Group Communication for the Constrained Application Protocol (CoAP)

draft-ietf-core-groupcomm-bis-06

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IETF 113 Meeting – Vienna – March 25, 2022

Following IETF 112 & CoRE interim…

- **Examples** were added for:
  - Encoding application group names in CoAP requests (issue #28)
  - Discovery of CoAP groups and application groups on CoAP servers (issue #29)
  - Message exchanges for group communication – new Appendix B

- Removed the (confusing) usage of **URI Host Option** to encode an application group name

- Text & editorial improvements

- All open issues now closed!

2.2.1 - Name encoding of app groups

- Application group name ‘gp1’ encoded in URI path

- Examples updated

```
Application group name: gp1

  Group URI: coap://grp.example.org:5685/gp/gp1/light?foo=bar

  CoAP group request
     Header: GET (T=NON, Code=0.01, MID=0x7d41)
     Uri-Host: grp.example.org
     Uri-Path: gp
     Uri-Path: gp1
     Uri-Path: light
     Uri-Query: foo=bar
```

```
Application group name: gp1

  Group URI: coap://[ff35:30:2001:db8:f1::8000:1]/g/gp1/li

  CoAP group request
     Header: POST (T=NON, Code=0.02, MID=0x7d41)
     Uri-Path: g
     Uri-Path: gp1
     Uri-Path: li
```

(Further examples not shown)

2.2.3.2 – Group discovery examples

- Discover groups without Resource Directory – using CoAP Discovery
- Given a CoAP group, discover …
  - The associated application groups
  - The servers in it and each group's resources

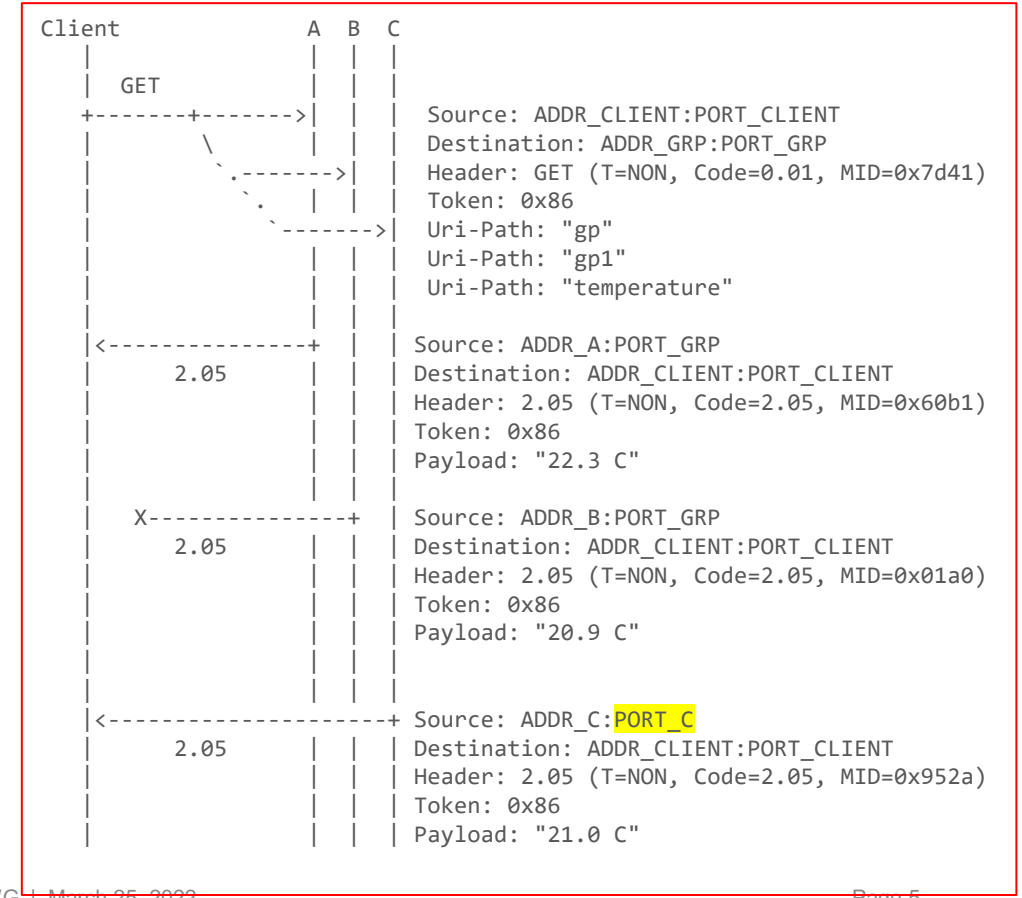
```
// Request to all members of the CoAP group
Req: GET coap://grp.example.org:5685/.well-known/core?rt=g.*

// Response from server S1, as member of:
//   - The CoAP group "grp.example.org:5685"
//   - The application group "gp1"
Res: 2.05 Content
Content-Format: 40
Payload:
</gp/gp1>;rt=g.light

// Response from server S2, as member of:
// - The CoAP group "grp.example.org:5685"
// - The application groups "gp1" and "gp2"
Res: 2.05 Content
Content-Format: 40
Payload:
</gp/gp1>;rt=g.light,
</gp/gp2>;rt=g.temp
```

