Using the EBTS Reference Tool

The EBTS Reference Tool allows a user to easily view requirements of the EBTS specification. It provides users with the ability to view the transactions, records, and fields of the EBTS specification. In addition, it provides users with the ability to view the details of these record types and fields. For more information regarding EBTS, refer to the specification at www.fbibiospecs.cjis.gov/EBTS/Approved.

Please note:

1. The Reference Tool supports computers with the Windows, Linux, or Mac operating systems.
2. Java Webstart is used to download and execute the application locally and exclusively on the user's computer. No Personally Identifiable Information (PII) or other information is transmitted, stored, or processed by other computers.
    a. If you do not have Java installed on your computer, please use to the following link to install it: www.java.com/en/download/help/windows_manual_download.xml.

How do EBTS Transactions work?

To communicate biometrics data with the FBI, a user must submit transactions as defined in the EBTS specification. There are a variety of transactions, each identified by a unique code in a field named "Type of Transaction" (TOT), which defines the purpose of the transaction. For example, if you wanted to conduct a search of a fingerprint image without any markup, you would create a transaction using an LFIS (Latent Fingerprint Image Search) TOT and submit it to the FBI.

Each transaction is composed of various combinations of data records, each of which has a Record Type. Each valid record of a given Record Type has a list of defined fields which must conform to a set of requirements (e.g., character length, occurrence count, mandatory or optional, etc.). If a created transaction is not valid (does not conform to EBTS requirements) it cannot be processed by the FBI's biometric system.

Contents

Step 1: Launch the Tool 3
Step 2: Choose the EBTS Version 5
Step 3: Choose the Format 6
Step 4: Choose the Lookup Type 6
Step 5: View TOT Output 7
Step 6: View Record Description Output 10
Step 7: View Field Description Output 12
Step 8: Export Files 13
Troubleshooting 19

Step 1: Launch the Tool

1. To start the tool, click on the "EBTS Reference Tool" button located at https://www.fbibiospecs.cjis.gov/ebts/Approved under "EBTS Compliance Tool Suite".
    a. When running the ECTS applications, users will see several security notifications. The user must accept these notifications to run the application. These security notifications are a result of the technology used to start the application and provide information for users that describe the security implications for these types of applications.
        i. When opening the batch file to start the application, the user will receive an "Open File – Security Warning" from the file system. To avoid seeing this dialog, the user can uncheck the "always ask before opening this file".
        ii. Next there is a security notification asking the user whether to access an untrusted website. This is the website that is hosting the application. To avoid seeing the dialog, the user could add the website to its list of trusted web sites.
2. Most browsers will require you to download the tool and then run the download. See your browser's help file to determine how best to navigate Internet downloads.
    a. If using Internet Explorer (IE), you will see an option to Save the tool (Figure 1). Select Save or Save As.

Figure 1. Download Reference Tool via IE

    b. Select Run to start the tool or open "Windows"/"File Explorer" (Windows or File Explorer is the file management application in Windows). See Figure 2 below.
        i. Following the access and download of the application files, the user will be asked whether to run the application. To avoid seeing this dialog, check the "do not show again..." checkbox before clicking run.

Figure 2. Open Reference Tool via IE

3. Navigate to the download location of the batch file and double click on it to run the Transaction Tool (Figure 3).
    a. Windows/File Explorer can be found by clicking on the windows start button and typing "Windows Explorer" or "File Explorer" in the Search Programs and Files text box.

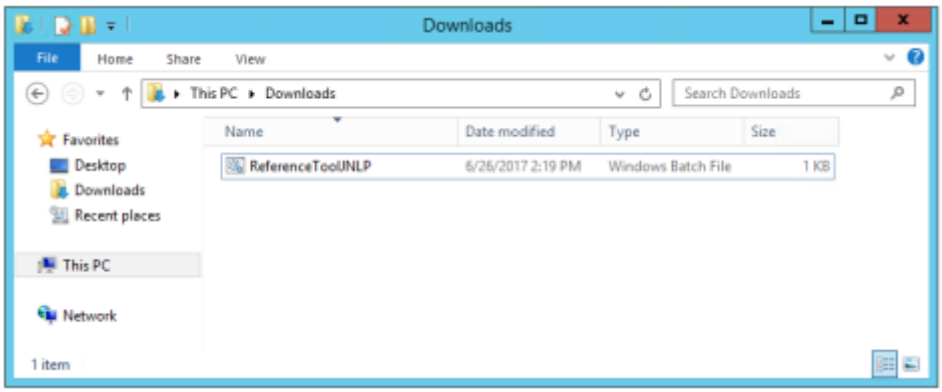

Figure 3. Open Reference Tool in Windows/File Explorer

b. Each type of "Web Browser" (Internet Explorer, Firefox, Chrome, etc.) has a setting for the download location. Refer to that setting to determine the download location of the startup program.

   i. If using Google Chrome, you will see an option to Keep or Discard the download. Select Keep. Then select Open or Show in Folder (double click on the batch file) to open the tool.

   ii. If using Firefox, you will see an option to Open or Save. If Open is selected, the tool will open. If Save is selected, select the arrow at the top right of the screen and either select the batch file to open or go to the enclosing folder.

4. A loading icon from Java Webstart will appear (see Figure 4)

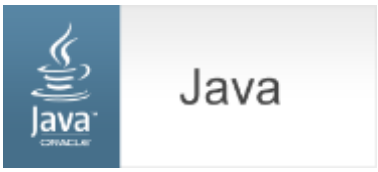

Figure 4. Java Web Start Loading Icon

5. A security warning may appear (similar to Figure 5) and, if so, select Run or the appropriate action to continue. The security pop-up may differ depending on the web browser used. If you do not want to see this screen every time you run the program, click on the checkbox next to the words "Always trust content from this publisher" if this is an option.

Figure 5. Security Warning

6. You will receive a Disclaimer screen, as shown in Figure 6, and you must agree to the terms in order to use the software. If you select "Disagree", the tool will exit.

