  - Recording integrity
- Playback. *Playback could be considered an application that uses the Record/Retrieve facility.*

# Issues

- Privacy/confidentiality, such as legal restrictions on capture of worker activity or keystrokes. Are there restrictions on recording a worker's every keystroke?
- What configuration is required vs what is not?
- Behavior on error condition
- Option to require multiple time stamps, source plus recording.
  - What is the minimum required? Time stamp at recording? None?