

Preservation Action Plan for Structured Data/Database Records National Archives and Records Administration (NARA)

DRAFT 20190801
Template: 201907

Electronic Record or Digital Surrogate Types and Associated Formats

Information that is accessed and updated through a database management system that has been organized, structured, and stored so that it can be manipulated, searched, and extracted for various purposes.

Essential Characteristics of this Record Type

As a general rule, appearance characteristics are not essential to databases. That being said, there is one that will always be core to this record type.

Behavior is generally the most important characteristic to preserve in databases.

Appearance

Name	Definition	Function Description
Character Encoding	The code used by computers can be: <ul style="list-style-type: none">• EBCDIC• ASCII• EBCPAC• Binary• Zone Decimal	The sequence of characters (letters, numbers, punctuation, and certain symbols) or coding that translate human readable or natural language characters to a specialized format for efficient transmission or storage. Assumption: Always has to exist and needs to be identified in order to open in a compatible format or to transform to another format, such as ASCII. Must meet Ingest requirements.
Text Characteristics	Characteristics such as font, text size, or color.	These have never been considered a primary characteristics in the past. If at some point in time they are important to understanding the record, then they should be reconsidered as essential for databases.

Structure

Name	Definition	Function Description
Database Schema	Must include record layout, can also include any or all of code lists, table structure, data dictionary, linkage. (If any of these exist exists, they are essential.)	Manner in which individual data elements and data tables are organized, interrelated, and displayed
Technical Metadata	Metadata describing the specific database format, software, software version, etc. This is generally automatically embedded in the file header.	Supports the ability to potentially recreate interactions with the data, such as queries or graphing, can be recreated.

Behavior

Name	Definition	Function Description
Manipulation Functionality	The ability to examine relationships within a table or between tables.	Once there is a defined schematic, the ability to manipulate exists.
Display Query	<p>Presents results of query in a particular format. Like queries, this depends on use by creator and expected use of data.</p> <p>If a report, see other record type such as textual records (.pdf, .doc) or web record for its component characteristics.</p> <p>If GIS, graph and plot are essential characteristics. See the plan for the GIS record type for other functionalities that are essential.</p>	<p>This does not refer to the GUI interface, but instead to the underlying query string(s). The variant of SQL used should be identified.</p> <p>Depending on the use of the data by the agency, and expected use of the data, any defined queries maintained by the creator may be necessary to preserve.</p> <p>The importance of maintaining is based on appraisal questions and analysis: does the query demonstrate how the agency used/interpreted the data for decision making, legal use, or general accountability. Is it a reflection of how an agency made a decision? If yes, then determine if the results</p>

		display was saved to some other format for reporting purposes. If the results were not saved, and the mechanism for decision making was the query itself, then the query template/construction becomes essential, and must be saved.
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Context

Name	Definition	Function Description
Series	A group of related records that are normally used and filed as a unit because they relate to a similar activity/function. The relationship between records and the series of which they are a part must be preserved.	
Descriptive Metadata	May include but is not limited to: Caption/Title; Subject; Date; Event; Creator; Transaction.	Information contained within the record that refers to the intellectual content of material and aids discovery of such materials. Assumes that all descriptive metadata for a database is contained within the structure and content of the database itself.

Current NARA Transfer Guidance for this Record Type

Preferred:

- Comma Separated Value (CSV)
- OpenDocument Format Spreadsheet (ODS)
- ASCII Text

Acceptable:

- Microsoft Excel Office Open XML
- Microsoft Excel 97 Binary Document Format

Current NARA Public Access/Reference Format(s) for this Record Type

This Plan references existing public access file formats for electronic records at NARA, determined with a survey of the available public access formats in the National Archives Catalog. These references do not represent recommended public access formats under NARA policies. They are intended for informational purposes only.

Reference Format: In general, database records are delivered to researchers by request in the formats in which they are preserved.

Public Access Format: In general, the records are delivered to researchers in the formats in which they are preserved. A portion of the databases/datasets in the holdings are made fully searchable via the Access to Archival Databases (AAD) function of the National Archives Catalog.

Comments and Notes

In general, RDE accessions spreadsheets and databases in formats defined in 36 CFR 1235 and [NARA Bulletin 2018-01](#). The formats defined in those issuances drive the formats we preserve records in and provide access to them.

According to RDE, in general, the contents of database files and not the functionality is what is appraised for permanent retention in the National Archives. The transfer formats defined in 36 CFR 1235 and NARA Bulletin 2014-04 define formats for structured database files that ensure that content is preserved in formats that are sustainable and can be migrated over time to maintain accessibility.

Generic Database File

NARA Format ID: NF00152

Extension(s):

- db

Documentation

- [Fileextension.org entry for DB](http://fileextension.org)

Risk and Prioritization Analysis

Supply the Risk Level and Numeric Rating and the Prioritization Numeric Rating as generated with the Format Risk and Prioritization Matrix for this file format.

- Low Risk
- Moderate Risk
- High Risk
- 1 Numeric Risk Rating
- 7 Numeric Prioritization rating

Proposed Preservation Plan

- Retain file format in its existing format.
- Transform file to a new format.
Selected Format:
- Procure/develop tools to preserve, manage and provide access to records of this type in their existing form.
- Procure/develop tools to transform the format to the preferred normalized form.
- Provide Additional Information so that the record type remains understandable/usable over time.
- Explore Additional Options

Justification: Retain until additional options are identified. The DB file extension is used by various applications for database. Because there are so many potential applications that create this format, it is difficult to identify the specific application and ensure that a migration will retain the data with high fidelity.

Preferred Processing and Transformation Tool(s)

- This format can be created and used by various applications, therefore the software required to open and convert it is often unknown at the time of transfer. Further research is required on a case-by-case basis.

