DATA Act Schema Model

# Background

The DATA Act directs OMB and Treasury to establish Government-wide data standards for federal funds and entities receiving such funds. The data standards include both data definition standards and data exchange standards. While standard data definitions will help to ensure that information on USAspending.gov will be consistent and comparable, the data exchange standards will make financial management data accessible and reusable and provide the necessary linkages between financial events. By making federal spending data accessible, searchable, and reliable, the public can understand how the government affects their communities. Data exchange standards will also reduce the need for massive system changes across federal agencies to collect information and allow agencies to focuses on managing data.

Accordingly, Treasury will issue data exchange standards that leverage industry standards to tag financial and non-financial data with metadata, or structured information that describes, explains, locates, or otherwise makes it easier to retrieve data. Treasury will require agencies to submit data for posting on USAspending.gov (or successor site) via a standard data exchange called the DATA Act Schema.

The standard data exchange, or DATA Act schema, has two components: a standard taxonomy and a standard format, or “language” for exchanging data. The DATA Act schema includes the required DATA Act data elements and related metadata, including relationships and validation rules. The DATA Act schema will provide a comprehensive view of the data definition standards and their relationships to one another.

Treasury has created a subset of the DATA Act schema based upon a subset of U.S. Standard General Ledger (USSGL) and expressed in XBRL. The draft schema can be found [here](http://fedspendingtransparency.github.io/data-exchange-standard/). Additional components of the DATA Act schema that capture other data elements will be created in the future. For data transmission within the federal government and to external stakeholders, Treasury will leverage a combination of XBRL, JSON, Protocol Buffer, CSV, and other formats, as appropriate. This will allow matching of the optimal format given data volume, performance, and data presentation needs.

The DATA Act schema will be revised periodically and is expected to evolve over time to capture unique requirements for more complex or specialized areas and to reflect changes due to law or regulation.

The DATA Act schema, including a both the technical representation and “human readable” taxonomy documentation and format are provided [here](http://fedspendingtransparency.github.io/data-exchange-standard/).

# Summary

The draft DATA Act schema, as depicted here in Figure 1, is a model that includes the [DATA Act data element](http://fedspendingtransparency.github.io/dataelements/) areas. The model represents both awards (Financial Assistance, Contract, and Loan) and financial data (i.e., Total Budget Authority, Outlays).

The DATA Act schema will be composed of several schemas, standardizing the way we represent financial assistance, contract, and loan award data as well financial data.

Figure 1: The DATA Act schema



Each of these schemas can be seen as a building block to assemble structured data oriented to US Standard General Ledger (USSGL) [Insert hyperlink in text “USSGL”: http://tfm.fiscal.treasury.gov/v1/supplements/ussgl.html] accounting concepts. The USSGL provides a uniform chart of accounts and technical guidance for standardizing federal agency accounting.

The structure of the DATA Act schema is such that a complete representation is “compiled” by assembling a set of schemas via a parent schema to represent a specific business concept around financial assistance, contracts, loans, either singularly or in any combination.

# Scope of Release

This document defines the current release of the draft DATA Act schema for review. The draft DATA Act schema is a work in progress and, as such, this is a living document intended to change with each new release.

In the current release, only the draft USSGL-Financial schema (depicted in blue) is being released for review. Subsequent releases will begin to include the other schemas (depicted in grey) as they are completed.

## Broader Considerations

In anticipation of future releases to both the financial and award schemas, please note the following broad considerations.

### The Interaction of the Awards and Financial Modules

It is important to note that the modular structure of the DATA Act schema allows for both a one-to-one OR a one-to-many relationship between an award (e.g., contract, loan, etc.) and the [object class](http://fedspendingtransparency.github.io/whitepapers/objectclass/) of a USSGL account and its transactions. The USSGL account transaction and the award are linked by the award identifier (awardNumber) in the DATA Act schema.

Figure 2: Awards relationship to USSGL accounts



As depicted in Figure 2, each award transaction entry contains a link called an award identifier which links it directly to the USSGL accounts and transaction for that award. The USSGL accounts and transactions also contain an object class descriptor, which allows the accounts and transactions to be associated with one or more object class values. These can be at both the summary USSGL account level and the detailed transaction level. Note: this representation of object class does not constitute official USSGL guidance (For official guidance, see <http://tfm.fiscal.treasury.gov/v1/supplements/ussgl.html>).

