

Network Working Group	M. Blanchet	
Internet-Draft	Viagenie	
Intended status: Informational	April 28, 2010	
Expires: October 30, 2010		

[TOC](#)

Delay-Tolerant Networks (DTN) Bundle Protocol IANA Registries draft-irtf-dtnrg-iana-bp-registries-00.txt

Abstract

The DTNRG research group has defined many protocols such as Bundle Protocol and Licklider. The specifications of these protocols contain fields that are subject to a registry. For the purpose of its research work, the group created adhoc registries. As the specifications are stable and have multiple interoperable implementations, the group would like to handoff the registries to IANA for official custody. This document describes the actions needed to be executed by IANA.

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Table of Contents

- [1.](#) Introduction
 - [2.](#) Bundle Protocol
 - [2.1.](#) Bundle Block Types
 - [2.2.](#) Primary Bundle Protocol Version
 - [2.3.](#) Bundle Processing Control Flags
 - [2.4.](#) Block Processing Control Flags
 - [2.5.](#) Bundle Status Report Flags
 - [2.6.](#) Bundle Status Report Reason Codes
 - [2.7.](#) Bundle Custody Signal Reason Codes
 - [3.](#) Security Considerations
 - [4.](#) IANA Considerations
 - [5.](#) Acknowledgements
 - [6.](#) Normative References
 - [§](#) Author's Address
-

1. Introduction

[TOC](#)

The DTNRG research group has defined many protocols[\[RFC4838\]](#) (Cerf, V., Burleigh, S., Hooke, A., Torgerson, L., Durst, R., Scott, K., Fall, K., and H. Weiss, "Delay-Tolerant Networking Architecture," April 2007.) such as Bundle Protocol[\[RFC5050\]](#) (Scott, K. and S. Burleigh, "Bundle Protocol Specification," November 2007.) and Licklider[\[RFC5326\]](#) (Ramadas, M., Burleigh, S., and S. Farrell, "Licklider Transmission Protocol - Specification," September 2008.). The specifications of these protocols contain fields that are subject to a registry. For the purpose of its research work, the group created [adhoc registries](#). As the specifications are stable and have multiple interoperable implementations, the group would like to handoff the registries to IANA for official custody. This document describes the actions needed to be executed by IANA.

2. Bundle Protocol

[TOC](#)

The Bundle Protocol(BP)[\[RFC5050\]](#) (Scott, K. and S. Burleigh, "Bundle Protocol Specification," November 2007.) has fields requiring a registry managed by IANA.

[TOC](#)

2.1. Bundle Block Types

The Bundle Protocol has a Bundle Block Type code field ([section 4.5.2](#)) ([Scott, K. and S. Burleigh, "Bundle Protocol Specification," November 2007.](#)) [RFC5050]. An IANA registry shall be setup as follows. The registration policy for this registry is:

0-191: Specification Required

192-255: Private or experimental use. No assignment by IANA.

The Value range is: unsigned 8 bit integer.

Bundle Block Type Codes Registry

Value	Description	Reference
0	Reserved	This document
1	Bundle Payload Block	[RFC5050] (Scott, K. and S. Burleigh, "Bundle Protocol Specification," November 2007.)
2-191	Unassigned	
192-255	Private and/or experimental use	[RFC5050] (Scott, K. and S. Burleigh, "Bundle Protocol Specification," November 2007.)

The value "0" was not defined in any document or in the adhoc registry. As per consensus by the DNTRG research group, it is reserved per this document.

2.2. Primary Bundle Protocol Version

[TOC](#)

The Bundle Protocol has a version field ([section 4.5.1](#)) ([Scott, K. and S. Burleigh, "Bundle Protocol Specification," November 2007.](#))

[RFC5050]. An IANA registry shall be setup as follows.

The registration policy for this registry is: RFC Required

The Value range is: unsigned 8 bit integer.

Primary Bundle Protocol Version Registry

Value	Description	Reference
0-5	Reserved	This document
6	Assigned	[RFC5050] (Scott, K. and S. Burleigh, "Bundle Protocol Specification," November 2007.)

7-255	Unassigned	
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The value "0-5" was not defined in any document or in the adhoc registry. As per consensus by the DNTRG research group, it is reserved per this document.

2.3. Bundle Processing Control Flags

[TOC](#)

The Bundle Protocol has a Bundle Processing Control flags field ([section 4.2](#)) ([Scott, K. and S. Burleigh, "Bundle Protocol Specification," November 2007.](#)) [RFC5050]. An IANA registry shall be setup as follows.

The registration policy for this registry is: Specification Required
The Value range is: Variable length.