Preferred Viewer/Access Software

- None - NARA does not currently provide viewer/access software through the National Archives Catalog, only file downloads. Selected holdings datasets are provided via Access to Archival Databases (AAD).

dBASE Text Memo

NARA Format ID: NF00155

Extension(s)

- dbt

Documentation

- DBT database file contains only text "memo" (notes) about database tables, not any other database data, because standard database tables have limitations on character quantity.
- [Fileextension.org entry for DBT](#)
- [XBase: Memo Field Files \(*.dbt\)](#)

Risk and Prioritization Analysis

- Low Risk
 - Moderate Risk
 - High Risk
- 3 Numeric Risk Rating
-11 Numeric Prioritization Rating

Proposed Preservation Plan

- Retain file format in its existing format.
- Transform file to a new format.
Selected Format: TBD
- Procure/develop tools to preserve, manage and provide access to records of this type in their existing form.
- Procure/develop tools to transform the format to the preferred normalized form.
- Provide Additional Information so that the record type remains understandable/usable over time.
- Explore Additional Options

Justification: Further investigation is required on a case-by-case basis to determine whether the information in these files should be integrated into the related database file and how best to do that.

Preferred Processing and Transformation Tool(s)

- TBD. It appears these files can be opened in text editors, although it is possible they can only be opened in a database application. Typically these files are not meant to be converted. However as text files, their content may be simply copied out. The issue is whether the file can then be properly associated with related data in the database. More likely the DBT file and related files will have to be processed so that the DBT file content is added back into the related database file. It may be possible to open these files in OpenOffice.

Preferred Viewer/Access Software

- None - NARA does not currently provide viewer/access software through the National Archives Catalog, only file downloads. Selected holdings datasets are provided via Access to Archival Databases (AAD).

dBASE Versions II, III, III+, IV, V

NARA Format ID:

- **NF00153**
- **NF00154 (Index File)**

Extension(s):

- dbf
- ndx (Index File)
- mdx (Multiple Index Files)

Documentation

- The dBase system includes the core database engine, a query system, a forms engine, and a programming language that ties all of these components together. dBase's underlying file format, the .dbf file, is widely used in other applications needing a simple format to store structured data, including FoxBase, FoxPro, and Visual FoxPro.
- <http://fileformats.archiveteam.org/wiki/DBF>
- <https://fileinfo.com/extension/dbf>
- <https://www.dbase.com/>

Risk and Prioritization Analysis

Low Risk

Moderate Risk

High Risk

23 Numeric Risk Rating: Database and Index Files

21 Numeric Prioritization rating: Database

15 Numeric Prioritization rating: Index Files

Proposed Preservation Plan

Retain file format in its existing format.

Transform file to a new format.

Selected Format: CSV

Procure/develop tools to preserve, manage and provide access to records of this type in their existing form.

Procure/develop tools to transform the format to the preferred normalized form.

Provide Additional Information so that the record type remains understandable/usable over time.

Explore Additional Options

Justification: Further investigation is required on a case-by-case basis to determine whether the information in these files should be integrated into the related database file and how best to do that. The dbf format is used in several other applications besides dBASE.

Preferred Processing and Transformation Tool(s)

- TBD, must be checked on a case-by-case basis. It is possible to import some versions of *.dbf files into Libre Office (or Open Office) Calc or Base. Some versions can be opened in Microsoft Access and Excel.

Preferred Viewer/Access Software

- None - NARA does not currently provide viewer/access software through the National Archives Catalog, only file downloads. Selected holdings datasets are provided via Access to Archival Databases (AAD).

FileMaker Pro Versions 7, 7+

NARA Format ID: NF00192

Extension(s):

- fp7

Documentation

- [Fileextensions.org entry for FP7](#)
- [FileMaker Pro wikipedia entry](#)
- [FileMaker website](#)

Risk and Prioritization Analysis

- Low Risk
 - Moderate Risk
 - High Risk
- 2 Numeric Risk Rating
0 Numeric Prioritization Rating

Proposed Preservation Plan

- Retain file format in its existing format.
- Transform file to a new format.
Selected Format: CSV
- Procure/develop tools to preserve, manage and provide access to records of this type in their existing form.
- Procure/develop tools to transform the format to the preferred normalized form.
- Provide Additional Information so that the record type remains understandable/usable over time.
- Explore Additional Options

Justification: The files can be transformed to a more sustainable format that preserves the record content, and can be accompanied by available documentation.

Preferred Processing and Transformation Tool(s)

- Filemaker Pro to Excel to CSV files

Preferred Viewer/Access Software

- None - NARA does not currently provide viewer/access software through the National Archives Catalog, only file downloads. Selected holdings datasets are provided via Access to Archival Databases (AAD).

FoxPro Database versions 2.0, 2.5, 2.6

NARA Format ID: NF00194

Extension(s):

- dbf

Documentation

- [ArchivesTeam entry for DBF](#)
- [Wikipedia entry for FoxPro](#)

Risk and Prioritization Analysis

- Low Risk
 - Moderate Risk
 - High Risk
- 10 Numeric Risk Rating
-12 Numeric Prioritization Rating

Proposed Preservation Plan

- Retain file format in its existing format.
- Transform file to a new format.
Selected Format: CSV
- Procure/develop tools to preserve, manage and provide access to records of this type in their existing form.
- Procure/develop tools to transform the format to the preferred normalized form.
- Provide Additional Information so that the record type remains understandable/usable over time.
- Explore Additional Options

Justification: FoxPro is no longer supported. Data is best preserved if converted to CSV or ASCII text, and can be accompanied by available documentation.

