

# [MS-RDC]: Remote Differential Compression Algorithm Specification

---

## Intellectual Property Rights Notice for Open Specifications Documentation

- **Technical Documentation.** Microsoft publishes Open Specifications documentation for protocols, file formats, languages, standards as well as overviews of the interaction among each of these technologies.
- **Copyrights.** This documentation is covered by Microsoft copyrights. Regardless of any other terms that are contained in the terms of use for the Microsoft website that hosts this documentation, you may make copies of it in order to develop implementations of the technologies described in the Open Specifications and may distribute portions of it in your implementations using these technologies or your documentation as necessary to properly document the implementation. You may also distribute in your implementation, with or without modification, any schema, IDL's, or code samples that are included in the documentation. This permission also applies to any documents that are referenced in the Open Specifications.
- **No Trade Secrets.** Microsoft does not claim any trade secret rights in this documentation.
- **Patents.** Microsoft has patents that may cover your implementations of the technologies described in the Open Specifications. Neither this notice nor Microsoft's delivery of the documentation grants any licenses under those or any other Microsoft patents. However, a given Open Specification may be covered by Microsoft [Open Specification Promise](#) or the [Community Promise](#). If you would prefer a written license, or if the technologies described in the Open Specifications are not covered by the Open Specifications Promise or Community Promise, as applicable, patent licenses are available by contacting [iplg@microsoft.com](mailto:iplg@microsoft.com).
- **Trademarks.** The names of companies and products contained in this documentation may be covered by trademarks or similar intellectual property rights. This notice does not grant any licenses under those rights.
- **Fictitious Names.** The example companies, organizations, products, domain names, e-mail addresses, logos, people, places, and events depicted in this documentation are fictitious. No association with any real company, organization, product, domain name, email address, logo, person, place, or event is intended or should be inferred.

**Reservation of Rights.** All other rights are reserved, and this notice does not grant any rights other than specifically described above, whether by implication, estoppel, or otherwise.

**Tools.** The Open Specifications do not require the use of Microsoft programming tools or programming environments in order for you to develop an implementation. If you have access to Microsoft programming tools and environments you are free to take advantage of them. Certain Open Specifications are intended for use in conjunction with publicly available standard specifications and network programming art, and assumes that the reader either is familiar with the aforementioned material or has immediate access to it.

---

1 / 76

[MS-RDC] – v20120705  
Remote Differential Compression Algorithm Specification

Copyright © 2012 Microsoft Corporation.

Release: Thursday, July 5, 2012

MICROSOFT  
EXHIBIT 1008

Page 1 of 76

## Revision Summary

Date	Revision History	Revision Class	Comments
03/14/2007	1.0		Version 1.0 release
04/10/2007	1.1		Version 1.1 release
05/18/2007	1.2		Version 1.2 release
06/08/2007	1.2.1	Editorial	Revised and edited the technical content.
07/10/2007	1.2.2	Editorial	Revised and edited the technical content.
08/17/2007	1.2.3	Editorial	Revised and edited the technical content.
09/21/2007	1.2.4	Editorial	Revised and edited the technical content.
10/26/2007	1.2.5	Editorial	Revised and edited the technical content.
01/25/2008	1.2.6	Editorial	Revised and edited the technical content.
03/14/2008	1.2.7	Editorial	Revised and edited the technical content.
06/20/2008	1.3	Minor	Updated the technical content.
07/25/2008	1.3.1	Editorial	Revised and edited the technical content.
08/29/2008	2.0	Major	Updated and revised the technical content.
10/24/2008	2.0.1	Editorial	Revised and edited the technical content.
12/05/2008	3.0	Major	Updated and revised the technical content.
01/16/2009	3.0.1	Editorial	Revised and edited the technical content.
02/27/2009	3.0.2	Editorial	Revised and edited the technical content.
04/10/2009	3.0.3	Editorial	Revised and edited the technical content.
05/22/2009	3.0.4	Editorial	Revised and edited the technical content.
07/02/2009	3.0.5	Editorial	Revised and edited the technical content.
08/14/2009	3.0.6	Editorial	Revised and edited the technical content.
09/25/2009	3.0.7	Editorial	Revised and edited the technical content.
11/06/2009	3.0.8	Editorial	Revised and edited the technical content.
12/18/2009	3.0.9	Editorial	Revised and edited the technical content.
01/29/2010	3.0.10	Editorial	Revised and edited the technical content.
03/12/2010	4.0	Major	Updated and revised the technical content.

2 / 76

[MS-RDC] – v20120705  
Remote Differential Compression Algorithm Specification

Copyright © 2012 Microsoft Corporation.