Figure 11: Discovery of application groups associated with a CoAP group

(Further examples not shown)

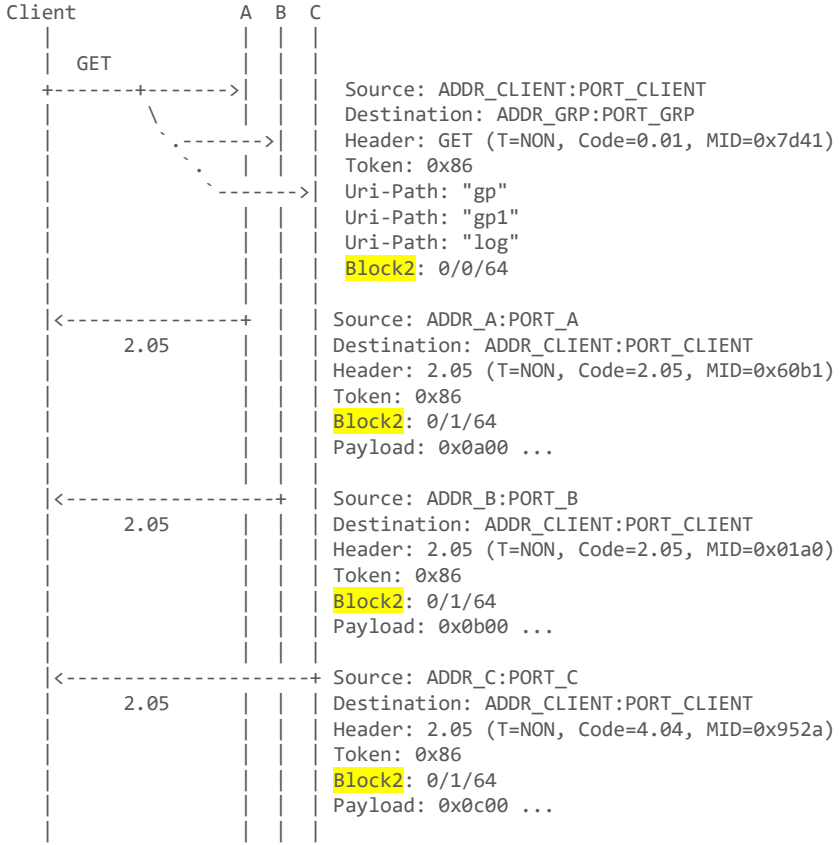
Appendix B – Message exchange examples

- Example 1 (basic)
  - Request over multicast
  - 3 Responses follow
  - 1 Response is lost
  - With a special twist (allowed for server)



