

EHR-S FM R2 – Record Infrastructure
Lifecycle Event Metadata
Fulfilled by FHIR Resources

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EHR Record Lifecycle Events (RLE) on FHIR

This Slide Sequence...

- Based on
 - EHR-S FM R2 RI Metadata Requirements
 - Including All Evidentiary Criteria
- Basic
 - Who, What, When, Where, Why
- Evidentiary
 - Record Entry ID, Signature, Pre/Post Event States, Consents, Disclosures

Lifecycle Event Metadata

Who

Lifecycle Event Metadata	FHIR Resource	Resource Attribute(s)
Organization	Provenance	signature : string 0..*
	Provenance.Agent : 0..*	role : Coding 1..1 « ProvenanceAgentRole+ » type : Coding 1..1 « ProvenanceAgentType+ » reference : uri 1..1
Patient	Provenance	signature : string 0..*
	Provenance.Agent : 0..*	role : code 1..1 « ProvenanceEntityRole » type : Coding 1..1 « ProvenanceEntityType+ » reference : uri 1..1
	SecurityEvent.Participant : 1..*	role : CodeableConcept 0..* « DICOMRoleId+ » reference : Resource(Organization Practitioner Patient Device) 0..1 requester : Boolean 1..1
Action - Performer	TBD	

Distinguish Action from Record Metadata. [See Medication Order Example]
 Action-Performer not resolved.
 Need to add RelatedPerson to Practitioner|Patient|Device choice (per Lloyd)?

Lifecycle Event Metadata

Who, con't

Lifecycle Event Metadata	FHIR Resource	Resource Attribute(s)
Record - Author/ User	Provenance	signature : string 0..*
	Provenance.Agent : 0..*	role : Coding 1..1 « ProvenanceAgentRole+ » type : Coding 1..1 « ProvenanceAgentType+ » reference : uri 1..1
	SecurityEvent.Participant : 1..*	role : CodeableConcept 0..* « DICOMRoleId+ » reference : Resource(Practitioner Patient Device) 0..1 userId : string 0..1 requester : Boolean 1..1
Record - System/Device	Provenance	signature : string 0..*
	Provenance.Agent : 0..*	role : Coding 1..1 « ProvenanceAgentRole+ » type : Coding 1..1 « ProvenanceAgentType+ » reference : uri 1..1
	SecurityEvent.Participant : 1..*	role : CodeableConcept 0..* « DICOMRoleId+ » reference : Resource(Practitioner Patient Device) 0..1 userId : string 0..1 requester : Boolean 1..1

Note: Provenance.Agent.reference may resolve to a uri or Resource
Provenance.signature 0..* instead of 0..1

Lifecycle Event Metadata

What

Lifecycle Event Metadata	FHIR Resource	Resource Attribute(s)
Action - Taken	TBD	
Record - Lifecycle Event	SecurityEvent.Event : 1..1	type : CodeableConcept 1..1 « SecurityEventType+ » subtype : CodeableConcept 0..* « SecurityEventSubType+ » action : code 0..1 « SecurityEventAction » policy : uri 0..*
	SecurityEvent.Object : 0..*	identifier : Identifier 0..1 reference : Resource(Any) 0..1 type : code 0..1 « SecurityEventObjectType » role : code 0..1 « SecurityEventObjectRole » lifecycle : code 0..1 « SecurityEventObjectLifecycle »

Action Taken not resolved.

Add policy attribute to SecurityEvent.Event

[See Medication Order Example <corresponding set of Med Order resources>]

Lifecycle Event Metadata

When

Lifecycle Event Metadata	FHIR Resource	Resource Attribute(s)
Action - Date/ Time	TBD	
Record - Date/ Time	Provenance	recorded : instant 1..1
	SecurityEvent.Event : 1..1	dateTime : instant 1..1
Action - Duration/ Elapsed Time	TBD	

Action Date/Time and Duration not resolved.

Lifecycle Event Metadata

Where

Lifecycle Event Metadata	FHIR Resource	Resource Attribute(s)
Action - Physical Location	TBD	
Record - Network Address	Provenance	location : Resource(Location) 0..1
	SecurityEvent.Participant.Network	identifier : string 0..1 type : code 0..1 « SecurityEventParticipantNetworkType »

Action Physical Location not resolved.
Add "location" to SecurityEvent.Event?

Lifecycle Event Metadata

Why

Lifecycle Event Metadata	FHIR Resource	Resource Attribute(s)
Action - Reason, Rationale, Purpose	TBD	
Record - Reason, Rationale, Purpose	Provenance	<i>reason</i> : CodeableConcept 0..1
		<i>policy</i> : uri 0..*
	SecurityEvent.Event : 1..1	<i>reason</i> : CodeableConcept 0..1

Action Reason not resolved
Reason or purpose of use (DICOM)
Add “reason” to SecurityEvent.Event?

Lifecycle Event Metadata

Evidentiary

Lifecycle Event Metadata	FHIR Resource	Resource Attribute(s)
Digital Signature(s)	Provenance	signature : string 0..*
Record Entry ID	SecurityEvent.Object : 0..*	identifier : Identifier 0..1 reference : Resource(Any) 0..1
Record Entry Content ID(s): data, docs, artifacts	SecurityEvent.Object : 0..*, one for each Content item	identifier : Identifier 0..1 reference : Resource(Any) 0..1
Corresponding/ linked Record Entry(ies)	SecurityEvent.Object : 0..*, one for each linked Record Entry	identifier : Identifier 0..1 reference : Resource(Any) 0..1
Amendment/ Translation Sequence	SecurityEvent.Object : 0..*	lifecycle : code 0..1 « SecurityEventObjectLifecycle »
Pointer to Pre Event Entry, if chained	SecurityEvent.Object : 0..*, one to previous instance	identifier : Identifier 0..1 reference : Resource(Any) 0..1

Shouldn't signature be 0..* (System/Device + Individual)?

Lifecycle Event Metadata

Evidentiary, con't

Lifecycle Event Metadata	FHIR Resource	Resource Attribute(s)
Source of Copied Content (e.g., copy/paste template)	SecurityEvent.Object : 0..*, one for each source	identifier : Identifier 0..1 reference : Resource(Any) 0..1 type : code 0..1 « SecurityEventObjectType » role : code 0..1 « SecurityEventObjectRole »
Event is known Disclosure	SecurityEvent.Object : 0..*	lifecycle : code 0..1 « SecurityEventObjectLifecycle », where lifecycle = "disclosure"
Record Entry Permissions	SecurityEvent.Participant : 1..*, one for each participant	role : CodeableConcept 0..* « DICOMRoleId+ » [for role-based] reference : Resource(Practitioner Patient Device) 0..1 userId : string 0..1 [for user-based permissions]
	SecurityEvent.Object : 0..*	sensitivity : code 0..1 « SecurityEvent.object.sensitivity »
Event Transaction Entries	SecurityEvent.Object : 0..*, one for each Record Entry	identifier : Identifier 0..1 reference : Resource(Any) 0..1 type : code 0..1 « SecurityEventObjectType »
Identifier/Version of Translation Tools	SecurityEvent.Participant : 1..*, one for each tool	role : CodeableConcept 0..* « DICOMRoleId+ » reference : Resource(Practitioner Patient Device) 0..1 userId : string 0..1

For SecurityEvent.Participant, role and identifier support role and user-based authorization/access control.