JSON Content Rules (JCR)

A Data Definition Language for JSON
draft-newton-json-content-rules-09

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The Problem

• Complex JSON data structures can be difficult to describe with prose.
• Lengthy prose are tedious to read, challenging if English is not your native language.
• Without formal definitions, protocol test suites are difficult to construct.
• Examples are necessary but not sufficient
  • RDAP and jCard are case studies on why examples only get you so far
We need something that...

- will help specification authors concisely and clearly describe complex JSON
- aid software developers to verify their implementations are specification conformant
- enable the construction of test suites
- and is yet legible to the "casual" reader
  (persons knowledgeable with JSON, experienced with DDLs and schema languages but perhaps not up-to-speed on JCR)
History of JCR

• Original syntax was "JSON-like"
  (one of the inspirations for CDDL)
• Tried a more wordy, verbose syntax. Nobody liked it.
• Syntax is now a super-set of JSON
  • Makes it easy to start writing rules from examples
  • Other cues from ABNF, regex, etc...
  • Many discussions on syntax, and even some usability testing
• Authors are very keen on getting it to work in software first
  • Real-world testing – NicInfo now uses it to verify RDAP
An Example: Decomposing CIDR

```json
[
  {
    "prefix" : "192.0.20.0",
    "length" : 24
  },
  ..
]

$v4cidr = {
  "v4prefix" : ipv4,
  "length" : 0..32
}

$v6cidr = {
  "v6prefix" : ipv6,
  "length" : 0..128
}

$cidrs = [
  $v4cidr + $v6cidr +
]
```
Moving Forward

• Lots of work done
  • Discussion on JSON list (wg is now closed)
  • Also in the GitHub trackers
  • Private email

• Two open issues left
  1. Better way to OR members of objects and their values
  2. A more formal means of extending rules

• Seeking AD sponsorship via DISPATCH

more at www.json-content-rules.org