

Delay-Tolerant Networks (DTN) IANA Registries

DTNRG, IETF 77 Anaheim

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Goals

- Goal of the draft
 - Handover maintenance of dtn protocol registries from (<http://www.dtnrg.org/wiki/AssignedNamesAndNumbers>) to IANA
 - Define policies for registering new assignments
- Goal of this presentation
 - Present all candidate registries
 - Decide for each candidate
 - If we need a registry
 - The content
 - Registration policy
 - Decide if document becomes a rg doc

Registration Policies

- RFC5226 « Choices »:
 - Private Use
 - Experimental Use
 - Hierarchical Allocation
 - First Come First Served
 - Expert Review (or Designated Expert)
 - Specification Required
 - RFC Required
 - IETF Review - Formerly called "IETF Consensus"
 - Standards Action
 - IESG Approval

Bundle Protocol (RFC5050)

Bundle Block Type code

- RFC5050 4.5.2
- Registration Policy:
 - 0-191: Specification Required
 - 192-255: Private or experimental use. No assignment by IANA

Bundle Block Type code

Value	Description	Reference
0	Reserved	This document
1	Bundle Payload Block	[RFC5050]
2	Bundle Authentication Block	[I-D.irtf-dtnrg-bundle-security]
3	Bundle Security Block	[I-D.irtf-dtnrg-bundle-security]
4	Payload Confidentiality Block	[I-D.irtf-dtnrg-bundle-security]
5	Previous Hop Insertion Block	[I-D.irtf-dtnrg-bundle-previous-hop-block]
6	Proxy EID Extension Block	[I-D.symington-dtnrg-bundle-multicast-custodial]
7	Retransmission Block	[I-D.irtf-dtnrg-bundle-retrans-block]
8	Metadata Extension Block	[I-D.irtf-dtnrg-bundle-metadata-block]
9	Extension Security Block	[I-D.irtf-dtnrg-bundle-security]
10-19	Unassigned	
20	Extended Class of Service Block	[I-D.irtf-dtnrg-ecos]
TBD	SCHL Extension Block	[I-D.fall-dtnrg-schl]
TBD-191	Unassigned	
192-255	Private and/or experimental use	[RFC5050]

Bundle Block Type code

- Decisions:
 - Value 0, not defined in spec, nor in adhoc registry. Proposing 'Reserved' (as generic practice for possible future extensions signaling)
 - Registration policy

Primary Bundle Protocol Version

- RFC5050 4.5.1
- Not currently in adhoc registry
- Registration Policy: RFC required

Primary Bundle Protocol Version

Value	Description	Reference
0-5	Reserved	This document
6	Assigned	[RFC5050]
7-255	Unassigned	

Primary Bundle Protocol Version

- Decisions:
 - Values 0-5 undefined in spec.
 - 0-5 Reserved?
 - 0 Reserved, 1-4 Unassigned?
 - Registration Policy

Bundle Processing Control Flags

- RFC5050 4.2
- Not currently in adhoc registry
- Registration Policy: Specification required

Bundle Processing Control Flags

Bit Position (right to left)	Description	Reference
0	Bundle is a fragment	[RFC5050]
1	Application data unit is an administrative record	[RFC5050]
2	Bundle must not be fragmented	[RFC5050]
3	Custody transfer is requested	[RFC5050]
4	Destination endpoint is a singleton	[RFC5050]
5	Acknowledgement by application is requested	[RFC5050]
6	Reserved	[RFC5050]
7-8	Class of service: priority	[RFC5050]
9-13	Class of service: reserved	[RFC5050]
14	Request reporting of bundle reception	[RFC5050]
15	Request reporting of custody acceptance	[RFC5050]
16	Request reporting of bundle forwarding	[RFC5050]
17	Request reporting of bundle delivery	[RFC5050]
18	Request reporting of bundle deletion	[RFC5050]
19	Reserved	[RFC5050]
20	Reserved	[RFC5050]

Bundle Processing Control Flags

- Decisions:
 - Registration Policy

Block Processing Control Flags

- RFC5050 4.3
- Not currently in adhoc registry
- Registration Policy: Specification required

Block Processing Control Flags

Bit Position (right to left)	Description	Reference
0	Block must be replicated in every fragment	[RFC5050]
1	Transmit status report if block can't be processed	[RFC5050]
2	Delete bundle if block can't be processed	[RFC5050]
3	Last block	[RFC5050]
4	Discard block if it can't be processed	[RFC5050]
5	Block was forwarded without being processed	[RFC5050]
6	Block contains an EID-reference field	[RFC5050]