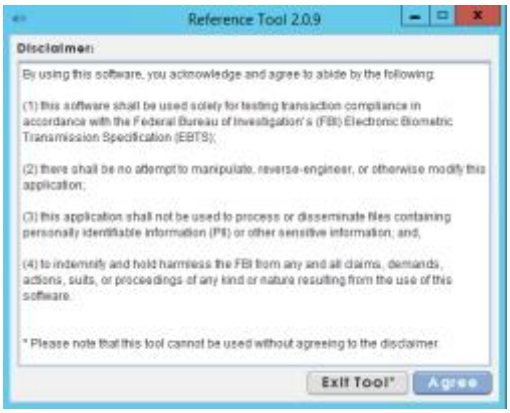

Figure 6. Reference Tool Disclaimer

Step 2: Choose the EBTS Version

1. Once the "Agree" button is selected, the Reference Tool will open on your computer (Figure 7).

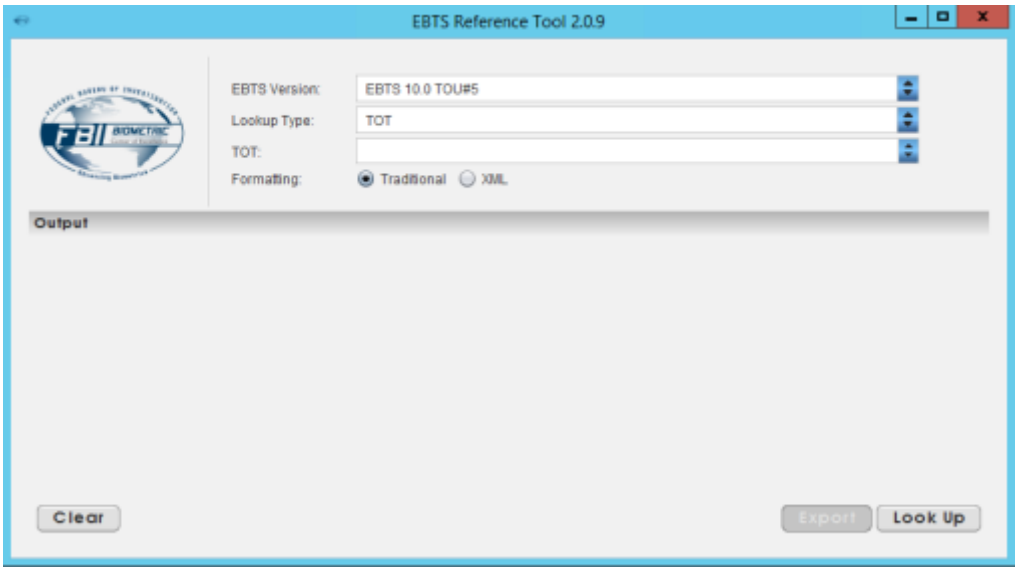

Figure 7. Reference Tool Main Screen with EBTS Version

2. Select the EBTS version you wish to view by clicking the dropdown arrow next to the "EBTS Version" pull-down. When you change the selected version, a loading bar is displayed while the program responds.

   Note: The latest effective version of EBTS is always recommended, but older versions are maintained for backward compatibility. As new versions of EBTS are published, they are added to the list of available choices. The latest effective version is the default selection.

Step 3: Choose the Format

1. Choose the appropriate format by selecting either "Traditional" or "XML" from the radio buttons located directly below the "TOT" dropdown menu as shown in Figure 7. This option will display the requirements for the selected format. For example, if the "XML" formatting option is selected, then the output will display the requirements for the XML format only.

   Note: The default selection is Traditional formatting. Requirements for the XML format and Traditional format differ at times, which is why there are separate outputs for the two different formats. The radio buttons for EBTS versions for 9.1, 9.2, and the Iris Pilot are grayed out since these versions only support Traditional formatting.

Step 4: Choose the Lookup Type

1. Select which "Lookup Type" you wish to view (Figure 8). This currently consists of four options:
   a. **TOT**: Allows the user to view the TOT requirements, which list the record types and fields for the selected TOT. The "TOT" option applies to all EBTS versions.
   b. **TOT with Description**: Allows the user to view TOT requirements and an explanation of the TOT. The "TOT with Description" option applies only to EBTS v9.3 and v10.0.
   c. **Record Description**: Allows the user to view the record type requirements and an explanation of the record type. The "Record Description" option applies only to EBTS v9.3 and v10.0.
   d. **Field Description**: Allows the user to view the field requirements and an explanation of the field. Field requirements include the field lengths, occurrences, character type, value range, code table, and example values. The "Field Description" option applies only to EBTS v9.3 and v10.0.
2. If you select "TOT" or "TOT Description", go to Step 5: View TOT Output. If you select "Record Description", go to Step 6: View Record Description Output. Otherwise, if you select "Field Description", go to Step 7: View Field Description Output.

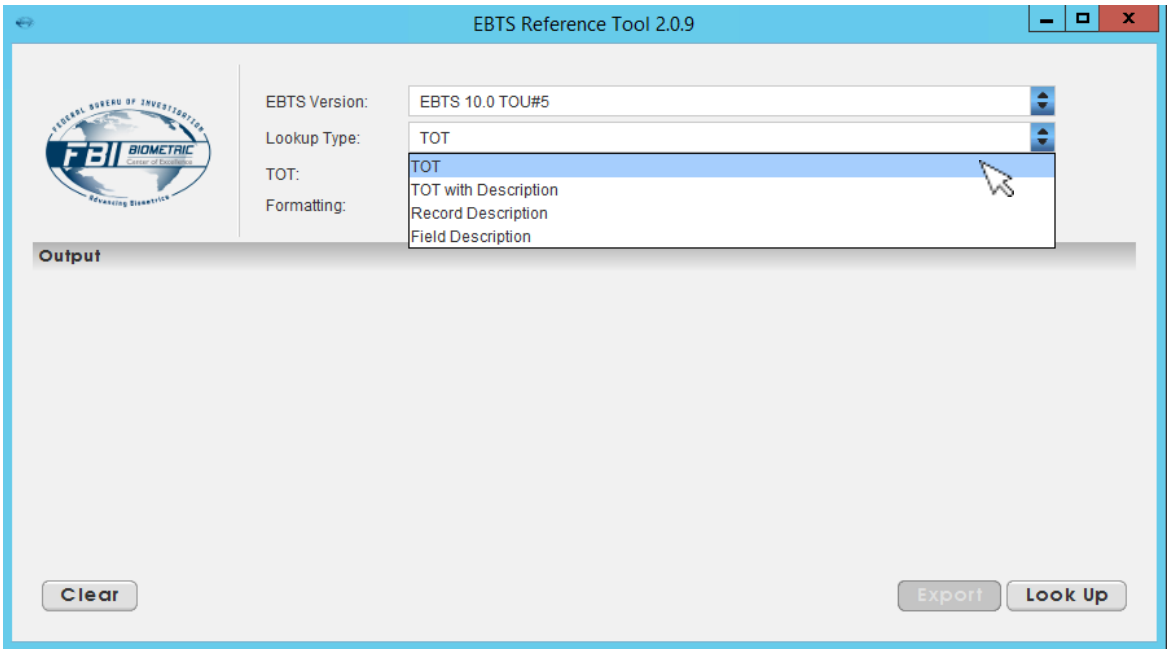

Figure 8. Reference Tool Main Screen with Lookup Type List

Step 5: View TOT Output

1. Once you select a "TOT" or "TOT Description" from the "Lookup Type" pull-down, you may select the TOT you wish to view from the "TOT" pull-down. Click on the arrows next to the "TOT" pull-down and a list of TOTs existing in the specified EBTS version will appear (Figure 9). Note that the TOT list will change when you change the "EBTS version". After clicking on the TOT(s) you want to view, select the "Look up" button on the bottom right of the screen.