Preferred Processing and Transformation Tool(s)

- Microsoft Excel. According to [Microsoft](#) it is possible to open Visual Foxpro files in Excel, however, the instructions specify Visual Foxpro, which is the later version of Foxpro and the files are different. But it appears that Foxpro files could be opened in Excel and thereby saved as CSV files.

Preferred Viewer/Access Software

- None - NARA does not currently provide viewer/access software through the National Archives Catalog, only file downloads. Selected holdings datasets are provided via Access to Archival Databases (AAD).

FoxPro Memo

NARA Format ID: NF00275

Extension(s):

- fpt

Documentation

- The FPT file is used to store database memo data. The FPT files don't contain any data stored in the main database, memos are only "text notes" about database tables.

Risk and Prioritization Analysis

- Low Risk
- Moderate Risk
- High Risk
- 9 Numeric Risk Rating
- 17 Numeric Prioritization Rating

Proposed Preservation Plan

- Retain file format in its existing format.
- Transform file to a new format.
Selected Format: TBD
- Procure/develop tools to preserve, manage and provide access to records of this type in their existing form.
- Procure/develop tools to transform the format to the preferred normalized form.
- Provide Additional Information so that the record type remains understandable/usable over time.
- Explore Additional Options

Justification: This format can be created and used by various applications, therefore the software required to open and convert it is often unknown at the time of transfer. Further research is required on a case-by-case basis.

Preferred Processing and Transformation Tool(s)

- TBD. It appears these files can be opened in text editors, although it is possible they can only be opened in a database application. Typically these files are not meant to be converted. However as text files, their content may be simply copied out. The issue is whether the file can then be properly associated with related data in the database. More

likely the FPT file and related files will have to be processed so that the FPT file content is added back into the related database file. It may be possible to open these files in OpenOffice.

Preferred Viewer/Access Software

- None - NARA does not currently provide viewer/access software through the National Archives Catalog, only file downloads. Selected holdings datasets are provided via Access to Archival Databases (AAD).

Framework II

NARA Format ID: NF00197

Extension(s):

- fw2

Documentation

- [https://en.wikipedia.org/wiki/Framework_\(office_suite\)](https://en.wikipedia.org/wiki/Framework_(office_suite))

Risk and Prioritization Analysis

- Low Risk
 - Moderate Risk
 - High Risk
- 10 Numeric Risk Rating
-12 Numeric Prioritization Rating

Proposed Preservation Plan

- Retain file format in its existing format.
- Transform file to a new format.
Selected Format: TBD, Preferably CSV
- Procure/develop tools** to preserve, manage and provide access to records of this type in their existing form.
- Procure/develop tools** to transform the format to the preferred normalized form.
- Provide Additional Information** so that the record type remains understandable/usable over time.
- Explore Additional Options**

Justification: Framework is no longer sold or supported. Data is best preserved if converted to CSV or ASCII text, and can be accompanied by available documentation.

Preferred Processing and Transformation Tool(s)

- TBD

Preferred Viewer/Access Software

- None - NARA does not currently provide viewer/access software through the National Archives Catalog, only file downloads. Selected holdings datasets are provided via Access to Archival Databases (AAD).

Lotus Notes Database version 2

NARA Format ID: NF00237

Extension(s)

- nsf

Documentation

- IBM Notes (formerly Lotus Notes) provides business collaboration functions, such as email, calendars, to-do lists, contacts management, team rooms, discussion forums, file sharing, microblogging, instant messaging, blogs, and user directories. IBM Notes is a desktop workflow application, commonly used in corporate environments for email but can also be used to access databases such as document libraries and custom applications including workflows. This plan addresses only the NSF databases created by the various tools in the application suite. According to the Library of Congress entry for NSF, there are three types of files: The mailbox database comprising Note types such as email messages, chat and instant messages, calendars entries and the list of To-Do as well as other archived data is stored in a single *username.nsf* file for each individual user. Contact Notes in the address book database are stored in the *names.nsf* file although contracts also can be saved into a readable format-vCard (VCF) or Comma Separated Value (CSV) file. A third important component, Notebooks, also known as Personal Journals, are comprised of personal documents and information that can define the priority documents of the custodian. This database of Notes gets saved into the *notebook.nsf* file.
- [Library of Congress entry for NSF](#)
- [ArchivesTeam entry for NSF](#)
- [ForensicsWiki entry of NSF](#)
- [Fileextension.org entry for NSF](#)
- [Wikipedia entry for Lotus Notes](#)

Risk and Prioritization Analysis

- Low Risk
 - Moderate Risk
 - High Risk
- 8 Numeric Risk Rating
6 Numeric Prioritization Rating

Proposed Preservation Plan

- Retain file format in its existing format.
- Transform file to a new format.

Selected Format: CSV or ASCII

- Procure/develop tools** to preserve, manage and provide access to records of this type in their existing form.
- ✓ **Procure/develop tools** to transform the format to the preferred normalized form.
- Provide Additional Information** so that the record type remains understandable/usable over time.
- Explore Additional Options**

Justification: Lotus Contacts files can be exported as CSV files. Lotus Email can be exported to a variety of formats including ASCII text files (although another format may be preferred for access). It's unknown at this time what the notebook files can be converted to, although it's likely they could be exported as ASCII text as well.

Preferred Processing and Transformation Tool(s)

- IBM Notes to convert files from their native format.

Preferred Viewer/Access Software

- None - NARA does not currently provide viewer/access software through the National Archives Catalog, only file downloads. Selected holdings datasets are provided via Access to Archival Databases (AAD).