Release: Thursday, July 5, 2012

Page 2 of 76

Date	Revision History	Revision Class	Comments
04/23/2010	5.0	Major	Updated and revised the technical content.
06/04/2010	5.0.1	Editorial	Revised and edited the technical content.
07/16/2010	5.0.1	No change	No changes to the meaning, language, or formatting of the technical content.
08/27/2010	5.0.1	No change	No changes to the meaning, language, or formatting of the technical content.
10/08/2010	5.0.1	No change	No changes to the meaning, language, or formatting of the technical content.
11/19/2010	5.1	Minor	Clarified the meaning of the technical content.
01/07/2011	5.1	No change	No changes to the meaning, language, or formatting of the technical content.
02/11/2011	5.1	No change	No changes to the meaning, language, or formatting of the technical content.
03/25/2011	5.1	No change	No changes to the meaning, language, or formatting of the technical content.
05/06/2011	5.1	No change	No changes to the meaning, language, or formatting of the technical content.
06/17/2011	5.2	Minor	Clarified the meaning of the technical content.
09/23/2011	5.2	No change	No changes to the meaning, language, or formatting of the technical content.
12/16/2011	5.2	No change	No changes to the meaning, language, or formatting of the technical content.
03/30/2012	5.2	No change	No changes to the meaning, language, or formatting of the technical content.
07/12/2012	5.3	Minor	Clarified the meaning of the technical content.

## Contents

<b>1 Introduction</b> .....	<b>6</b>
1.1 Glossary .....	6
1.2 References .....	8
1.2.1 Normative References .....	8
1.2.2 Informative References .....	8
1.3 Overview .....	9
1.4 Relationship to Other Protocols .....	10
1.5 Prerequisites/Preconditions .....	10
1.6 Applicability Statement .....	10
1.7 Versioning and Capability Negotiation .....	10
1.8 Vendor-Extensible Fields .....	11
1.9 Standards Assignments .....	11
<b>2 Messages</b> .....	<b>12</b>
2.1 Transport .....	12
2.2 Message Syntax .....	12
2.2.1 Common Data Types .....	12
2.2.1.1 RdcVersion .....	12
2.2.1.2 FileHeader .....	12
2.2.2 Signature Files .....	13
2.2.2.1 ChunkSignature .....	13
2.2.3 Similarity Data .....	14
<b>3 Protocol Details</b> .....	<b>15</b>
3.1 Common Details .....	15
3.1.1 Abstract Data Model .....	15
3.1.2 Timers .....	15
3.1.3 Initialization .....	15
3.1.4 Higher-Layer Triggered Events .....	17
3.1.5 Message Processing Events and Sequencing Rules .....	18
3.1.5.1 Chunk Generation .....	18
3.1.5.1.1 H3 Hash .....	19
3.1.5.1.2 Finding Chunk Boundaries .....	20
3.1.5.2 Signature Computation .....	21
3.1.5.3 Recursion .....	22
3.1.5.3.1 Recursion Depth .....	22
3.1.5.4 Similarity .....	22
3.1.5.4.1 Similarity Data Calculation .....	23
3.1.5.4.2 Finding Seed Files .....	24
3.1.5.5 Generating the Target File .....	25
3.1.6 Timer Events .....	26
3.1.7 Other Local Events .....	26
<b>4 Protocol Examples</b> .....	<b>27</b>
4.1 Example System Architecture .....	27
4.2 H3 .....	28
4.3 FilterMax .....	29
4.4 Sample Recursive Client Transfer .....	30
4.5 Sample Input and Generated Signature File .....	32
4.6 Sample Similarity Calculation .....	70

4.7 Other Considerations.....	70
<b>5 Security.....</b>	<b>72</b>
5.1 Security Considerations for Implementers.....	72
5.2 Index of Security Parameters .....	72
<b>6 Appendix A: Product Behavior.....</b>	<b>73</b>
<b>7 Change Tracking.....</b>	<b>74</b>
<b>8 Index .....</b>	<b>76</b>

# Explore Litigation Insights

Docket Alarm provides insights to develop a more informed litigation strategy and the peace of mind of knowing you're on top of things.

## Real-Time Litigation Alerts



Keep your litigation team up-to-date with **real-time alerts** and advanced team management tools built for the enterprise, all while greatly reducing PACER spend.

Our comprehensive service means we can handle Federal, State, and Administrative courts across the country.

## Advanced Docket Research



With over 230 million records, Docket Alarm's cloud-native docket research platform finds what other services can't. Coverage includes Federal, State, plus PTAB, TTAB, ITC and NLRB decisions, all in one place.

Identify arguments that have been successful in the past with full text, pinpoint searching. Link to case law cited within any court document via Fastcase.

## Analytics At Your Fingertips



Learn what happened the last time a particular judge, opposing counsel or company faced cases similar to yours.

Advanced out-of-the-box PTAB and TTAB analytics are always at your fingertips.

## API

Docket Alarm offers a powerful API (application programming interface) to developers that want to integrate case filings into their apps.

## LAW FIRMS

Build custom dashboards for your attorneys and clients with live data direct from the court.

Automate many repetitive legal tasks like conflict checks, document management, and marketing.

## FINANCIAL INSTITUTIONS

Litigation and bankruptcy checks for companies and debtors.

## E-DISCOVERY AND LEGAL VENDORS

Sync your system to PACER to automate legal marketing.