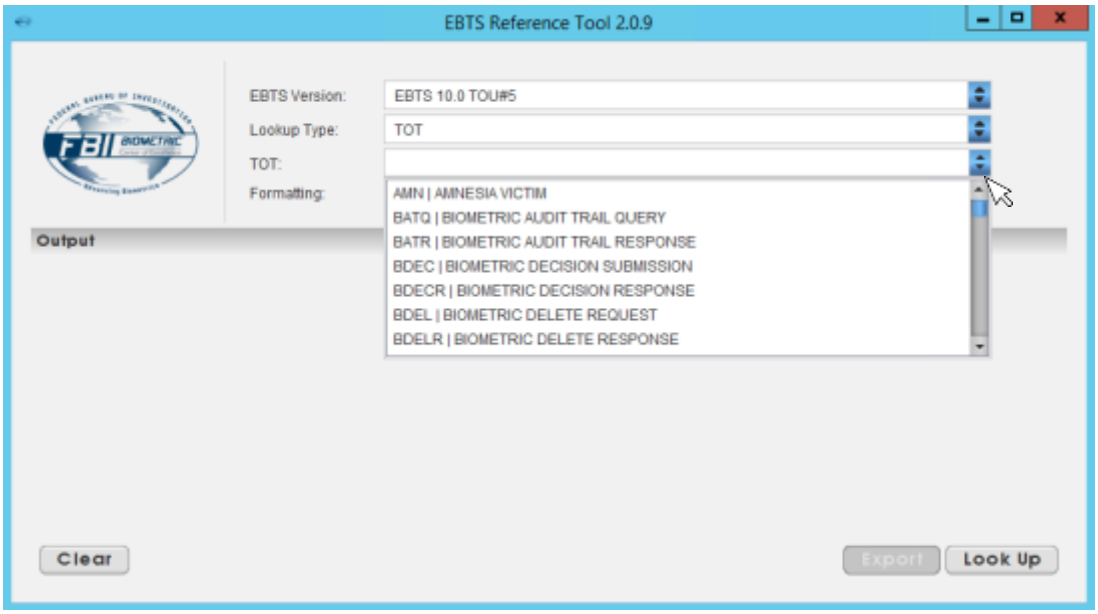

Figure 9. Reference Tool Main Screen with TOT List

Note: You can select multiple TOT (from one EBTS version) to look up simultaneously by holding Shift or Ctrl and clicking on the desired transactions. Conversely, you can unselect a TOT by holding Shift or Ctrl and clicking on the highlighted transaction. Please note that Shift selects or unselects all items between the two items selected, whereas Ctrl selects or unselects only the two items.

2. Once you select the "Look Up" button, you will see a tab for each TOT selected under "Output". Figure 10 and Figure 11 show different examples of the Reference Tool output. To view the display for a TOT, click on the tab for the desired TOT.

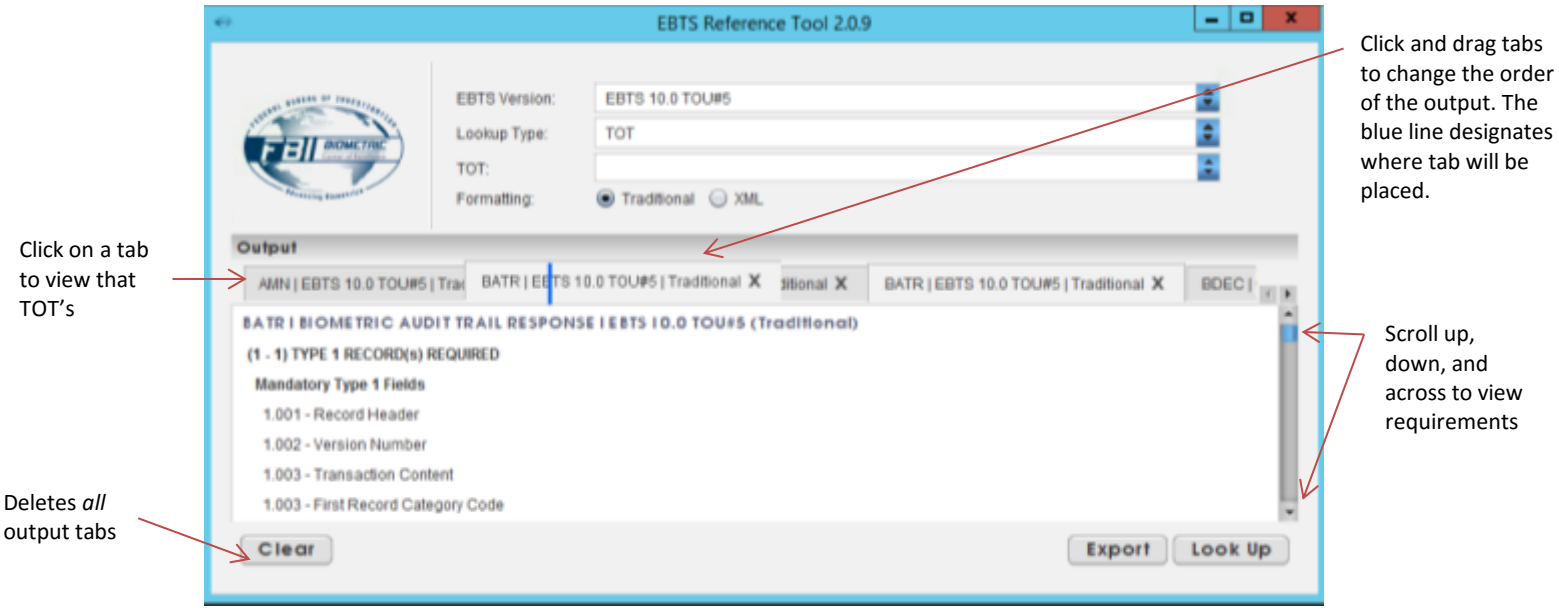

Figure 10. Reference Tool Output for TOTs (without Descriptions)