Lotus Notes Database version 3

NARA Format ID: NF00238

Extension(s)

- nsf

Documentation

- IBM Notes (formerly Lotus Notes) provides business collaboration functions, such as email, calendars, to-do lists, contacts management, team rooms, discussion forums, file sharing, microblogging, instant messaging, blogs, and user directories. IBM Notes is a desktop workflow application, commonly used in corporate environments for email but can also be used to access databases such as document libraries and custom applications including workflows. This plan addresses only the NSF databases created by the various tools in the application suite. According to the Library of Congress entry for NSF, there are three types of files: The mailbox database comprising Note types such as email messages, chat and instant messages, calendars entries and the list of To-Do as well as other archived data is stored in a single *username.nsf* file for each individual user. Contact Notes in the address book database are stored in the *names.nsf* file although contracts also can be saved into a readable format-vCard (VCF) or Comma Separated Value (CSV) file. A third important component, Notebooks, also known as Personal Journals, are comprised of personal documents and information that can define the priority documents of the custodian. This database of Notes gets saved into the *notebook.nsf* file.
- [Library of Congress entry for NSF](#)
- [ArchivesTeam entry for NSF](#)
- [ForensicsWiki entry of NSF](#)
- [Fileextension.org entry for NSF](#)
- [Wikipedia entry for Lotus Notes](#)

Risk and Prioritization Analysis

- Low Risk
 - Moderate Risk
 - High Risk
- 8 Numeric Risk Rating
6 Numeric Prioritization Rating

Proposed Preservation Plan

- Retain file format in its existing format.
- Transform file to a new format.

Selected Format: CSV or ASCII

- Procure/develop tools** to preserve, manage and provide access to records of this type in their existing form.
- ✓ **Procure/develop tools** to transform the format to the preferred normalized form.
- Provide Additional Information** so that the record type remains understandable/usable over time.
- Explore Additional Options**

Justification: Lotus Contacts files can be exported as CSV files. Lotus Email can be exported to a variety of formats including ASCII text files (although another format may be preferred for access). It's unknown at this time what the notebook files can be converted to, although it's likely they could be exported as ASCII text as well.

Preferred Processing and Transformation Tool(s)

- IBM Notes to convert files from their native format.

Preferred Viewer/Access Software

- None - NARA does not currently provide viewer/access software through the National Archives Catalog, only file downloads. Selected holdings datasets are provided via Access to Archival Databases (AAD).

Lotus Notes Database version 4

NARA Format ID: NF00239

Extension(s)

- nsf

Documentation

- IBM Notes (formerly Lotus Notes) provides business collaboration functions, such as email, calendars, to-do lists, contacts management, team rooms, discussion forums, file sharing, microblogging, instant messaging, blogs, and user directories. IBM Notes is a desktop workflow application, commonly used in corporate environments for email but can also be used to access databases such as document libraries and custom applications including workflows. This plan addresses only the NSF databases created by the various tools in the application suite. According to the Library of Congress entry for NSF, there are three types of files: The mailbox database comprising Note types such as email messages, chat and instant messages, calendars entries and the list of To-Do as well as other archived data is stored in a single *username.nsf* file for each individual user. Contact Notes in the address book database are stored in the *names.nsf* file although contracts also can be saved into a readable format-vCard (VCF) or Comma Separated Value (CSV) file. A third important component, Notebooks, also known as Personal Journals, are comprised of personal documents and information that can define the priority documents of the custodian. This database of Notes gets saved into the *notebook.nsf* file.
- [Library of Congress entry for NSF](#)
- [ArchivesTeam entry for NSF](#)
- [ForensicsWiki entry of NSF](#)
- [Fileextension.org entry for NSF](#)
- [Wikipedia entry for Lotus Notes](#)

Risk and Prioritization Analysis

- Low Risk
 - Moderate Risk
 - High Risk
- 8 Numeric Risk Rating
6 Numeric Prioritization Rating

Proposed Preservation Plan

- Retain file format in its existing format.
- Transform file to a new format.

Selected Format: CSV or ASCII

- Procure/develop tools** to preserve, manage and provide access to records of this type in their existing form.
- ✓ **Procure/develop tools** to transform the format to the preferred normalized form.
- Provide Additional Information** so that the record type remains understandable/usable over time.
- Explore Additional Options**

Justification: Lotus Contacts files can be exported as CSV files. Lotus Email can be exported to a variety of formats including ASCII text files (although another format may be preferred for access). It's unknown at this time what the notebook files can be converted to, although it's likely they could be exported as ASCII text as well.

Preferred Processing and Transformation Tool(s)

- IBM Notes to convert files from their native format.

Preferred Viewer/Access Software

- None - NARA does not currently provide viewer/access software through the National Archives Catalog, only file downloads. Selected holdings datasets are provided via Access to Archival Databases (AAD).

Lotus Approach 97 View File

NARA Format ID: NF00234

Extension(s)

- apr

Documentation

- Lotus Approach was a relational database management system included in IBM's Lotus SmartSuite for Microsoft Windows. Originally developed by Approach Software, it was sold to Lotus in 1994; Lotus was subsequently purchased by IBM. In May 2013, IBM announced the withdrawal of SmartSuite. Marketing of the product ended in June 2013, followed by all support ceasing in September 2014.
- https://en.wikipedia.org/wiki/IBM_Lotus_SmartSuite

Risk and Prioritization Analysis

- Low Risk
- Moderate Risk
- High Risk
- 6 Numeric Risk Rating
- 2 Numeric Prioritization rating

Proposed Preservation Plan

- Retain file format in its existing format.
- Transform file to a new format.
Selected Format: CSV or ASCII
- Procure/develop tools to preserve, manage and provide access to records of this type in their existing form.
- Procure/develop tools to transform the format to the preferred normalized form.
- Provide Additional Information so that the record type remains understandable/usable over time.
- Explore Additional Options

Justification: This product is no longer sold or supported in the marketplace. This must be converted to ASCII or csv. NARA must determine what tools are available to perform this transformation; IBM notes may be an option.

