

2024 NARA Risk Matrix Updates

Disclosure

| | Question | Values | Scoring Guidance | Updates |
|-----|---|--|--|---|
| 1.1 | Is the format proprietary? | -1 = Yes or Unknown, 2 = No | | Removed N/A option, scoring Unknown as a negative value |
| 1.2 | Does the format have a published open specification? | 2 = Yes, -2 = No or Unknown | | Removed N/A option, scoring Unknown as a negative value, giving heavier weight to No or Unknown |
| 1.3 | <i>If there is a published specification</i> , has it been approved and published by an internationally recognized standards organization? | 2 = Yes, 0 = N/A, -1 = No or Unknown | If answer to previous question is No or Unknown, N/A | Added conditional IF statement, scoring Unknown as a negative value, giving lighter weight to No or Unknown |
| 1.4 | When was the format specification for this version last updated (or, if the last updated date is not available, when was it created)? | 0 = 5 years old or less, -2 = 6-15 years, -4 = 16+ years or Unknown | | Moved question into this section from age-related risk factors, added “for this version” for clarity |
| | Total Score: | Highest possible: 6 (previously 10) Lowest possible: -7 (previously -6) | | |

Questions removed from Disclosure:

- Are there available tools that can validate the technical integrity of a file encoded in this format against the published specification? (there is not enough data that can be consistently used to answer this question)
- Is the available specification complete and accurate? (too vague)

Adoption

| | Question | Values | Scoring Guidance | Updates |
|-----|--|--|--|--|
| 2.1 | Has the file format commonly been used to create or maintain permanent records within the federal government at any point in time? | 2 = Yes, 0 = Unknown | If NARA has more than 2,000 files in its holdings, the answer is yes | Updated tense in question wording (i.e., “is” to “has been”), removed N/A and No options |
| 2.2 | Is the format, or format family, actively maintained and updated by an organization or community? | 2 = Yes, -1 = No or Unknown | If there’s active maintenance and updates to the format family in the past 5 years, then give a positive score to older versions of the format | Added “or format family”, removed N/A option, scoring Unknown as a negative value |
| 2.3 | Have the archives or library communities identified the format as one to avoid for creation and transfer of permanent materials? | 1 = No, -2 = Yes or Unknown | | Reworded this question from “Have the archives or library communities identified the format as one they prefer for creation and transfer of permanent materials?” Removed N/A option, scoring Unknown as a negative value |
| | Total Score: | Highest possible: 5 (previously 10) Lowest possible: -3 (previously -6) | | |

Questions removed from Adoption:

- Is the file format commonly used outside the federal government? (there is not enough data that can be consistently used to answer this question)
- Are multiple renderers available? (similar question 6.1 added to External Software Dependencies)

Transparency

| | Question | Values | Scoring Guidance | Updates |
|-----|--|--------------------------------------|--|--|
| 3.1 | Is the format character-based, rather than binary? | 1 = Yes, 0 = N/A, -1 = No or Unknown | N/A applies to formats that can be either character-based or binary | Reworded this question from "Is the format human readable and can it be opened with a text editor?" Removed N/A option, scoring Unknown as a negative value |
| 3.2 | Is there an internal signature in an authoritative format registry that can be used to identify a file in this format? | 2 = Yes, 0 = N/A, -2 = No or Unknown | N/A applies to character encodings or software applications/executables | NEW QUESTION |
| 3.3 | Does the format require the use of compression? | -1 = Yes or Unknown, 1 = No | If the format is a wrapper that is uncompressed but can contain compressed bitstreams, the answer here would be 1 = No | Removed N/A option, scoring Unknown as a negative value |
| 3.4 | <i>If the format requires the use of compression</i> , is it required to be lossy? | -1 = Yes or Unknown, 0 = N/A or No | If answer to previous question is No, N/A If answer to previous question is Unknown, Unknown | NEW QUESTION |
| 3.5 | Does this format support declared or hidden embedded data? | -1 = Yes or Unknown, 0 = N/A, 1 = No | If the format is compound (e.g. ESRI Shapefile) or an AV container, the answer here is N/A | NEW QUESTION |

| | | | | |
|-----|---|---|---|--------------|
| 3.6 | <i>If the format supports declared or hidden embedded data</i> , does the format list or provide standard information about embedded data? | 1 = Yes, 0 = N/A, -1 = No or Unknown | If answer to previous question is No, N/A If answer to previous question is Unknown, Unknown | NEW QUESTION |
| | Total Score: | Highest possible: 5 (previously 7) Lowest possible: -7 (previously -7) | | |