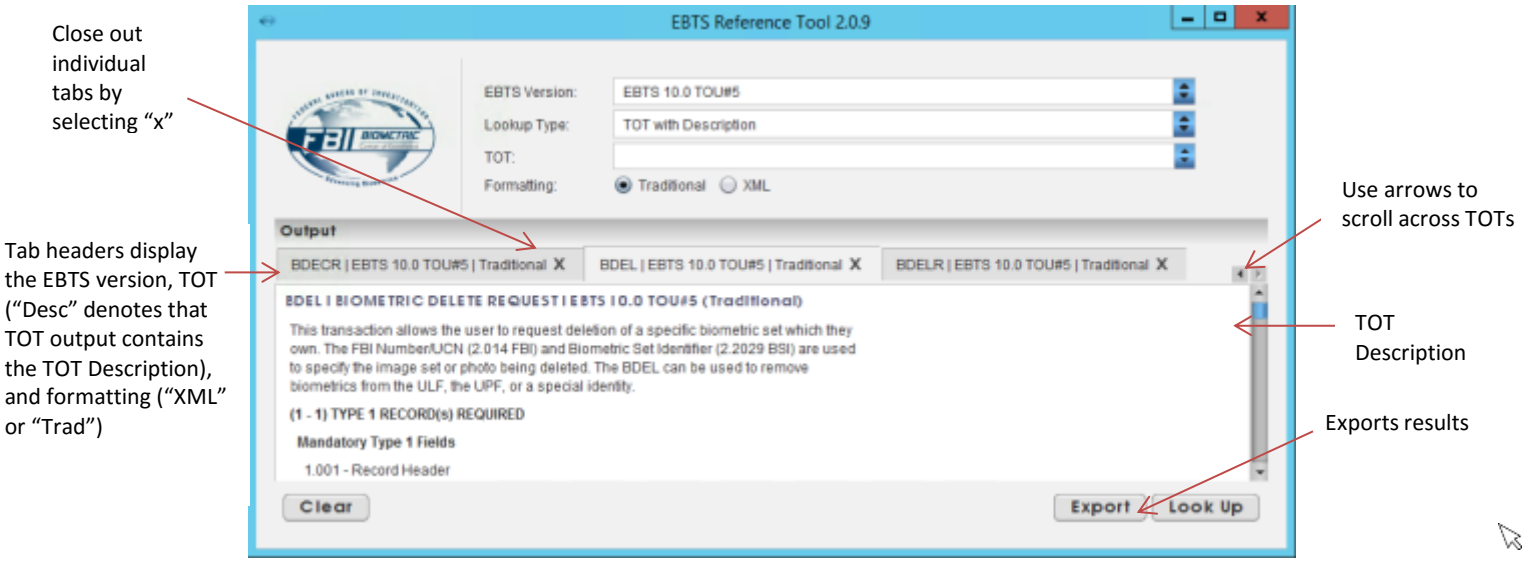

Figure 11. Reference Tool Output for TOTs (with Descriptions)

3. For each TOT, you will see a list of record types (e.g., “Type 1”). Each listed record type is required or optional depending on the occurrence listed. The only exceptions are “Type 1” and “Type 2” records, which are mandatory for all transactions. Under each record header is a list of mandatory and optional fields. Below describes the data displayed by the tool.
    a. The first item displayed (see Figure 12) is the “Type 1” header record, which is required for every TOT. The “Type 1” record lists the mandatory and optional “Type 1” fields, which remain constant for all TOTs.

1 TYPE 1 RECORD(s) REQUIRED
Mandatory Type 1 Fields
1.001 - Record Header
1.002 - Version Number
1.003 - Transaction Content
1.004 - Type of Transaction
1.005 - Date
1.007 - Destination Agency Identifier
1.008 - Originating Agency Identifier
1.009 - Transaction Control Number
1.011 - Native Scanning Resolution
1.012 - Nominal Resolution
Optional Type 1 Fields
1.006 - Transaction Priority
1.010 - Transaction Control Reference Number
1.013 - Domain Name
1.014 - Greenwich Mean Time
1.015 - Character Encoding
1.016 - Application Profile Specifications
1.017 - Agency Names

Figure 12. Example of Type-1 Record as Displayed by the Reference Tool

    b. Next is the Type-2 record (see Figure 13), which is also required for all TOTs. The “Type 2” record lists the mandatory and optional “Type 2” fields, which are dependent on the TOT.

1 TYPE 2 RECORD(s) REQUIRED
Mandatory Type 2 Fields
2.001 - Record Header
2.002 - Information Designation Character
2.075 - Electronic Rap Sheet
Optional Type 2 Fields
2.014 - FBI Number
2.073 - Controlling Agency Identifier
2.2022 - Contributor Assigned Identification Number

Figure 13. Example of “Type 2” Record as Displayed by the Reference Tool

    c. The last section shows additional record types that may exist in a transaction. It states the allowed number of instances of a record type and the mandatory and optional fields for each required record type. Figure 14 shows one example:

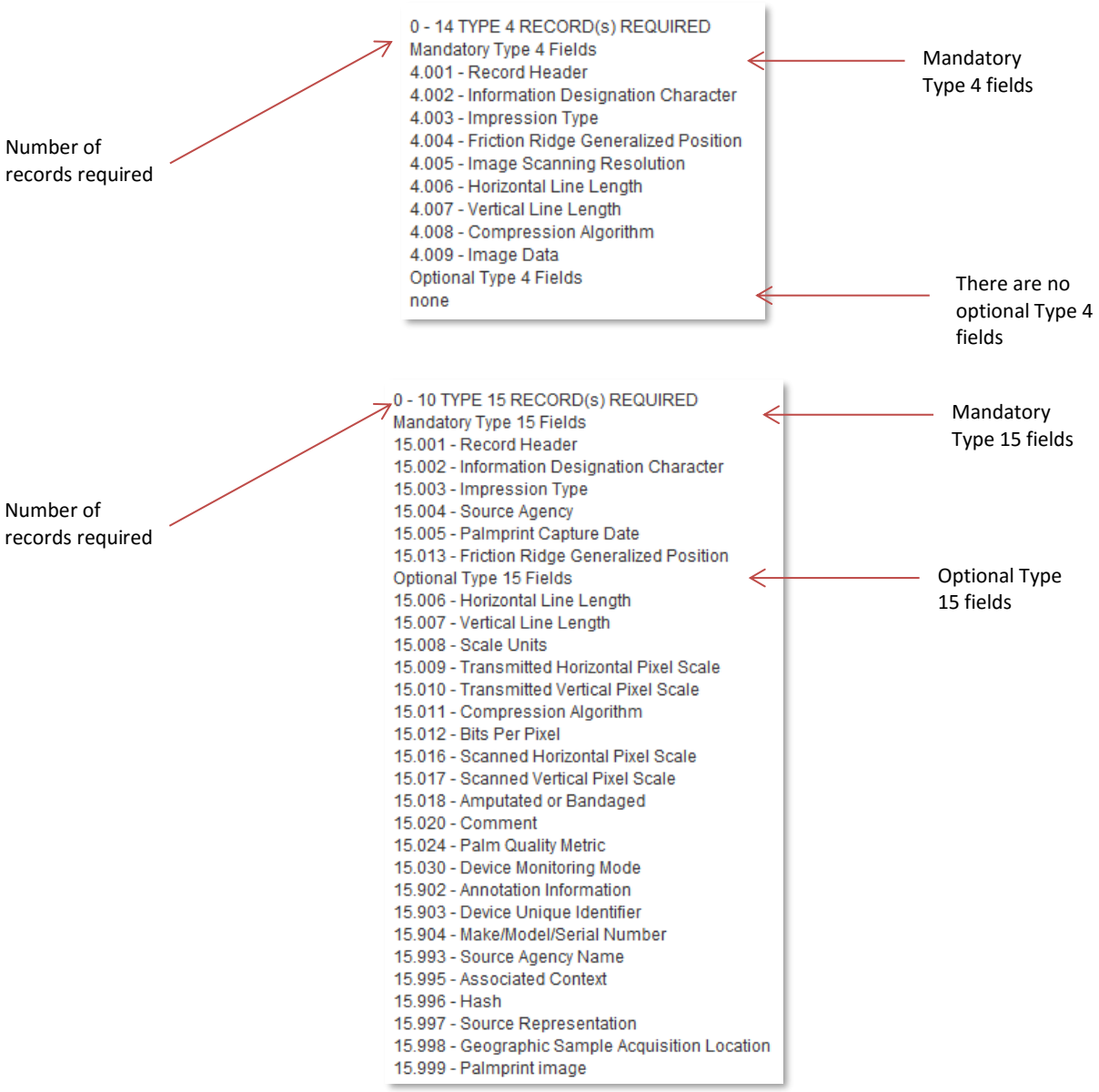

Figure 14. Example of Additional Record Types as Displayed by the Reference Tool

Step 6: View Record Description Output

1. Once you select “Record Description” from the Lookup Type pull-down, select the record type you wish to view. Click on the arrows next to the “Record” pull-down and a list of record types existing in the specified EBTS version will appear (Figure 15). Note that the record type list may change when you change EBTS versions. After selecting on the record types(s) you want to view, select the “Look up” button on the bottom right of the screen.

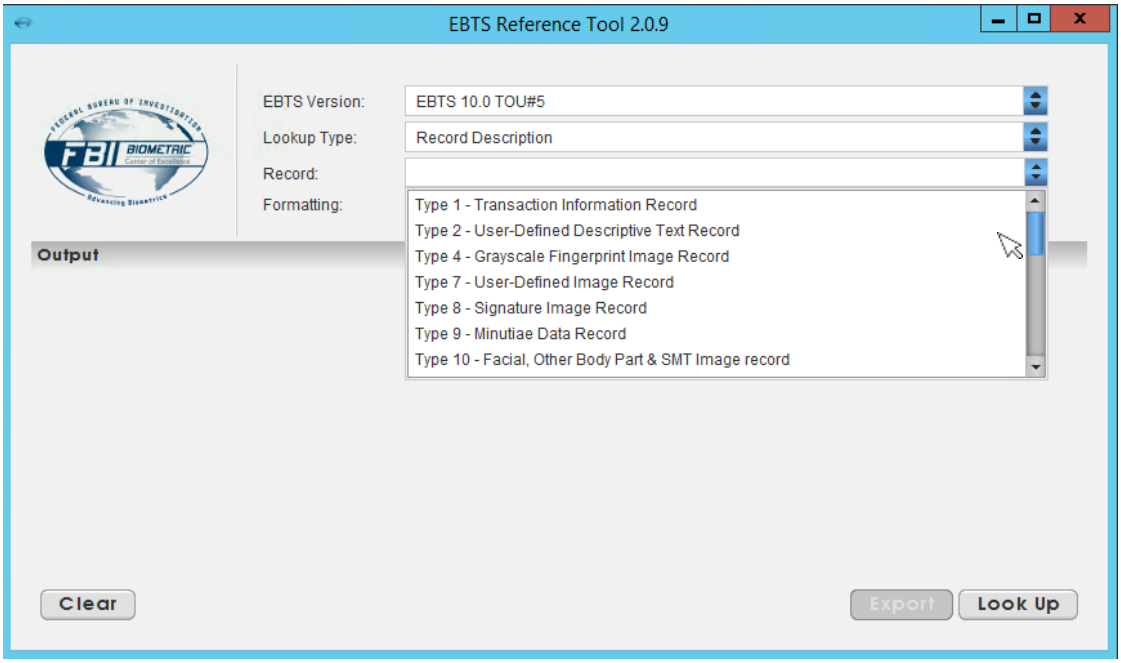

Figure 15. Reference Tool Main Screen with Record Type List

Note: You can select multiple record types (from one EBTS version) to look up simultaneously by holding Shift or Ctrl and clicking on the desired record types. Conversely, you can unselect a record type by holding Shift or Ctrl and clicking on the highlighted record type. Please note that Shift selects or unselects all items between the two items selected, whereas Ctrl selects or unselects only the two items.

2. Once you select the “Look Up” button, you will see a tab for each record type selected under “Output”. Figure 16 shows examples of the Reference Tool output. To view a record type, click on the tab for the appropriate one.