Preferred Processing and Transformation Tool(s)

- IBM Notes may be able to convert files from their native format; this requires testing.

Preferred Viewer/Access Software

- None - NARA does not currently provide viewer/access software through the National Archives Catalog, only file downloads. Selected holdings datasets are provided via Access to Archival Databases (AAD).

Microsoft Access 97 Database

NARA Format ID: NF00255

Extension(s):

- mdb

Documentation

- [Library of Congress entry for Microsoft Access MDB File Format Family](#)
- [Wikipedia entry for Microsoft Access](#)

Risk and Prioritization Analysis

- Low Risk
- Moderate Risk
- High Risk
- 4 Numeric Risk Rating
- 2 Numeric Prioritization Rating

Proposed Preservation Plan

- Retain file format in its existing format.
- Transform file to a new format.
 - Selected Format:** CSV or ASCII
- Procure/develop tools to preserve, manage and provide access to records of this type in their existing form.
- Procure/develop tools to transform the format to the preferred normalized form.
- Provide Additional Information so that the record type remains understandable/usable over time.
- Explore Additional Options

Justification: Access is not a sustainable format, as it is proprietary and lacks sufficient open documentation. Files can be converted to a sustainable format.

Preferred Processing and Transformation Tool(s)

- Microsoft Access allows for conversion to CSV.
 - Access 97 requires Access 2010 or earlier version to open and convert.

Preferred Viewer/Access Software

- None - NARA does not currently provide viewer/access software through the National Archives Catalog, only file downloads. Selected holdings datasets are provided via Access to Archival Databases (AAD).

Microsoft Access 2000 Database

NARA Format ID: NF00253

Extension(s):

- mdb

Documentation

- [Library of Congress entry for Microsoft Access MDB File Format Family](#)
- [Wikipedia entry for Microsoft Access](#)

Risk and Prioritization Analysis

- Low Risk
- Moderate Risk
- High Risk
- 4 Numeric Risk Rating
- 2 Numeric Prioritization Rating

Proposed Preservation Plan

- Retain file format in its existing format.
- Transform file to a new format.
 - Selected Format:** CSV or ASCII
- Procure/develop tools to preserve, manage and provide access to records of this type in their existing form.
- Procure/develop tools to transform the format to the preferred normalized form.
- Provide Additional Information so that the record type remains understandable/usable over time.
- Explore Additional Options

Justification: Access is not a sustainable format, as it is proprietary and lacks sufficient open documentation. Files can be converted to a sustainable format.

Preferred Processing and Transformation Tool(s)

- Microsoft Access allows for conversion to CSV.
 - Access 2000 can be opened in Access 2007 and later to be converted.

Preferred Viewer/Access Software

- None - NARA does not currently provide viewer/access software through the National Archives Catalog, only file downloads. Selected holdings datasets are provided via Access to Archival Databases (AAD).

Microsoft Access Database versions 2002, 2003, 2007

NARA Format ID: NF00256

Extension(s):

- mdb

Documentation

- [Library of Congress entry for Microsoft Access MDB File Format Family](#)
- [Wikipedia entry for Microsoft Access](#)

Risk and Prioritization Analysis

- Low Risk
- Moderate Risk
- High Risk
- 6 Numeric Risk Rating
- 4 Numeric Prioritization Rating

Proposed Preservation Plan

- Retain file format in its existing format.
- Transform file to a new format.
 - Selected Format:** CSV or ASCII
- Procure/develop tools to preserve, manage and provide access to records of this type in their existing form.
- Procure/develop tools to transform the format to the preferred normalized form.
- Provide Additional Information so that the record type remains understandable/usable over time.
- Explore Additional Options

Justification: Access is not a sustainable format, as it is proprietary and lacks sufficient open documentation. Files can be converted to a sustainable format.

Preferred Processing and Transformation Tool(s)

- Microsoft Access allows for conversion to CSV.
 - Access 2002/2003/2007 .mdb files can be opened in Access 2007 and later and converted.

Preferred Viewer/Access Software

- None - NARA does not currently provide viewer/access software through the National Archives Catalog, only file downloads. Selected holdings datasets are provided via Access to Archival Databases (AAD).

Microsoft Access Database versions 2007, 2010, 2013, 2016

NARA Format ID: NF00254

Extension(s):

- accdb

Documentation

- [Library of Congress entry for Microsoft Access ACCDB File Format Family](#)
- [Wikipedia entry for Microsoft Access](#)

Risk and Prioritization Analysis

- Low Risk
- Moderate Risk
- High Risk
- 10 Numeric Risk Rating
- 8 Numeric Prioritization rating

Proposed Preservation Plan

- Retain file format in its existing format.
- Transform file to a new format.
 - Selected Format:** CSV or ASCII
- Procure/develop tools to preserve, manage and provide access to records of this type in their existing form.
- Procure/develop tools to transform the format to the preferred normalized form.
- Provide Additional Information so that the record type remains understandable/usable over time.
- Explore Additional Options

Justification: Access is not a sustainable format, as it is proprietary and lacks sufficient open documentation. Files can be converted to a sustainable format.

Preferred Processing and Transformation Tool(s)

- Microsoft Access allows for conversion to CSV.
 - Access .accdb files can all be opened in Access 2007 and later and converted.

Preferred Viewer/Access Software

- None - NARA does not currently provide viewer/access software through the National Archives Catalog, only file downloads. Selected holdings datasets are provided via Access to Archival Databases (AAD).