Bundle Processing Control Flags Registry

Bit Position (right to left)	Description	Reference
0	Bundle is a fragment	[RFC5050] (Scott, K. and S. Burleigh, "Bundle Protocol Specification," November 2007.)
1	Application data unit is an administrative record	[RFC5050] (Scott, K. and S. Burleigh, "Bundle Protocol Specification," November 2007.)
2	Bundle must not be fragmented	[RFC5050] (Scott, K. and S. Burleigh, "Bundle Protocol Specification," November 2007.)
3	Custody transfer is requested	[RFC5050] (Scott, K. and S. Burleigh, "Bundle Protocol Specification," November 2007.)
4	Destination endpoint is a singleton	[RFC5050] (Scott, K. and S. Burleigh, "Bundle Protocol Specification," November 2007.)

5	Acknowledgement by application is requested	[RFC5050] (Scott, K. and S. Burleigh, "Bundle Protocol Specification," November 2007.)
6	Reserved	[RFC5050] (Scott, K. and S. Burleigh, "Bundle Protocol Specification," November 2007.)
7-8	Class of service: priority	[RFC5050] (Scott, K. and S. Burleigh, "Bundle Protocol Specification," November 2007.)
9-13	Class of service: reserved	[RFC5050] (Scott, K. and S. Burleigh, "Bundle Protocol Specification," November 2007.)
14	Request reporting of bundle reception	[RFC5050] (Scott, K. and S. Burleigh, "Bundle Protocol Specification," November 2007.)
15	Request reporting of custody acceptance	[RFC5050] (Scott, K. and S. Burleigh, "Bundle Protocol Specification," November 2007.)
16	Request reporting of bundle forwarding	[RFC5050] (Scott, K. and S. Burleigh, "Bundle Protocol Specification," November 2007.)
17	Request reporting of bundle delivery	[RFC5050] (Scott, K. and S. Burleigh, "Bundle Protocol Specification," November 2007.)
18	Request reporting of bundle deletion	[RFC5050] (Scott, K. and S. Burleigh, "Bundle Protocol Specification," November 2007.)
19	Reserved	

		[RFC5050] (Scott, K. and S. Burleigh, "Bundle Protocol Specification," November 2007.)
20	Reserved	[RFC5050] (Scott, K. and S. Burleigh, "Bundle Protocol Specification," November 2007.)

2.4. Block Processing Control Flags

[TOC](#)

The Bundle Protocol has a Block Processing Control flags field ([section 4.3\) \(Scott, K. and S. Burleigh, "Bundle Protocol Specification," November 2007.\)](#) [RFC5050]. An IANA registry shall be setup as follows. The registration policy for this registry is: Specification Required
The Value range is: Variable length.

Block Processing Control Flags Registry

Bit Position (right to left)	Description	Reference
0	Block must be replicated in every fragment	[RFC5050] (Scott, K. and S. Burleigh, "Bundle Protocol Specification," November 2007.)
1	Transmit status report if block can't be processed	[RFC5050] (Scott, K. and S. Burleigh, "Bundle Protocol Specification," November 2007.)
2	Delete bundle if block can't be processed	[RFC5050] (Scott, K. and S. Burleigh, "Bundle Protocol Specification," November 2007.)
3	Last block	[RFC5050] (Scott, K. and S. Burleigh, "Bundle Protocol Specification," November 2007.)
4	Discard block if it can't be processed	[RFC5050] (Scott, K. and S. Burleigh, "Bundle Protocol Specification," November 2007.)
5	Block was forwarded without being processed	[RFC5050] (Scott, K. and S. Burleigh, "Bundle Protocol Specification," November 2007.)
6	Block contains an EID-reference field	

[\[RFC5050\] \(Scott, K. and S. Burleigh, "Bundle Protocol Specification," November 2007.\)](#)

2.5. Bundle Status Report Flags

[TOC](#)

The Bundle Protocol has a Status Report Status Flag field([section 6.1.1\) \(Scott, K. and S. Burleigh, "Bundle Protocol Specification," November 2007.\)](#) [RFC5050]. An IANA registry shall be setup as follows. The registration policy for this registry is: RFC Required
The Value range is: 8 bits.

Bundle Status Report Flags Registry

Value	Description	Reference
00000000	Reserved	This document
00000001	Reporting node received bundle	[RFC5050] (Scott, K. and S. Burleigh, "Bundle Protocol Specification," November 2007.)
00000010	Reporting node accepted custody of bundle	[RFC5050] (Scott, K. and S. Burleigh, "Bundle Protocol Specification," November 2007.)
00000100	Reporting node forwarded the bundle	[RFC5050] (Scott, K. and S. Burleigh, "Bundle Protocol Specification," November 2007.)
00001000	Reporting node delivered the bundle	[RFC5050] (Scott, K. and S. Burleigh, "Bundle Protocol Specification," November 2007.)
00010000	Reporting node deleted the bundle	[RFC5050] (Scott, K. and S. Burleigh, "Bundle Protocol Specification," November 2007.)
00100000	Unassigned	
01000000	Unassigned	
10000000	Unassigned	

The value "00000000" was not defined in any document or in the adhoc registry. As per consensus by the DNTRG research group, it is reserved per this document.