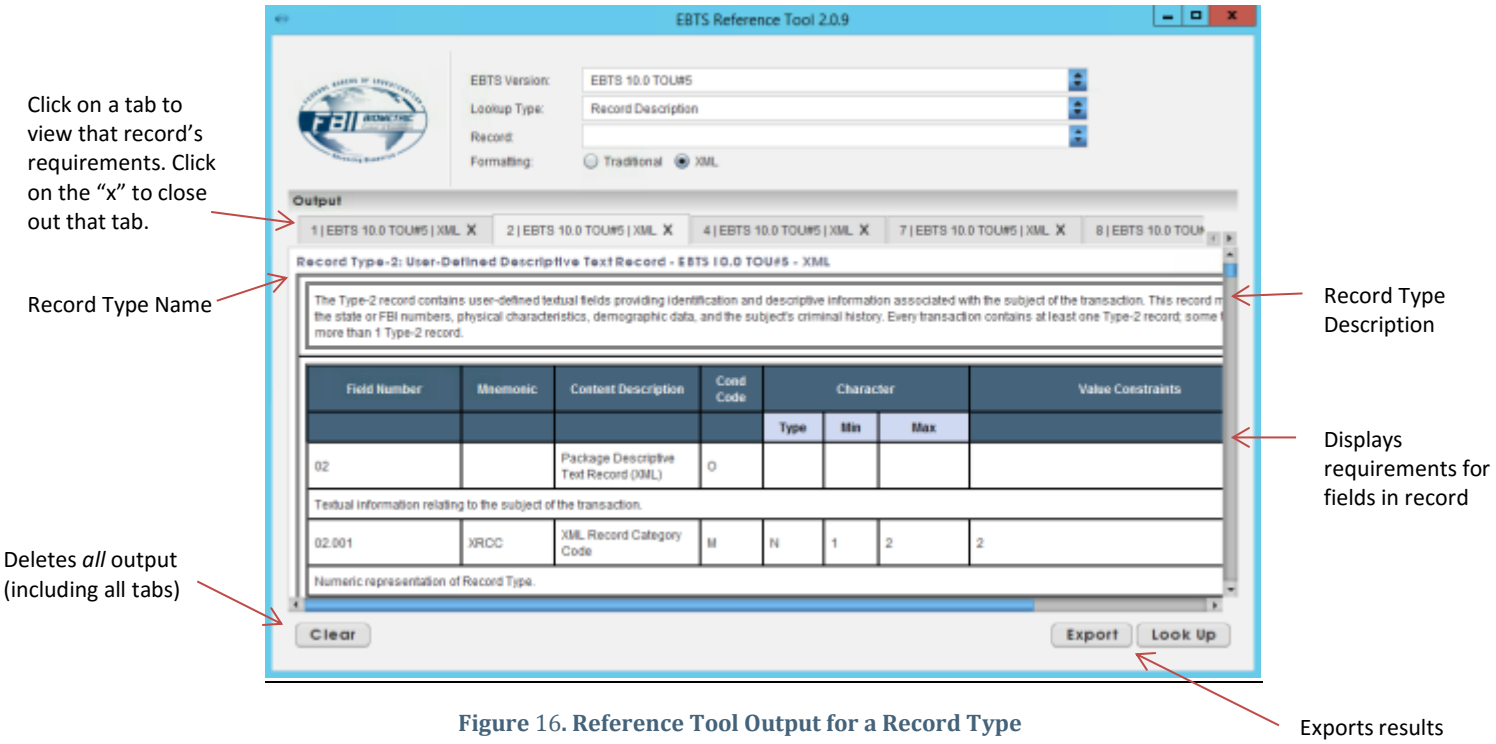

Figure 16. Reference Tool Output for a Record Type

Step 7: View Field Description Output

1. Once you select "Field Description" from the "Lookup Type" pull-down, select the field you wish to view. Click on the arrows next to the "Field" pull-down and a list of fields existing in the specified EBTS version will appear (see Figure 17). Note that the field list will change when you change EBTS versions. After clicking on the field(s) you want to view, select the "Look up" button at the bottom right of the screen.

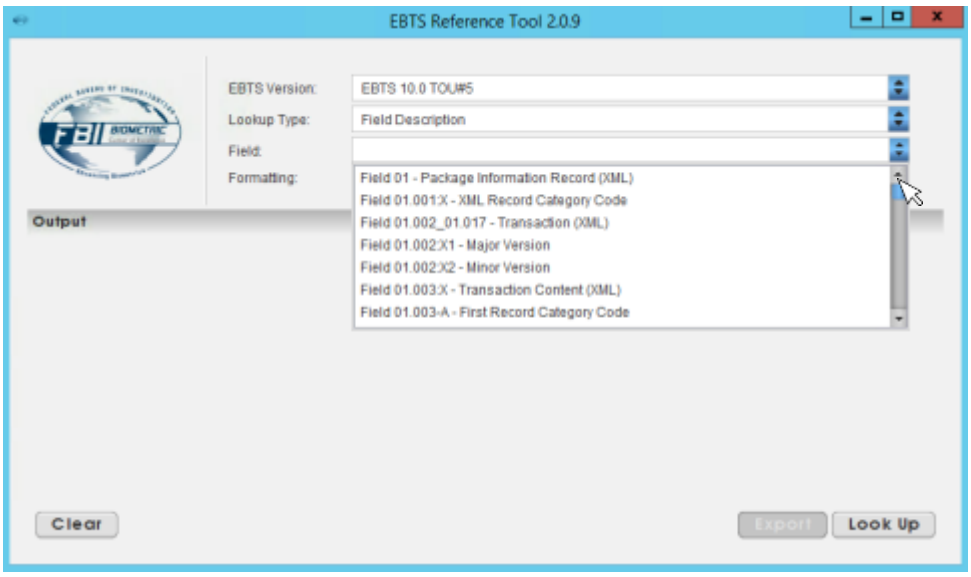

Figure 17. Reference Tool Main Screen with Field List

Note: You can select multiple fields (from one EBTS version) to look up simultaneously by holding Shift or Ctrl and clicking on the desired fields. Conversely, you can unselect a field by holding Shift or Ctrl and clicking on the highlighted field. Please note that Shift selects or unselects all items between the two items selected, whereas Ctrl selects or unselects only the two items.

Once you select the "Look Up" button, you will see a tab for each field selected under "Output". Figure 18 shows an example of the Reference Tool output. To view a field, click on the tab for the appropriate field.

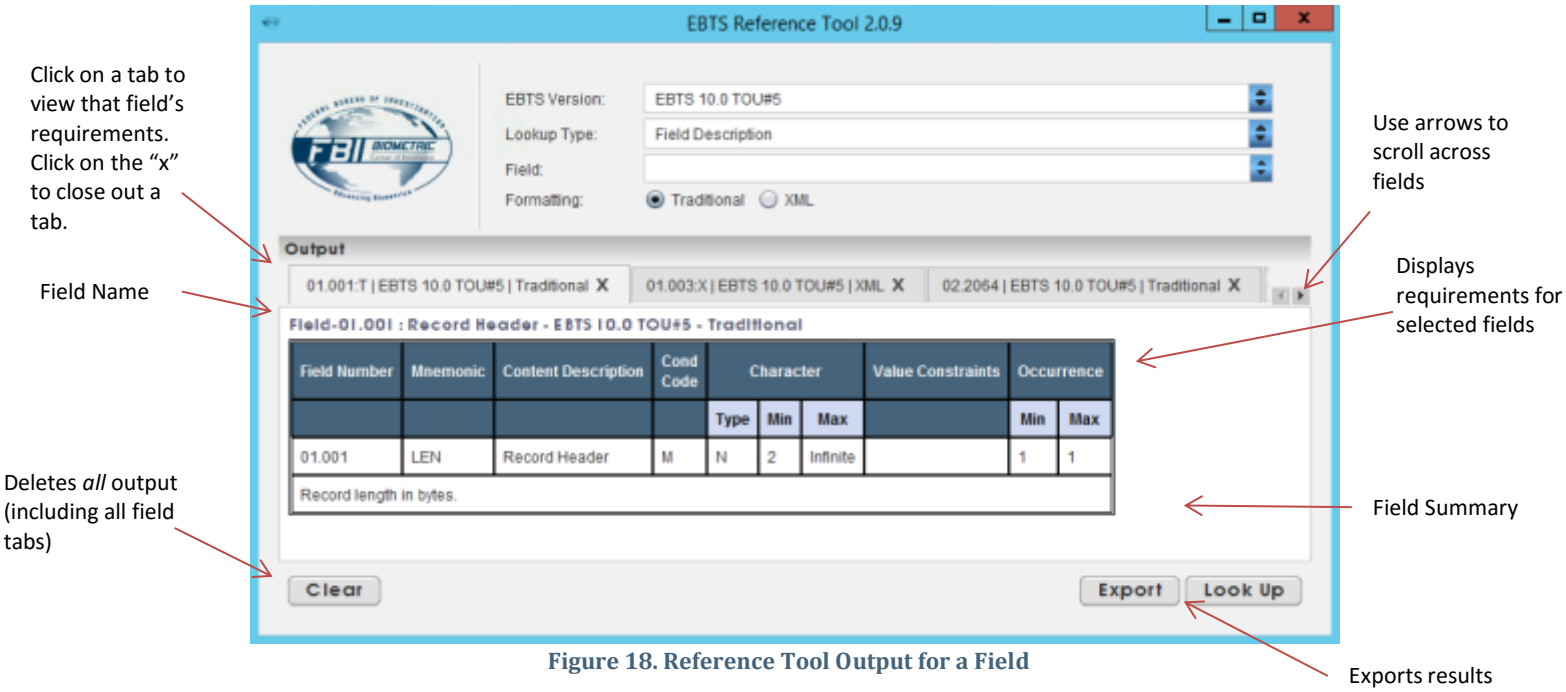

Figure 18. Reference Tool Output for a Field

Step 8: Export Files

1. If you want to export the output results, select the "Export" button at the bottom right of the screen. You will then be taken to the "Export Results" screen, shown in Figure 19, which will include a list each of the TOTs and fields existing in the current Reference Tool output. All TOT, record, and field outputs are checked by default and you can uncheck the items which you do not want in the export file.