Microsoft Works Database for Windows 2. 2a, 3, 31, 3b, 4, 4a, 4.5, 4.5a, 2000

NARA Format ID:

- NF00323 (2)
- NF00324 (2a)
- NF00325 (2000)
- NF00326 (3)
- NF00327 (3a)
- NF00328 (3b)
- NF00329 (4)
- NF00330 (4a)
- NF00331 (4.5)
- NF00332 (4.5a)

Extension(s):

- wdb

Documentation

- [Unofficial format documentation](#) (reverse engineered)
- [Fileextensions.org entry for WBD](#)
- [Introduction to the Microsoft Works Database](#)
- [Wikipedia entry for Microsoft Works](#)

Risk and Prioritization Analysis

- Low Risk
 - Moderate Risk
 - High Risk
- 12 Numeric Risk Rating
-20 Numeric Prioritization rating

Proposed Preservation Plan

- Retain file format in its existing format.
- Transform file to a new format.
Selected Format: CSV
- Procure/develop tools to preserve, manage and provide access to records of this type in their existing form.
- Procure/develop tools to transform the format to the preferred normalized form.

- Provide Additional Information** so that the record type remains understandable/usable over time.
- Explore Additional Options**

Justification: Transformation required as the software is no longer supported by the manufacturer or sold in the marketplace.

Preferred Processing and Transformation Tool(s)

- Works Database Converter (<http://www.codealchemists.com/worksdatabaseconverter/>)-
-a free converter using Java
- A converter based on libwps (<http://libwps.sourceforge.net/convertWPS.html>) may retrieve the main database's content but not the filters, frames, reports
- The original software can be used. Save database data in a spreadsheet format (or view it in List view - which looks like a spreadsheet or table), select it all, then copy and paste it into a Works spreadsheet. Either way, once you have the data in a spreadsheet, you can save it in Microsoft Excel (*.XLS) format and open it in Microsoft Excel, LibreOffice, etc. Doing that will lose your data entry form design.

Preferred Viewer/Access Software

- None - NARA does not currently provide viewer/access software through the National Archives Catalog, only file downloads. Selected holdings datasets are provided via Access to Archival Databases (AAD).

Microsoft Works Database for DOS versions 1.05, 1.12, 2.0, 3, 31, 3b

NARA Format ID:

- NF00315 (1.05)
- NF00316 (1.12)
- NF00317 (2.0)
- NF00318 (3)
- NF00319 (3a)
- NF00320 (3b)

Extension(s):

- wdb

Documentation

- [Unofficial format documentation](#) (reverse engineered)
- [Fileextensions.org entry for WBD](#)
- [Introduction to the Microsoft Works Database](#)
- [Wikipedia entry for Microsoft Works](#)

Risk and Prioritization Analysis

- Low Risk
 - Moderate Risk
 - High Risk
- 12 Numeric Risk Rating
-20 Numeric Prioritization rating

Proposed Preservation Plan

- Retain file format in its existing format.
- Transform file to a new format.
Selected Format: CSV
- Procure/develop tools to preserve, manage and provide access to records of this type in their existing form.
- Procure/develop tools to transform the format to the preferred normalized form.
- Provide Additional Information so that the record type remains understandable/usable over time.
- Explore Additional Options

Justification: Transformation required as the software is no longer supported by the manufacturer or sold in the marketplace.

Preferred Processing and Transformation Tool(s)

- Works Database Converter (<http://www.codealchemists.com/worksdatabaseconverter/>)-
-a free converter using Java
- A converter based on libwps (<http://libwps.sourceforge.net/convertWPS.html>) may retrieve the main database's content but not the filters, frames, reports
- The original software can be used. Save database data in a spreadsheet format (or view it in List view - which looks like a spreadsheet or table), select it all, then copy and paste it into a Works spreadsheet. Either way, once you have the data in a spreadsheet, you can save it in Microsoft Excel (*.XLS) format and open it in Microsoft Excel, LibreOffice, etc. Doing that will lose your data entry form design.

Preferred Viewer/Access Software

- None - NARA does not currently provide viewer/access software through the National Archives Catalog, only file downloads. Selected holdings datasets are provided via Access to Archival Databases (AAD).

Microsoft Works Database for Macintosh versions 3, 4

NARA Format ID:

- NF00321 (3)
- NF00322 (4)

Extension(s):

- wdb

Documentation

- [Unofficial format documentation](#) (reverse engineered)
- [Fileextensions.org entry for WBD](#)
- [Introduction to the Microsoft Works Database](#)
- [Wikipedia entry for Microsoft Works](#)

Risk and Prioritization Analysis

- Low Risk
 - Moderate Risk
 - High Risk
- 12 Numeric Risk Rating
-20 Numeric Prioritization Rating

Proposed Preservation Plan

- Retain file format in its existing format.
- Transform file to a new format.
Selected Format: CSV
- Procure/develop tools to preserve, manage and provide access to records of this type in their existing form.
- Procure/develop tools to transform the format to the preferred normalized form.
- Provide Additional Information so that the record type remains understandable/usable over time.
- Explore Additional Options

Justification: Transformation required as the software is no longer supported by the manufacturer or sold in the marketplace.

Preferred Processing and Transformation Tool(s)

- Works Database Converter (<http://www.codealchemists.com/worksdatabaseconverter/>)-
-a free converter using Java
- A converter based on libwps (<http://libwps.sourceforge.net/convertWPS.html>) may retrieve the main database's content but not the filters, frames, reports
- The original software can be used. Save database data in a spreadsheet format (or view it in List view - which looks like a spreadsheet or table), select it all, then copy and paste it into a Works spreadsheet. Either way, once you have the data in a spreadsheet, you can save it in Microsoft Excel (*.XLS) format and open it in Microsoft Excel, LibreOffice, etc. Doing that will lose your data entry form design.

Preferred Viewer/Access Software

- None - NARA does not currently provide viewer/access software through the National Archives Catalog, only file downloads. Selected holdings datasets are provided via Access to Archival Databases (AAD).