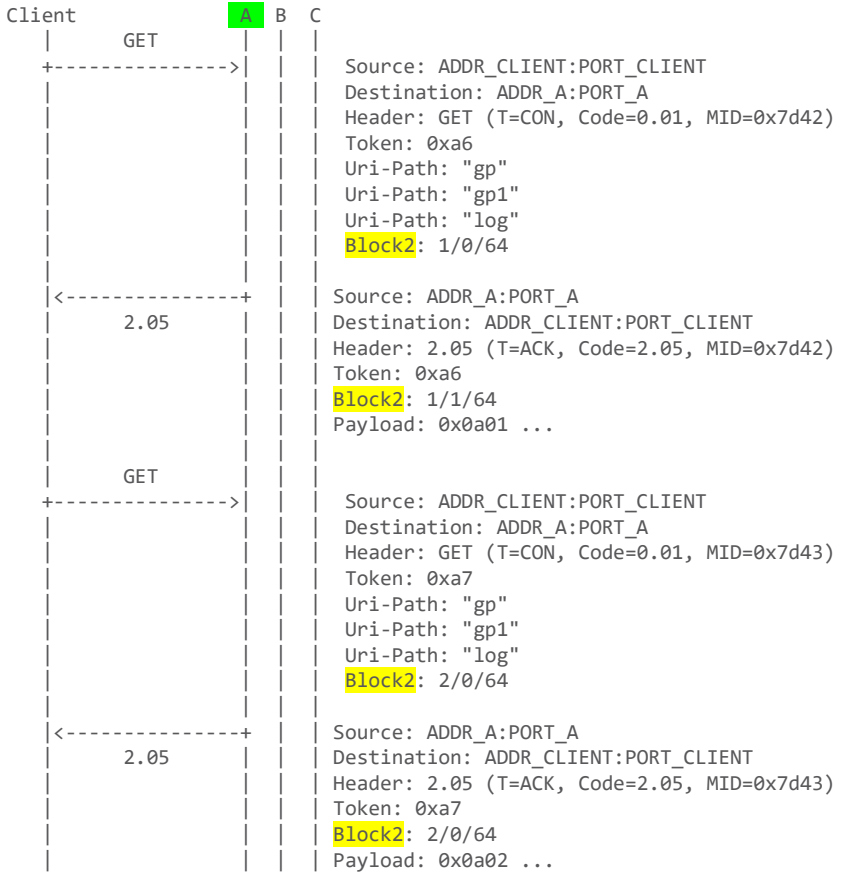
Appendix B – Message exchange examples

- Example 3 (advanced)
  - Request over multicast
  - 3 Responses follow
  - Block-wise transfer used



Appendix B – Message exchange examples

- Example 3 (continued)
  - Client continues with unicast block-wise transfer for each server



Appendix B – Message exchange examples

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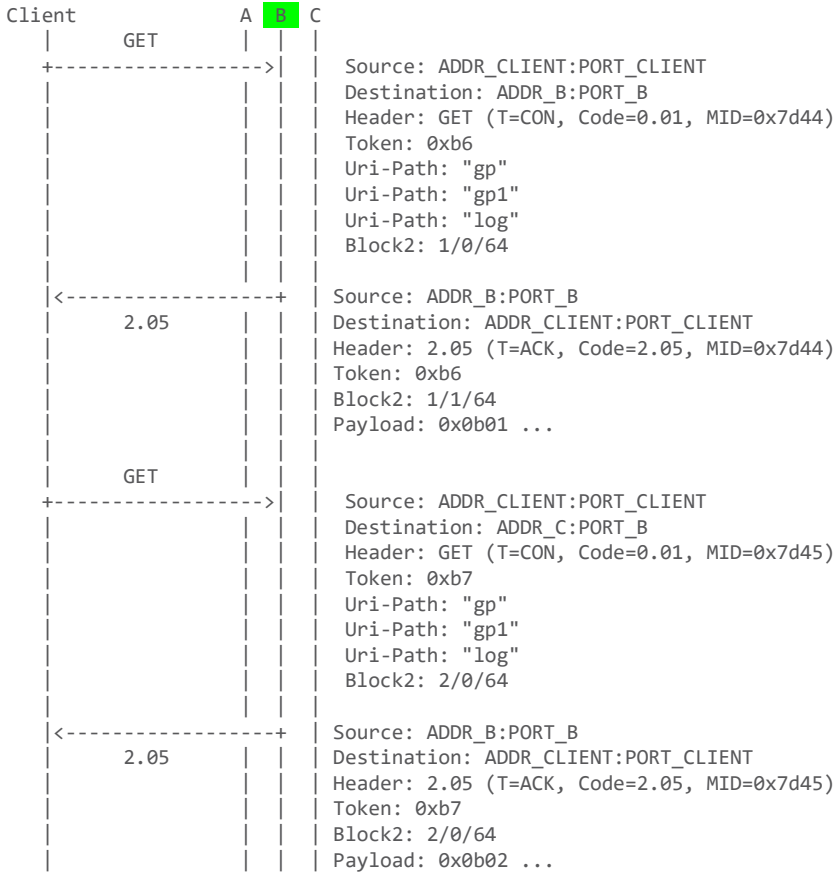

Next steps

- Ready for Working Group Last Call (for -06)

Thank you!

Comments/questions?

https://github.com/core-wg/groupcomm-bis/

Goal

- Normative successor of experimental RFC 7390
  - Obsoletes RFC 7390, Updates RFC 7252 / 7641
- New standard reference for implementations now based on RFC 7390
- Scope
  - CoAP group communication, including latest features: Observe/Blockwise/Security …
  - Unsecured & group-OSCORE-secured
  - Definition of group types & Secure group configuration

Motivation (backup slide)

- RFC 7390 was published in 2014
  - CoAP functionalities available by then were covered
  - No group security solution was available to indicate
  - It is an Experimental document (started as Informational)
- What has changed?
  - More CoAP functionalities have been developed (Block-Wise, Observe)
  - RESTful interface for membership configuration is not really used
  - Group OSCORE provides group end-to-end security for CoAP
- Practical considerations
  - Group OSCORE clearly builds on RFC 7390 normatively
  - However, it can refer RFC 7390 only informationally