2. Choose the format you would like to export in by selecting either "Export as TXT" (plain text format) or "Export as HTML".

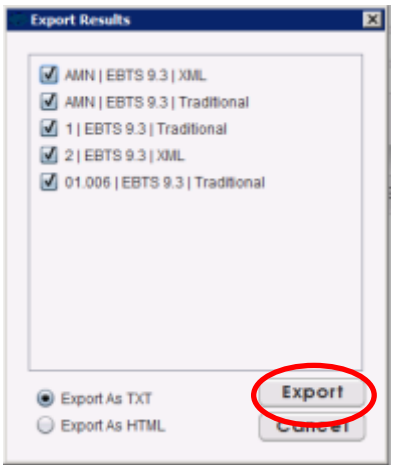

Figure 19. Reference Tool Export Results Screen

3. Select the "Export" button (see Figure 19). The next screen (Figure 20) will allow you to navigate in the file system to select where you would like to save the results. You can view the folder structure by selecting the arrows next to the "Look In" pull-down.

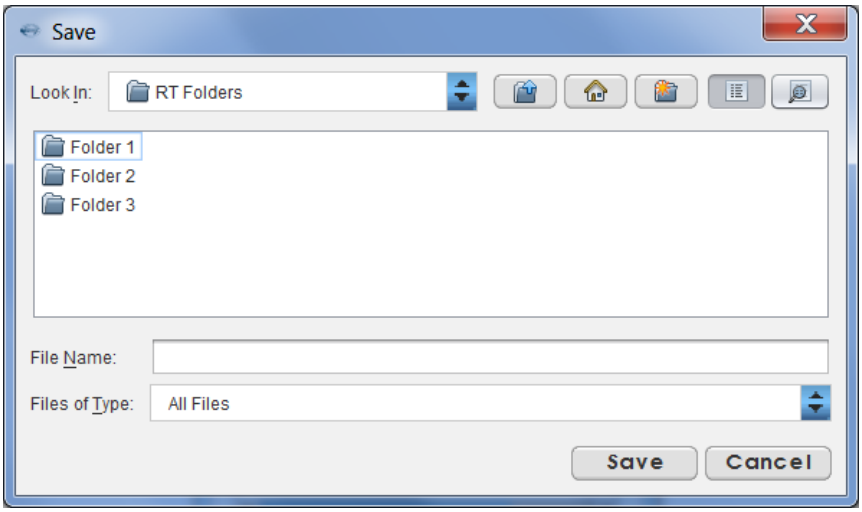

Figure 20. Reference Tool Save Screen

The screen contains the following selections:

Up One Level: Allows you to navigate to a parent folder

Desktop: Brings you to the files and folders on your desktop

New Folder: Creates a new folder in the current location

List: Sets the current view as a list of folders and files

Details: Sets the current view to Include the size, item type, and date modified of each folder/file in the list

4. Once you navigate to the folder in which you want to save the Reference Tool output, name the file and select "Save".

If saved as a TXT file, open the exported file in the default text processing software on your computer. In Windows, you can use Microsoft Notepad, Microsoft WordPad, Word, etc. by right clicking on the file name and selecting "Open With" (Figure 21).

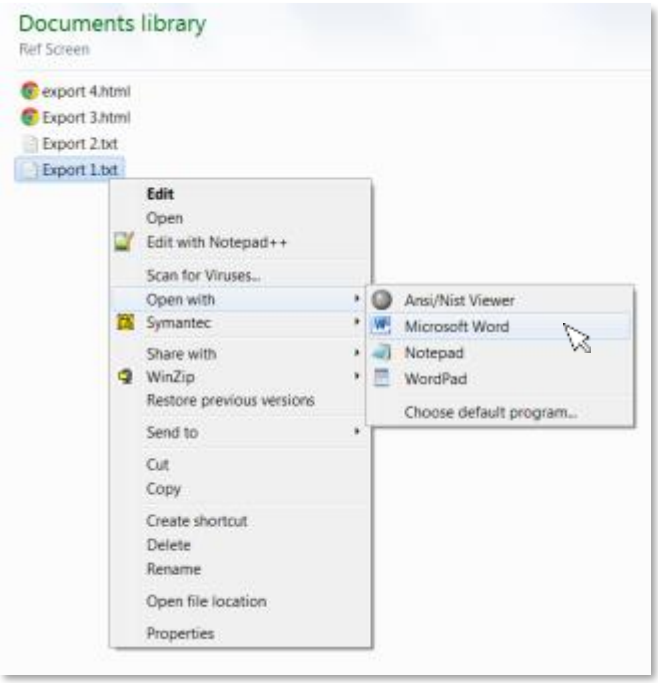

Figure 21. Opening an Exported .TXT File from the Reference Tool

Figure 22 through Figure 24 show examples of TXT export format.

```
AMN | AMNESIA VICTIM | EBTS 9.3 (XML)

(1 - 1) TYPE 1 RECORD(s) REQUIRED
Mandatory Type 1 Fields
        1.000 - Package Information Record (XML)
        1.000 - Transaction (XML)
        1.000 - Content Record Summary (XML)
        1.000 - Transaction Destination Organization (XML)
        1.000 - Transaction Originating Organization (XML)
        1.000 - Transaction Image Resolution Details (XML)
        1.001 - XML Record Category Code
        1.002 - Major Version
        1.002 - Minor Version
        1.002 - Version Number
        1.003 - Transaction Content (XML)
        1.003 - First Record Category Code
        1.003 - Content Record Count
        1.003 - Record Category Code (XML)
        1.003 - Information Designation Character (XML)
        1.004 - Type of Transaction
        1.005 - Date (XML)
        1.007 - Destination Agency Identifier
        1.008 - Originating Agency Identifier
        1.009 - Transaction Control Number
        1.011 - Native Scanning Resolution (XML)
        1.012 - Nominal Resolution (XML)
        1.013 - Domain Name
        1.015 - Character Encoding Set Index
        1.015 - Character Encoding Set Name
        1.016 - Application Profile Organization
        1.016 - Application Profile Name
        1.016 - Application Profile Version Number
Optional Type 1 Fields
        1.006 - Transaction Priority
        1.010 - Transaction Control Reference Number
        1.013 - Domain Name
        1.013 - Domain Version Number
        1.014 - Greenwich Mean Time (XML)
        1.015 - Character Encoding
        1.015 - Character Encoding Set Version
        1.016 - Application Profile Specifications
        1.017 - Destination Agency Name
        1.017 - Originating Agency Name
(1 - 1) TYPE 2 RECORD(s) REQUIRED
Mandatory Type 2 Fields
        2.001 - XML Record Category Code
        2.002 - Information Designation Character
        2.005 - Retention Code (XML)
```