Questions removed from Transparency:

- Does the available specification provide enough detail to allow basic analysis of the file format with hex editors or other inspection tools? (replaced with 3.2)
- Does the format rely on standard character or other encoding methods such as IEEE notations? (there is not enough data that can be consistently used to answer this question - over half of all responses were “Unknown”)
- Is the source code of the software used to create the format available for little or no cost? (some formats can be created using multiple software packages, “little cost” is too vague)
- Is the software used to create the format supported by current computing environments? (replaced with similar question 6.5)
- Does the format support user-definable compression levels or other quality settings that affect essential characteristics? (the answer to this question isn’t necessarily applicable to all file created in that format)

Self-Documentation

| | Question | Values | Scoring Guidance | Updates |
|-----|--|---|------------------|--------------|
| 4.1 | Does the format natively include metadata that documents the file and the technical environment used to create (and/or modify) it? | 2 = Yes, -2 = No or Unknown | | NEW QUESTION |
| 4.2 | Does the format support adding embedded descriptive and administrative metadata through manual or automated processes? | 1 = Yes, -1 = No or Unknown | | NEW QUESTION |
| | Total Score: | Highest possible: 3 (previously 7) Lowest possible: -3 (previously -5) | | |

Questions removed from Self-Documentation:

- Does the format support self-contained technical metadata? (rephrased into 4.1)
- Does the format support self-contained (embedded) descriptive metadata? (condensed and rephrased into 4.2)
- Does the format support self-contained administrative metadata? (condensed and rephrased into 4.2)
- Does the format metadata adhere to an international standard? (there is not enough data that can be consistently used to answer this question)

External Hardware Dependencies

| | Question | Values | Scoring Guidance | Updates |
|-----|---|--|------------------|--|
| 5.1 | Does the format require a specific hardware environment, such as a specific graphics card, chipset, or memory requirements, to process or interact with it? | -6 = Yes or Unknown, 2 = No | | Scoring Unknown as a negative value, giving heavier weight to Yes or Unknown |
| 5.2 | Does the format require specific playback hardware (e.g., Blu-Ray, Audio CD, etc) to transfer the format to the NARA environment? | -4 = Yes or Unknown, 2 = No | | Scoring Unknown as a negative value |
| | Total Score: | Highest possible: 4 (previously 4) Lowest possible: -10 (previously -8) | | |

Questions removed from External Hardware Dependencies:
None

External Software Dependencies

| | Question | Values | Scoring Guidance | Updates |
|-----|---|--|---|--|
| 6.1 | Are renderers available? | 2 = Yes, 0 = N/A, -4 = No or Unknown | N/A may apply to character encodings or software applications/executables. | NEW QUESTION |
| 6.2 | If renderers are available , is at least one of them open source? | 1 = Yes, 0 = N/A, -1 = No or Unknown | If answer to previous question is No, N/A If answer to previous question is Unknown, N/A | NEW QUESTION |
| 6.3 | Does the format rely on plug-ins and/or scripts, etc. to render or execute files? | -4 = Yes or Unknown, 0 = N/A, 2 = No | N/A may apply to character encodings or software applications/executables. | Scoring Unknown as a negative value, giving heavier weight to Yes or Unknown |
| 6.4 | Can the format be rendered or executed in more than one computing operating system? | 2 = Yes, 0 = N/A, -2 = No or Unknown | | Rephrased for clarity, scoring Unknown as a negative value, giving heavier weight to No or Unknown |
| 6.5 | Is there software supported by current computing environments that can create the format? | 1 = Yes, 0 = N/A, -1 = No or Unknown | For software and code, the “software” in this question is referring to the compiler | Rephrased question for clarity, scoring Unknown as a negative value |
| | Total Score: | Highest possible: 8 (previously 4) Lowest possible: -11 (previously -8) | | |