[TOC](#)

2.6. Bundle Status Report Reason Codes

The Bundle Protocol has a Bundle Status Report Reason Codes field([section 6.1.1](#)) ([Scott, K. and S. Burleigh, "Bundle Protocol Specification," November 2007.](#)) [RFC5050]. An IANA registry shall be setup as follows.

The registration policy for this registry is: Specification Required
The Value range is: unsigned 8 bit integer.

Bundle Status Report Reason Codes Registry

Value	Description	Reference
0	No additional information	[RFC5050] (Scott, K. and S. Burleigh, "Bundle Protocol Specification," November 2007.)
1	Lifetime expired	[RFC5050] (Scott, K. and S. Burleigh, "Bundle Protocol Specification," November 2007.)
2	Forwarded over unidirectional link	[RFC5050] (Scott, K. and S. Burleigh, "Bundle Protocol Specification," November 2007.)
3	Transmission canceled	[RFC5050] (Scott, K. and S. Burleigh, "Bundle Protocol Specification," November 2007.)
4	Depleted storage	[RFC5050] (Scott, K. and S. Burleigh, "Bundle Protocol Specification," November 2007.)
5	Destination endpoint ID unintelligible	[RFC5050] (Scott, K. and S. Burleigh, "Bundle Protocol Specification," November 2007.)
6	No known route to destination from here	[RFC5050] (Scott, K. and S. Burleigh, "Bundle Protocol Specification," November 2007.)
7	No timely contact with next node on route	[RFC5050] (Scott, K. and S. Burleigh, "Bundle Protocol Specification," November 2007.)
8	Block unintelligible	[RFC5050] (Scott, K. and S. Burleigh, "Bundle Protocol Specification," November 2007.)
9-254	Unassigned	
255	Reserved	This document

The value "255" was not defined in any document or in the adhoc registry. As per consensus by the DNTRG research group, it is reserved per this document.

2.7. Bundle Custody Signal Reason Codes

[TOC](#)

The Bundle Protocol has a Bundle Custody Signal Reason Codes field([section 6.1.2](#)) ([Scott, K. and S. Burleigh, "Bundle Protocol Specification," November 2007.](#)) [RFC5050]. An IANA registry shall be setup as follows.

The registration policy for this registry is: Specification Required
The Value range is: unsigned 7 bit integer.

Bundle Custody Signal Reason Codes Registry

Value	Description	Reference
0	No additional information	[RFC5050] (Scott, K. and S. Burleigh, "Bundle Protocol Specification," November 2007.)
1-2	Unassigned	
3	Redundant reception (reception by a node that is a custodial node for this bundle)	[RFC5050] (Scott, K. and S. Burleigh, "Bundle Protocol Specification," November 2007.)
4	Depleted storage	[RFC5050] (Scott, K. and S. Burleigh, "Bundle Protocol Specification," November 2007.)
5	Destination endpoint ID unintelligible	[RFC5050] (Scott, K. and S. Burleigh, "Bundle Protocol Specification," November 2007.)
6	No known route to destination from here	[RFC5050] (Scott, K. and S. Burleigh, "Bundle Protocol

		Specification," November 2007.)
7	No timely contact with next node on route	[RFC5050] (Scott, K. and S. Burleigh, "Bundle Protocol Specification," November 2007.)
8	Block unintelligible	[RFC5050] (Scott, K. and S. Burleigh, "Bundle Protocol Specification," November 2007.)
9-126	Unassigned	
127	Reserved	This document

The value "127" was not defined in any document or in the adhoc registry. As per consensus by the DNTRG research group, it is reserved per this document.

3. Security Considerations

[TOC](#)

This document requests the creation of registries managed by IANA. There is no security issues involved. Refer to Security Considerations of the referenced protocols.

4. IANA Considerations

[TOC](#)

IANA is requested to create the registries as described in the previous sections.

5. Acknowledgements

[TOC](#)

The editor would like to thank the following people who have provided comments and suggestions to this document, in no specific order: Stephen Farrell, Daniel Ellard, Scott Burleigh, Keith Scott.

6. Normative References

[TOC](#)

[RFC4838]	Cerf, V., Burleigh, S., Hooke, A., Torgerson, L., Durst, R., Scott, K., Fall, K., and H. Weiss, " Delay-Tolerant Networking Architecture ," RFC 4838, April 2007 (TXT).
[RFC5050]	Scott, K. and S. Burleigh, " Bundle Protocol Specification ," RFC 5050, November 2007 (TXT).
[RFC5326]	Ramadas, M., Burleigh, S., and S. Farrell, " Licklider Transmission Protocol - Specification ," RFC 5326, September 2008 (TXT).

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[TOC](#)

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