Figure 22. Exported Text File Example 1

Record Type-1: Transaction Information Record - EBTS 9.3-Trad

Record Header

Field Number	Mnemonic	Content Description	Cond Code	Character Type	Character Min	Character Max	Value Constraints	Occurrence Min	Occurrence Max
1.001	LEN	Record Header	M	N	2	*		1	1
1.002	VER	Version Number	M	N	4	4	(0500)	1	1
1.003	CNT	Transaction Content	M					1	1000
1.003-A	FRC	First Record Category Code	M^	N	1	1	(1)	1	1
1.003-B	CRC	Content Record Count	M^	N	1	3	(1..999)	1	1
1.003-C	REC	Record Category Code	M^	N	1	2	(>1)	1	1
1.003-D	IDC	Information Designation Character	M^	N	1	2	(0..99)	1	1

Figure 23. Exported Text File Example 2

Field - 1.006 - PRY - Transaction Priority - EBTS 9.3-XML

The urgency with which transaction response is desired (1 = highest priority). Default value for field is defined by the agency receiving the transaction.

ID	Mnemonic	Name	Field Length Min	Field Length Max	Field Occurrence Min	Field Occurrence Max	Character Type	Value Range	Code Tables Example
1.006	PRY	Transaction Priority	1	1	0	1	N	(1..9)	

Figure 24. Exported Text File Example 3

If saved as an HTML file, open the exported file in the default internet browser by double clicking on the file name or, in Windows, by right clicking on the file name and selecting a browser using “Open With” (Figure 25).

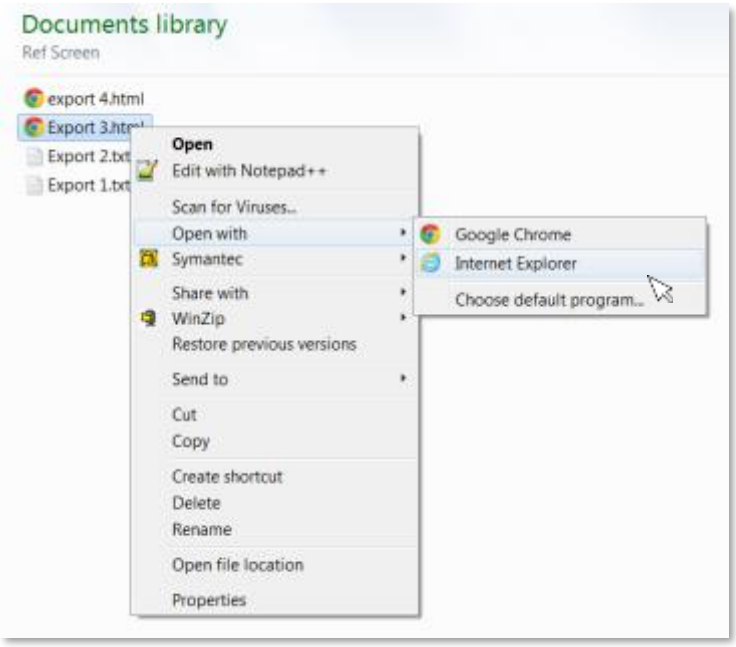

Figure 25. Opening an Exported HTML File

The HTML output contains a “Go To” menu which lists all the exported TOTs and fields. You can click on a TOT or field to navigate to the TOT/field/record type requirements and description. At the end of each listing there is a link to go “Back to the Top”, which you can select to return to the top of the export page.

Figure 26 shows an example of a HTML record format export.

BATQ | BIOMETRIC AUDIT TRAIL QUERY | EBTS 9.3 (Traditional)

(1 - 1) TYPE 1 RECORD(s) REQUIRED
Mandatory Type 1 Fields
1.001 - Record Header
1.002 - Version Number
1.003 - Transaction Content
1.003 - First Record Category Code
1.003 - Content Record Count
1.003 - Record Category Code
1.003 - Information Designation Character
1.004 - Type of Transaction
1.005 - Date
1.007 - Destination Agency Identifier
1.008 - Originating Agency Identifier
1.009 - Transaction Control Number
1.011 - Native Scanning Resolution
1.012 - Nominal Resolution
1.013 - Domain Name
1.015 - Character Encoding Set Index
1.015 - Character Encoding Set Name
1.016 - Application Profile Organization
1.016 - Application Profile Name
1.016 - Application Profile Version Number
Optional Type 1 Fields
1.006 - Transaction Priority
1.010 - Transaction Control Reference Number
1.013 - Domain Name
1.013 - Domain Version Number
1.014 - Greenwich Mean Time
1.015 - Character Encoding
1.015 - Character Encoding Set Version
1.016 - Application Profile Specifications
1.017 - Agency Names
1.017 - Destination Agency Name

Figure 26. Example HTML Record Format Export

Figure 27 shows an example of a HTML field format export.

Field-01.006 : Transaction Priority - EBTS 9.3 - Traditional

Field Number	Mnemonic	Content Description	Cond Code	Character			Value Constraints	Occurrence	
				Type	Min	Max		Min	Max
01.006	PRY	Transaction Priority	O	N	1	1	1..9		1
The urgency with which transaction response is desired (1 = highest priority). Default value for field is defined by the agency receiving the transaction.									

GoTo Top

Figure 27. Example HTML Field Format Export

Troubleshooting

1. If you run into errors validating transactions or downloading the tool, try clearing the Java cache. The following link describes how to do this: https://www.java.com/en/download/help/plugin_cache.xml
2. If you receive the error "Remote host closed during handshake", you will need to set the Java SSL/TLS protocol 1.2. In order to do this, please use the following instructions.

For Windows:	For Mac:	For Linux:
1. Click on the Start Menu and type Java in the search field a. From the list select "Configure Java"	1. Click on System Preferences and click on the Java icon towards the bottom	1. In a new tab on Mozilla, type or paste **about:config** in the address bar and press Enter. Click the button promising to be careful.
2. When the Java Control Panel open click on the "Advanced" Tab	2. When the Java Control Panel open click on the "Advanced" Tab	2. In the Search box above the list, type or paste **tls** and pause while the list is filtered
3. Scroll down to the bottom and under "Advanced Security Settings" check the box next to "Use TLS 1.2"	3. Scroll down to the bottom and under "Advanced Security Settings" check the box next to "Use TLS 1.2"	3. To disable SSL3 and requires TLS of one flavor or another, double-click 4. **security.tls.version.min** and enter the desired value: • 0 = SSL 3.0 okay • 1 = at least TLS 1.0 • 2 = at least TLS 1.1
4. Click "Apply" and close the Control Panel	4. Click "Apply" and close the Control Panel	5. To disable TLS of one flavor or another, double-click **security.tls.version.max** and enter the desired value: • 0 = up to SSL 3.0 • 1 = up to TLS 1.0 • 2 = up to TLS 1.1