Questions removed from External Software Dependencies:

- Does the format rely on proprietary software to render or view files? (merged into 6.3)

- Does the format rely on special tools to render or view files? (overlap with 6.3)

Impact of Patents

| | Question | Values | Scoring Guidance | Updates |
|-----|---|---|------------------|--|
| 7.1 | Is the format subject to patent claims that may impede the development of open source tools for opening and managing the files? | -2 = Yes or Unknown, 2 = No | | Removed N/A, scoring Unknown as a negative value, giving heavier weight to both positive and negative scores |
| 7.2 | Does the format have open source license terms? | 2 = Yes, -2 = No or Unknown | | Removed N/A, scoring Unknown as a negative value, giving heavier weight to both positive and negative scores |
| | Total Score: | Highest possible: 4 (previously 4) Lowest possible: -4 (previously -4) | | |

Questions removed from Impact of Patents:

- Have the patent claims expired? (there is not enough data that can be consistently used to answer this question - over half of all responses were “Unknown”)
- Are there fees associated with the format as a result of patent claims? (there is not enough data that can be consistently used to answer this question)

Technical Protection Mechanisms

| | Question | Values | Scoring Guidance | Updates |
|-----|---|--|---|--|
| 8.1 | Does the format require the use of encryption? | -4 = Yes or Unknown, 2 = No | | Removed N/A, scoring Unknown as a negative value, giving heavier weight to Yes |
| 8.2 | <i>If the format requires the use of encryption</i> , is it robust (cryptographically secure)? | -1 = Yes or Unknown, 0 = N/A or No | If answer to previous question is No, N/A If answer to previous question is Unknown, Unknown | Added conditional IF statement, scoring Unknown as a negative value |
| 8.3 | Does the format natively allow the use of technical protection measures (e.g. digital rights management)? | -2 = Yes or Unknown, 2 = No | | Rephrased for clarity |
| | Total Score: | Highest possible: 4 (previously 10) Lowest possible: -7 (previously -6) | | |

Questions removed from Technical Protection Mechanisms:

- Does the format have capability to encrypt all or part of the resulting file? (we care less about a format's ability to encrypt than whether it is required, because any file can be encrypted after the fact)

Risk/Sustainability Factor

| | Question | Values | Scoring Guidance | Updates |
|--|---|--|---|---|
| | Total Format Risk/Sustainability Factor Numeric Score | Highest possible: 39 Lowest possible: -52 | Sum of all preceding category total scores | Previous highest possible: 56 Previous lowest possible: -58 |
| | Risk/Sustainability Factor Status | Low = 23 to 39 Moderate = -22 to 22 High= -52 to -23 | | Previous Low: 22 to 56 Previous Moderate: -12 to 23 Previous High: -58 to -13 |

Questions removed from Risk/Sustainability Factor:

None

Prioritization

These questions do not count towards the Risk/Sustainability Factor. They are used to calculate the NARA Total, factoring in both risk and prioritization.

| | Question | Values | Scoring Guidance | Updates |
|--|--|---|------------------|--|
| | Percentage of 2 billion files in NARA ERA holdings | | | None |
| | Prevalence: Format Adoption Level as measured by Proportion of File Format in the Overall NARA Holdings | -5 for 0-2%, -6 for 3-4%, -7 for 5-6%, -8 for 7-8%, -9 for 9-10%, -10 for 11-12%, -11 for 13-14%, -12 for 15-16%, -13 for 17-18%, -14 for 18-20%; -15 for over 20% | | None |
| | Feasibility: Ability to Convert (tools exist for conversion that does not alter content in unacceptable ways; NARA can perform acceptable transformations) | No acceptable tools available in the marketplace = -5 Acceptable tools exist but NARA does not have them = -3 No transformation is needed = 0 Transformation already performed at NARA = 3 Preferred/Acceptable Format as per Transfer Guidance = 5 | | Scoring “No transformation is needed” as 0 rather than 5 |
| | NARA Total | Total Format Risk/Sustainability Factor Numeric Score + Prevalence + Feasibility | | None |

Questions removed from Prioritization:
None