Block Processing Control Flags

- Decisions:
 - Registration Policy

Bundle Status Report Flags

- RFC5050 6.1.1
- Not currently in adhoc registry
- Registration Policy: Specification required

Bundle Status Report Flags

Value	Description	Reference
00000000	Reserved	This document
00000001	Reporting node received bundle	[RFC5050]
00000010	Reporting node accepted custody of bundle	[RFC5050]
00000100	Reporting node forwarded the bundle	[RFC5050]
00001000	Reporting node delivered the bundle	[RFC5050]
00010000	Reporting node deleted the bundle	[RFC5050]
00100000	Unassigned	[RFC5050]
01000000	Unassigned	[RFC5050]
10000000	Unassigned	[RFC5050]

Bundle Status Report Flags

- Decisions:
 - Value 0, not defined in spec. Proposing 'Reserved' (as generic practice for possible future extensions signaling)
 - Registration policy

Bundle Status Report Reason Codes

- RFC5050 6.1.1
- In adhoc registry
- Registration Policy: Specification required

Bundle Status Report Reason Codes

Value	Description	Reference
0	No additional information	[RFC5050]
1	Lifetime expired	[RFC5050]
2	Forwarded over unidirectional link	[RFC5050]
3	Transmission canceled	[RFC5050]
4	Depleted storage	[RFC5050]
5	Destination endpoint ID unintelligible	[RFC5050]
6	No known route to destination from here	[RFC5050]
7	No timely contact with next node on route	[RFC5050]
8	Block unintelligible	[RFC5050]
9-255	Unassigned	

Bundle Status Report Reason Codes

- Decisions:
 - No « reserved » codepoint. 255?
 - Registration policy

Bundle Custody Signal Reason Codes

- RFC5050 6.1.2
- In adhoc registry
- Registration Policy: Specification required

Bundle Custody Signal Reason Codes

Value	Description	Reference
0	No additional information	[RFC5050]
1-2	Unassigned	
3	Redundant reception (reception by a node that is a custodial node for this bundle)	[RFC5050]
4	Depleted storage	[RFC5050]
5	Destination endpoint ID unintelligible	[RFC5050]
6	No known route to destination from here	[RFC5050]
7	No timely contact with next node on route	[RFC5050]
8	Block unintelligible	[RFC5050]
9	Bundle Forwarded Non-custodially	[I-D.symington-dtnrg-bundle-multicast-custodial]
10-127	Unassigned	

Bundle Custody Signal Reason Codes

- Decisions:
 - No « reserved » codepoint. 127?
 - Registration policy

URI Scheme

- 'dtn'
- Currently « Provisional »
- Move to « Permanent »? (per RFC4395)
Ready?

Media Type

- Need for 'application/dtn'?
- Mentionned in adhoc registry.

LickLider (RFC5326)

(Candidate registries not already defined)

LickLider Protocol Version

- RFC5326 3.1
- Not currently in adhoc registry
- Registration Policy: RFC required

LickLider Protocol Version

Value	Description	Reference
0	RFC 5326 version	[RFC5326]
1-15	Unassigned	

LickLider Protocol Version

- Decisions:
 - Registration Policy

LickLider Cancel Segments Reason Codes

- RFC5326 3.2.4
- Not currently in adhoc registry
- Registration Policy: Specification required

LickLider Cancel Segments Reason Codes

Value	Mnemonic	Description	Reference
0	USR_CNCLD	Client service canceled session	[RFC5326]
1	UNREACH	Unreachable client service	[RFC5326]
2	RLEXC	Retransmission limit exceeded	[RFC5326]
3	MISCOLORED	Received either a red-part data segment at block offset above any green-part data segment offset or a green-part data segment at block offset below any red-part data segment offset	[RFC5326]
4	SYS_CNCLD	A system error condition caused unexpected session termination	[RFC5326]
5	RXMTCYCEXC	Exceeded the Retransmission-Cycles limit	[RFC5326]
6-255	Unassigned		

LickLider Cancel Segments Reason Codes

- Decisions:
 - RFC5326 says 6-255 is "reserved". does that mean no new assignment, or "unassigned"?
 - Should one codepoint be « reserved »? 255?
 - Registration policy

Next Steps

- New rev based on comments received
- Review other dtn documents for other candidate registries.
- RG document?