RFC 8007: CDNi Control Interface / Triggers

- Content/Metadata management
  - Preposition
  - Invalidation
  - Purge

- I-D draft-ietf-cdni-ci-triggers-rfc8007bis
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RFC8007bis: Added Functionality

- **Error Propagation**
  - Identifying the error originating dCDN

- **Trigger Extensibility**
  - Time Policy
  - Location Policy

- **Additional Content Selection Methods**
  - content.regexs
  - content.playlists
RFC8007 Trigger Object Properties

- Type (e.g. preposition)
- cdn-path
- metadata.urls
- content.urls
- content.ccid
- metadata.patterns
- content.patterns
Trigger.v2 Object Properties

- Type (e.g. preposition)
- cdn-path
- Trigger Extensions
  - metadata.urls
  - content.urls
  - content.ccid
  - metadata.patterns
  - content.patterns
Trigger.v2 Object Properties

- Type (e.g. preposition)
- cdn-path
- Trigger Extensions
  - metadata.urls
  - content.urls
  - content.ccid
  - metadata.patterns
  - content.patterns
  - content.regexes
  - content.playlists
Trigger.v3 Object Properties

- Type (e.g. preposition)
- cdn-path
- Trigger Extensions
- metadata.urls
- content.urls
- content.ccid
- metadata.patterns
- content.patterns
- content.regexes
- content.playlists
- content.new-method
New Trigger.v2 Object Properties

- Type (e.g. preposition)
- cdn-path
- **Trigger Extensions**
  - metadata.urls
  - content.urls
  - content.ccid
  - metadata.patterns
  - content.patterns
  - content.regexes
  - content.playlists

- Type (e.g. preposition)
- cdn-path
- **Trigger Extensions**
- **Trigger Specs**
Generic “Spec” Object

- Specifies targets to execute the trigger on
- Generic - several types are already defined
  - UrlsSpec
  - CcidSpec
  - UriPatternsSpec
  - UrlRegexesSpec
  - ContentPlaylistsSpec
  - Future …
- Applies to a specified Trigger-Subject
  - Metadata
  - Content
  - Future …
Generic “Spec” Object - Structure

Properties

- spec-subject
- generic-trigger-spec-type
- generic-trigger-spec-values

```json
{
    "spec-subject": "CIT.Metadata",
    "generic-trigger-spec-type": "CIT.UrlsSpec",
    "generic-trigger-spec-value": {
        "urls": [
            "https://metadata.example.com/a/b/c"
        ]
    }
}
```
Suggested Rename: trigger type → action

- Preposition
- Invalidation
- Purge
trigger.v2: An example

"trigger.v2": {
    "action": "CIT.Preposition",
    "specs": [
        {
            "spec-subject": "CIT.Metadata",
            "generic-trigger-spec-type": "CIT.UrlsSpec",
            "generic-trigger-spec-value": {
                "urls": [
                    "https://metadata.example.com/a/b/c"
                ]
            }
        },
        {
            "spec-subject": "CIT.Content",
            "generic-trigger-spec-type": "CIT.UrlsSpec",
            "generic-trigger-spec-value": {
                "urls": [
                    "https://www.example.com/a/b/c/1",
                    "https://www.example.com/a/b/c/2",
                    "https://www.example.com/a/b/c/3"
                ]
            }
        }
    ]
}
Status.v2 / Error.v2 Object

- Error.v2 Object - adjusting the “Error” object
  - Remove the “metadata.urls” etc. properties
  - Add the “spec” list
- Only the “specs” the error applies to are listed
- Only the spec-values the error applies to are listed
- The Status (status.v2) object is added with a “errors.v2” list
  - As well as a “Trigger.v2” internal object
"errors.v2": [
    {
      "specs": [
        {
          "spec-subject": "CIT.Content",
          "generic-trigger-spec-type": "CIT.UrlsSpec",
          "generic-trigger-spec-value": {
            "urls": [
              "https://www.example.com/a/b/c/2"
            ]
          }
        }
      ],
      "description": "The dCDN rejected a regex due to complexity",
      "error": "ereject",
      "cdn": "AS64500:0"
    }
  ],
Error.v2 Object -
Suggestion - Positional Values

- Simplifies Error parsing by preserving the position of the listed specs

```json
"errors.v2": [
  {
    "specs": [
    {}, // A Place holder for a spec that the error does not applies to
    {
    "spec-subject": "CIT.Content",
    "generic-trigger-spec-type": "CIT.UrlsSpec",
    "generic-trigger-spec-value": {
    "urls": [
    "", // A Place holder for a urls that the error does not applies to
    "https://www.example.com/a/b/c/2"
    ]
    }
    }
  },
...
```
A Thought: CIT Trigger.v2 vs. CIT2 Trigger

- CIT newly defined objects
  - Trigger.v2
  - Status.v2
  - Error.v2
- Renaming the interface itself may simplify things
- As the protocol itself had not changed, we stayed with .v2 objects
Footprint and Capability Interface: CI/T Scope Capability - Requirements

- dCDN may support only some of the actions
  - May depend on the trigger subject
    - e.g. A dCDN supports “preposition” of “content” but not of “metadata”
- The supported actions may also have limitations
  E.g.
  - Preposition of Content supports “TimePolicy” extension, while “purge” doesn’t
  - Content selection via “patterns” is supported, while “regexes” are not supported.
Footprint and Capability Interface: CI/T Scope

Capability - Purpose

- For each combination of
  - Action (preposition, invalidate, purge, … (future))
  - Subject (content, metadata, … (future))

- Specify the supported
  - Generic Spec Types (i.e. targets selection methods)
  - Generic Extension Types (i.e. the “how to” instructions)

- Within the specified footprint
Footprint and Capability Interface: CI/T Scope Capability Object

List of:

trigger-scope-capabilities

- trigger-action
- trigger-subject
- trigger-specs
- trigger-extensions

```json
{
  "capabilities": [
    {
      "capability-type": "FCI.TriggerScope",
      "capability-value": {
        "trigger-scope-capabilities": [
          {
            "trigger-action": "CIT.Preposition",
            "trigger-subject": "CIT.Content",
            "trigger-specs": ["CIT.UrlsSpec", "CIT.CcidSpec"],
            "trigger-extensions": ["CIT.TimePolicy"]
          },
          {
            "trigger-action": "CIT.Invalidate",
            "trigger-subject": "CIT.Content",
            "trigger-specs": ["CIT.UrlsSpec", "CIT.CcidSpec"]
          }
        ]
      }
    },
    "footprints": [ ]
  ]
}
```
Next Steps

• Get remarks and submit an updated draft
• Finalize draft prior to IETF 114 (July)
• Ask for a WGLC by IETF 114