SAS for MS-DOS Database, SAS Data File

NARA Format ID:

- NF00400 (Database)
- NF00399 (Data File)

Extension(s):

- ssd

Documentation

- [Fileextension.org entry for SSD](#)
- <https://www.stattransfer.com/support/manual/SASFiles.html>
- [Wikipedia entry for SAS \(software\)](#)
- [Base SAS](#)

Risk and Prioritization Analysis

- Low Risk
- Moderate Risk
- High Risk
- 7 Numeric Risk Rating
- 12 Numeric Prioritization Rating

Proposed Preservation Plan

- Retain file format in its existing format.
- Transform file to a new format.
Selected Format: TBD, preferably CSV
- Procure/develop tools to preserve, manage and provide access to records of this type in their existing form.
- Procure/develop tools to transform the format to the preferred normalized form.
- Provide Additional Information so that the record type remains understandable/usable over time.
- Explore Additional Options

Justification: This file format requires the Base SAS software to open and it is unclear if the files can be converted to another format even in that software. The original DOS software version is no longer supported by the manufacturer or sold in the marketplace, but current versions are available.

Preferred Processing and Transformation Tool(s)

- Base SAS

Preferred Viewer/Access Software

- None - NARA does not currently provide viewer/access software through the National Archives Catalog, only file downloads. Selected holdings datasets are provided via Access to Archival Databases (AAD).

Schedule+ Contacts

NARA Format ID: NF00404

Extension(s):

- scd

Documentation

- The SCD file extension is associated with the Microsoft Schedule+ a time management software for Microsoft Windows operating system. The .scd file stores contacts.
- [Fileextensions.org entry for SCD](#)
- [Wikipedia entry for Microsoft Schedule Plus](#)

Risk and Prioritization Analysis

- Low Risk
 - Moderate Risk
 - High Risk
- 12 Numeric Risk Rating
-20 Numeric Prioritization Rating

Proposed Preservation Plan

- Retain file format in its existing format.
- Transform file to a new format.
Selected Format: TBD, preferably CSV
- Procure/develop tools to preserve, manage and provide access to records of this type in their existing form.
- Procure/develop tools to transform the format to the preferred normalized form.
- Provide Additional Information so that the record type remains understandable/usable over time.
- Explore Additional Options

Justification: These files must be opened in Microsoft Schedule+ software; even within the software there may be no way to convert them to another format.

Preferred Processing and Transformation Tool(s)

- Microsoft Schedule+

Preferred Viewer/Access Software

- None - NARA does not currently provide viewer/access software through the National Archives Catalog, only file downloads. Selected holdings datasets are provided via Access to Archival Databases (AAD).

Stats+ Data File

NARA Format ID: NF00414

Extension(s):

- dat

Documentation

- [Fileextension.org entry for DAT](#) (Entry for a generic DAT file)
- StatPlus: <https://www.analystsoft.com/en/products/statplusmac/> (Unclear if StatPlus is a misspelling of StatsPlus)

Risk and Prioritization Analysis

- Low Risk
- Moderate Risk
- High Risk
- 4 Numeric Risk Rating
- 14 Numeric Prioritization Rating

Proposed Preservation Plan

- Retain file format in its existing format.
- Transform file to a new format.
Selected Format: TBD
- Procure/develop tools to preserve, manage and provide access to records of this type in their existing form.
- Procure/develop tools to transform the format to the preferred normalized form.
- Provide Additional Information so that the record type remains understandable/usable over time.
- Explore Additional Options

Justification: Because there are so many potential applications that create this format, it is difficult to identify the specific application and ensure that a migration will retain the data with high fidelity. This will require review on a case-by-case basis.

Preferred Processing and Transformation Tool(s)

- TBD

A DAT file is a generic data file created by a specific **application**. It may contain data in binary or **text** format (**text**-based DAT files can be viewed in a **text** editor). DAT files are typically accessed only by the **application** that created them. Many programs create, open, or reference DAT files. ([DAT File Extension - What is a .dat file and how do I open it?](#))

Preferred Viewer/Access Software

- None - NARA does not currently provide viewer/access software through the National Archives Catalog, only file downloads. Selected holdings datasets are provided via Access to Archival Databases (AAD).

vCard

NARA Format ID: NF00414

Extension(s)

- vcf

Documentation

- vCard, also known as VCF (Virtual Contact File), is a file format standard for electronic business cards. vCards are often attached to e-mail messages, but can be exchanged in other ways, such as Multimedia Messaging Service (MMS), on the World Wide Web, instant messaging or through QR code. They can contain name and address information, telephone numbers, e-mail addresses, URLs, logos, photographs, and audio clips.
- [Specification](#)
- [Wikipedia entry for vCard](#)
- [ArchiveTeam entry](#)
- [Fileextension.org entry for VCF](#)

Risk and Prioritization Analysis

- Low Risk
- Moderate Risk
- High Risk
- 4 Numeric Risk Rating
- 14 Numeric Prioritization Meeting

Proposed Preservation Plan

- Retain file format in its existing format.
- Transform file to a new format.
Selected Format: CSV
- Procure/develop tools to preserve, manage and provide access to records of this type in their existing form.
- Procure/develop tools to transform the format to the preferred normalized form.
- Provide Additional Information so that the record type remains understandable/usable over time.
- Explore Additional Options

Justification: The data in these files should be fairly standard and easy to extract to a CSV file, provided the record layout is somehow preserved. The VCF format is well-supported in apps and programs on both desktop (Windows, Mac, Linux) and mobile platforms (Android, iOS,

Windows). Unfortunately, some programs have difficulties with reading VCF files that contain more than one contact. The VCF files are natively launched in Windows Contacts program. Other than that, many 3rd party apps support vCard format and can read or import contacts from it. Contacts in VCF (vcard) format can be converted to several suitable formats, for example CSV (Comma Separated Value). Most personal information management software can do this.

