

instance information

draft-bormann-asdf-instance-information-07

Where Were We?

- Productive discussions during and after IETF 124
- Further convergence of the non-affordance and instance-information drafts
- However: message format not formally specified yet
- To resolve: Can we cluster the six message types?

Developments Since IETF 124

- The instance-information draft now copies messages from the non-affordance draft
- Added CDDL definition; formally specified common message format
- Clustered existing messages into four message "archetypes"

Systematization of Instance-Related Messages

(terms are WIP)

		Content	
		Freestanding	Relative
(Intended) Effect	State Exposure	Status Report	Status Report Update
	State Change	Construction	State Patch

Distinguishing Instance-related Messages

- Use media type to differentiate the four archetypes
 - Small differences: which fields may be present
 - Difference: Freestanding or **Relative**
 - Big difference: What is the **intended effect?**

Example: Status Report/Construction

(TODO: improve example)

- Message content is identical, but ...
 - ... different media type
 - ... different recipient
 - ... different effect
- How to set up affordances in construction messages?
(Is simple state information meaningful?)

```
info:  
  messageId: 75532020-8f64-4daf-a241-fcb0b6dc4a42  
namespace:  
  models: https://example.com/models  
  sensors: https://example.com/sensors  
defaultNamespace: models  
sdfInstanceOf:  
  model: sensors:#/sdfObject/envSensor  
sdfInstance:  
  sdfContext:  
    timestamp: '2025-07-01T12:00:00Z'  
    thingId: envSensor:abc123  
    installationInfo:  
      floor: 3  
      mountType: ceiling  
      indoorOutdoor: indoor  
  sdfProperty:  
    updateFrequency: 5
```

Example: Status Report Update/State Patch

(TODO: More example improvement.)

- Messages are very similar, but (in addition to the last slide):
 - In a Status Report **Update**, a `previousMessageId` has to be indicated

```
info:
  messageId: 75532020-8f64-4daf-a241-fcb0b6dc4a42
  # Only present in status report *updates*:
  previousMessageId: 026c1f58-7bb9-4927-81cf-1ca0c25a857b
namespace:
  models: https://example.com/models
  sensors: https://example.com/sensor
defaultNamespace: models
sdfInstanceOf:
  model: sensors:#/sdfObject/envSensor
  patchMethod: merge-patch # default value
sdfInstance:
  sdfContext:
    timestamp: '2025-07-01T12:00:00Z'
    thingId: envSensor:abc123
    installationInfo:
      mountType: ceiling
  sdfProperty:
    temperature: 23.124
```

Relationship With the Earlier Message Types

four "archetypes"

Status Report

Status Report Update

State Patch

Construction Message

six "old" message types

Proofshot;
Context Snapshot;
Identity Manifest

Proofshot Delta

Context Patch

Construction Message (surprise!)

Note: Archetypes can combine **context information** with the operation of **affordances**

Axioms for Instance-Related Messages (TBC)

- The shape of an instance-related message is always governed by an SDF model
- Some instance-related messages are **not** part of the interaction model, but do use the data model
 - Can be considered "built-in" from an SDF point of view
- Others are operating affordances or combining these two
- Mainly for conversion/interoperability purposes, but:
 - Could also be used as an ecosystem-specific format

Questions That are Still Open

- How can we link `sdfProtocolMap` and context information (such as IP addresses)
 - Proposal using JSON Pointers in new section 6
- Is `sdfContext` (more than) "syntactic sugar" for a special `sdfProperty`?
 - The Litmus test is still WIP — is it needed?
- How to model the state of actions and events in instance-related messages?