

**Java IDX Format Specification**

# Introduction

A Java IDX file is used by the Java runtime to store details about Java files that have been downloaded. This specification was generated by source code analysis and reverse engineering. The Java control panel supplies Cache viewing capabilities using the deploy.jar java file. The source code was provided by decompiling the deploy.jar file. The current source code available does not include the v7 release of the deploy code. An older version of the Java code can be found here:

<http://javasourcecode.org/html/open-source/jdk/jdk-6u23/com/sun/deploy/cache/CacheEntry.java.html>

This document is intended as a working document for the Java IDX format, which should allow existing Open Source forensic tooling to be able to process this file type.

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Format

Currently there appears to be three different formats used by the Java runtime:

* 6.0.2
* 6.0.3/6.0.4
* 6.0.5

The header (Section 1) is a fixed at 128 bytes, sections 3, 4 and 5 are not currently supported.

The Java IDX file format is big-endian.

All of the dates are stored as POSIX Epoch, which is the number of milli seconds since Jan 1, 1970 00:00:00.

The following summarises the sections not fully documented in this specification:

* Section 3: Manifest information
* Section 4: Signer information
* Section 5: Security validation cache information

Version 6.0.5

**Section 1**

|  |  |  |  |
| --- | --- | --- | --- |
| **Offset** | **Size** | **Value** | **Description** |
| 0 | 1 |  | Is busy flag |
| 1 | 1 |  | Incomplete flag |
| 2 | 4 | 605 (0x25D) | Cache version |
| 6 | 1 |  | Is shortcut image flag |
| 7 | 4 |  | Content length |
| 11 | 8 |  | Last modified |
| 19 | 8 |  | Expiration date |
| 27 | 8 |  | Validation timestamp |
| 35 | 1 |  | Known to be signed flag |
| 36 | 4 |  | Section 2 length |
| 40 | 4 |  | Section 3 length |
| 44 | 4 |  | Section 4 length |
| 48 | 4 |  | Section 5 length |
| 52 | 8 |  | Blacklist validation time |
| 60 | 8 |  | Cert expiration date |
| 68 | 1 |  | Class verification Status |
| 69 | 4 |  | Reduced manifest length |
| 73 | 4 |  | Section 4 pre15 length |
| 77 | 1 |  | Has only signed entries flag |
| 78 | 1 |  | Has single code source flag |
| 79 | 4 |  | Section 4 certs length |
| 83 | 4 |  | Section 4 signers length |
| 87 | 1 |  | Has missing signed entries flag |
| 88 | 8 |  | Trusted libraries validation time |
| 96 | 4 |  | Reduced manifest 2 length |
| 100 | 1 |  | Is proxied flag |

**Section 2**

If the section 2 length is greater than 0 then the section 2 can be processed by seeking to offset 128 (0x80). The strings within this section are prefixed with the string lengths and are null terminated.

|  |  |  |  |
| --- | --- | --- | --- |
| **Offset** | **Size** | **Value** | **Description** |
| 0 | 2 |  | Version string length |
| 2 |  |  | Version string |
|  | 2 |  | URL string length |
|  |  |  | URL string |
|  | 2 |  | Namespace ID string length |
|  |  |  | Namespace string |
|  | 2 |  | Codebase IP string length |
|  |  |  | Codebase IP string |

The response HTTP headers are stored directly after the section 2 header. The headers can be processed in a loop, repeating until the count of headers matches the value parsed from the first offset. If the header name string equals “<null>”, then the header name string should be cleared, and left blank as it is used to store the HTTP response code and description.

|  |  |  |  |
| --- | --- | --- | --- |
| **Offset** | **Size** | **Value** | **Description** |
| 0 | 4 |  | Count of HTTP headers |
| 4 | 2 |  | Header name length |
|  |  |  | Header name string |
|  | 2 |  | Header value length |
|  |  |  | Header value string |

Version 6.0.3/6.0.4

**Section 1**

|  |  |  |  |
| --- | --- | --- | --- |
| **Offset** | **Size** | **Value** | **Description** |
| 0 | 1 |  | Is busy flag |
| 1 | 1 |  | Incomplete flag |
| 2 | 4 | 603 (0x025B) /604 (0x025C) | Cache version |
| 6 | 1 |  | Not used |
| 7 | 1 |  | Not used |
| 8 | 1 |  | Is shortcut image flag |
| 9 | 4 |  | Content length |
| 13 | 8 |  | Last modified |
| 21 | 8 |  | Expiration date |
| 29 | 8 |  | Validation timestamp |
| 37 | 1 |  | Known to be signed flag |
| 38 | 4 |  | Section 2 length |
| 42 | 4 |  | Section 3 length |
| 46 | 4 |  | Section 4 length |
| 50 | 4 |  | Section 5 length |
| 54 | 8 |  | Blacklist validation time |
| 62 | 8 |  | Cert expiration date |
| 70 | 1 |  | Class verification Status |
| 71 | 4 |  | Reduced manifest length |
| 75 | 4 |  | Section 4 pre15 length |
| 79 | 1 |  | Has only signed entries flag |
| 80 | 1 |  | Has single code source flag |
| 81 | 4 |  | Section 4 certs length |
| 85 | 4 |  | Section 4 signers length |
| 89 | 1 |  | Has missing signed entries flag |
| 90 | 8 |  | Trusted libraries validation time |
| 98 | 4 |  | Reduced manifest 2 length |

**Section 2**

See the Section 2 format for version 6.0.5

Version 6.0.2

**Section 1**

The strings within this section are prefixed with the string lengths and are null terminated.

|  |  |  |  |
| --- | --- | --- | --- |
| **Offset** | **Size** | **Value** | **Description** |
| 0 | 1 |  | Is busy flag |
| 1 | 1 |  | Incomplete flag |
| 2 | 4 | 602 (0x025A) | Cache version |
| 6 | 1 |  | Not used |
| 7 | 1 |  | Not used |
| 8 | 1 |  | Is shortcut image flag |
| 9 | 4 |  | Content length |
| 13 | 8 |  | Last modified |
| 21 | 8 |  | Expiration date |
| 29 | 8 |  | Validation timestamp |
| 37 | 2 |  | Version string length |
|  |  |  | Version string |
|  | 2 |  | URL string length |
|  |  |  | URL string |
|  | 2 |  | Namespace ID string length |
|  |  |  | Namespace ID string |

The response HTTP headers are stored directly after the section 2 header. The headers can be processed in a loop, repeating until the count of headers matches the value parsed from the first offset. If the header name string equals “deploy\_resource\_codebase\_ip”, then the Codebase IP property/attribute can be set to the “header” value.

|  |  |  |  |
| --- | --- | --- | --- |
| **Offset** | **Size** | **Value** | **Description** |
| 0 | 4 |  | Count of HTTP headers |
| 4 | 2 |  | Header name length |
|  |  |  | Header name string |
|  | 2 |  | Header value length |
|  |  |  | Header value string |

History

**v1.0.0 (22 Jan 2013)**

* Initial release

**v1.0.1 (23 Jan 2013)**

* Add license text. Thanks JMetz
* Added references. Thanks JMetz
* Reworded summary and Format sections. Thanks JMetz

Appendix A. References

[JAVA-CACHE-ENTRY]

Title: CacheEntry.java

URL: <http://javasourcecode.org/html/open-source/jdk/jdk-6u23/com/sun/deploy/cache/CacheEntry.java.html>

[JAVA-CACHE-ENTRY-JAR]

Title: Deploy.jar

Path: C:\Program Files (x86)\Java\jre7\lib\deploy.jar

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Version 1.3, 3 November 2008

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