Preferred Processing and Transformation Tool(s)

- Windows Contacts

Preferred Viewer/Access Software

- None - NARA does not currently provide viewer/access software through the National Archives Catalog, only file downloads. Selected holdings datasets are provided via Access to Archival Databases (AAD).

iCalendar

NARA Format ID: NF00209

Extension(s):

- ics

Documentation

- iCalendar is a personal calendar app made by Apple Inc. that runs on both the macOS desktop operating system and the iOS mobile operating system.
- [https://en.wikipedia.org/wiki/Calendar_\(Apple\)](https://en.wikipedia.org/wiki/Calendar_(Apple))

Risk and Prioritization Analysis

Low Risk

Moderate Risk

High Risk

28 Numeric Risk Rating

20 Numeric Prioritization Rating

Proposed Preservation Plan

Retain file format in its existing format.

Transform file to a new format.

Selected Format: CSV

Procure/develop tools to preserve, manage and provide access to records of this type in their existing form.

Procure/develop tools to transform the format to the preferred normalized form.

Provide Additional Information so that the record type remains understandable/usable over time.

Explore Additional Options

Justification: The data in these files should be fairly standard and easy to extract to a CSV file, provided the record layout is preserved. The iCal format is well-supported in apps and programs on both desktop (Windows, Mac, Linux) and mobile platforms (Android, iOS, Windows).

Preferred Processing and Transformation Tool(s)

- Macintosh Calendar
- Microsoft Outlook
- Google Calendar

Preferred Viewer/Access Software

- None - NARA does not currently provide viewer/access software through the National Archives Catalog, only file downloads. Selected holdings datasets are provided via Access to Archival Databases (AAD).

Btrieve versions 5.1, 6.0, 6.1

NARA Format ID: NF00137

Extension(s):

- btr

Documentation

- <https://en.wikipedia.org/wiki/Btrieve>

Risk and Prioritization Analysis

- Low Risk
- Moderate Risk
- High Risk
- 1 Numeric Risk Rating
- 4 Numeric Prioritization Rating

Proposed Preservation Plan

- Retain file format in its existing format.
- Transform file to a new format.
Selected Format: CSV
- Procure/develop tools to preserve, manage and provide access to records of this type in their existing form.
- Procure/develop tools to transform the format to the preferred normalized form.
- Provide Additional Information so that the record type remains understandable/usable over time.
- Explore Additional Options

Justification: The files can be transformed to a more sustainable format that preserves the record content, and can be accompanied by available documentation.

Preferred Processing and Transformation Tool(s)

- Btrieve to Excel to CSV files

Preferred Viewer/Access Software

- None - NARA does not currently provide viewer/access software through the National Archives Catalog, only file downloads. Selected holdings datasets are provided via Access to Archival Databases (AAD).

MySQL Database

NARA Format ID: NF00340

Extension(s):

- frm
- myd
- myi
- ibd

Documentation

- <https://en.wikipedia.org/wiki/MySQL>
- <http://fileformats.archiveteam.org/wiki/MySQL>
- <http://www.nationalarchives.gov.uk/PRONOM/fmt/868>
- <http://www.nationalarchives.gov.uk/PRONOM/fmt/1197>
- <https://www.mysql.com/>

Risk and Prioritization Analysis

- Low Risk
 - Moderate Risk
 - High Risk
- 24 Numeric Risk Rating
16 Numeric Prioritization Rating

Proposed Preservation Plan

- Retain file format in its existing format.
- Transform file to a new format.
Selected Format: CSV
- Procure/develop tools to preserve, manage and provide access to records of this type in their existing form.
- Procure/develop tools to transform the format to the preferred normalized form.
- Provide Additional Information so that the record type remains understandable/usable over time.
- Explore Additional Options

Justification: MySQL is still actively developed and supported in the marketplace. The files can be transformed to a more sustainable format that preserves the record content, and can be accompanied by available documentation.

Preferred Processing and Transformation Tool(s)

- MySQL is required to open the files for conversion

Preferred Viewer/Access Software

- None - NARA does not currently provide viewer/access software through the National Archives Catalog, only file downloads. Selected holdings datasets are provided via Access to Archival Databases (AAD).

SIARD - Software Independent Archiving of Relational Databases

NARA Format ID: NF00406

Extension(s):

- siard

Documentation

- <https://www.loc.gov/preservation/digital/formats/fdd/fdd000426.shtml>
- <https://www.bar.admin.ch/bar/en/home/archiving/tools/siard-suite.html>
- http://coptr.digipres.org/SIARD_Suite
- https://www.bar.admin.ch/dam/bar/it/dokumente/kundeninformation/siard_formatbeschreibung.pdf.download.pdf/siard_format_descriptioning.pdf

Risk and Prioritization Analysis

- Low Risk**
 - Moderate Risk**
 - High Risk**
- 49 Numeric Risk Rating
47 Numeric Prioritization Rating

Proposed Preservation Plan

- Retain** file format in its existing format.
- Transform** file to a new format.
Can be converted to CSV
- Procure/develop tools** to preserve, manage and provide access to records of this type in their existing form.
- Procure/develop tools** to transform the format to the preferred normalized form.
- Provide Additional Information** so that the record type remains understandable/usable over time.
- Explore Additional Options**

Justification: SIARD is the emerging XML-based standard in the digital preservation community for the preservation of relational databases.

Preferred Processing and Transformation Tool(s)

- Retain: it can be converted to ASCII csv if needed.

Preferred Viewer/Access Software

- None - NARA does not currently provide viewer/access software through the National Archives Catalog, only file downloads. Selected holdings datasets are provided via Access to Archival Databases (AAD).