### Benefits: Enhanced Analytic Capabilities

The implementation of a DATA Act schema creates a common language across information assets and can represent data across multiple systems. This creates some distinct advantages around:

Improved business intelligence capabilities across disparate sources of data

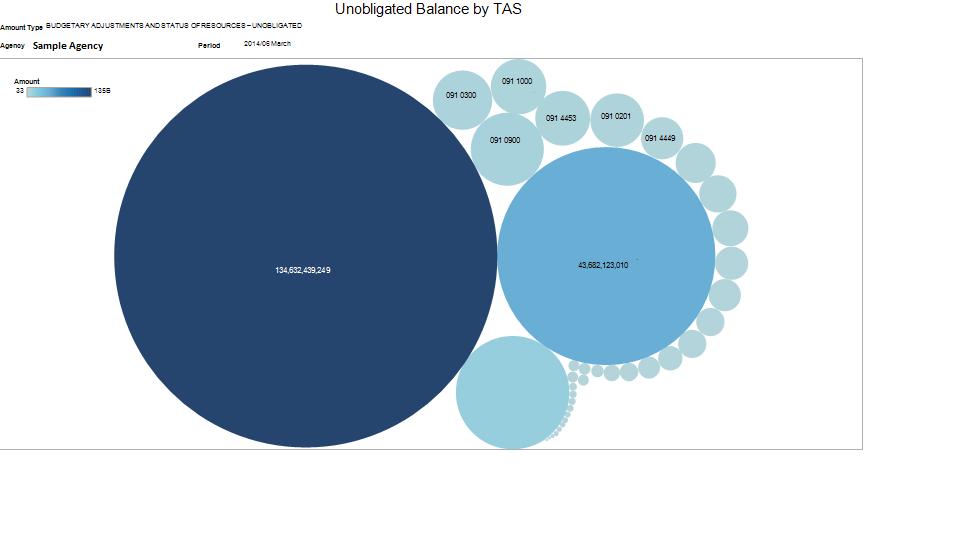
More effective self-service of business intelligence

Cross-agency analysis opportunities

Elimination of redundant reporting/report updates and maintenance

For example, by implementing the DATA Act schema, a user can enhance and enable real-time analysis of balances of budget authority by appropriations account, which can better enable agencies to manage their programs.

Figure 3: Budget Authority (illustrative example)

The analysis in Figure 3 represents a sample of how a user could analyze information on obligations unpaid/pre-paid/advanced, segment it by apportionment category and even review the detailed USSGL account entries. Because the DATA Act schema creates a standard, historical data the user can expand the analysis to budget authorities spanning multiple years.

# Derived DATA Act Elements

The DATA Act schema provides detailed data and aggregates that detail into summary level information. Below is a list of DATA Act elements, which are considered summary-level, and a description of how those values are derived from the detailed account transaction-level data. Note: The below table does not constitute as official USSGL guidance (For official guidance, see <http://tfm.fiscal.treasury.gov/v1/supplements/ussgl.html>).

|  |  |
| --- | --- |
| **Data Element Name** | **Aggregate values** |
| Appropriations Account | Summary based on the TAS/TAFS (i.e. 01X1234) |
| Amount of Budget Authority Appropriated | Calculated based on USSGL account balances, There are a number of USSGL accounts which make up this value including; Appropriated, Contract, Borrowing, and Spending Authority from Offsetting Collections |
| Obligated Amount | Calculated based on USSGL account balances and difference between opening and closing balances, Main USSGL accounts are 480100, 480200, 490100, 490200\*\* |
| Unobligated Amount | Calculated based on USSGL account balances, Main USSGL accounts are 445000, 451000, 461000 and 465000\*\* |
| Amount of other budgetary resources | Calculated based on USSGL account balances |
| Outlay | Calculated based on USSGL account balances and difference between opening and closing balances, Main USSGL accounts are 480200 and 490200\*\* |

\*\*Note that the USSGL accounts listed don't make up the entire population of possible USSGL accounts for those balances, but those will be the biggest accounts.

## Financial DATA Act Elements

Element: accountingEntries

Proposed Type: complex

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Data Element** | **Description** | **Type** | **Length** | **Example** | **Data Act Element** |
| fiscalYear | Designates the fiscal year for which the data is being submitted. | String | 4 | 2014 | - |
| Period | Designates the month for which the data is being submitted. This is a 2 digit number that starts with 01 for October and goes through 12 for September. | String |  | 6 | - |
| [USSGLentryHeader](#_Type:USSGLentryHeader) |  | See complex type USSGLentryHeader below | - | - | - |

### Entry Header

Element: USSGLentryHeader

Proposed Type: complex

Source: GTAS Mapping.xlsx

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Data Element** | **Description** | **Type** | **Length** | **Example** | **Data Act Element** |
| [TreasuryAccountSymbol](#_Type:_TreasuryAccountSymbol) |  | See complex type TreasuryAccountSymbol  Below | - | - | - |
| [USSGLentryDetail](#_Type:USSGLentryDetail) |  | See complex type USSGLentryDetail below | - | - | - |

#### Treasury Accounting Symbol

Element: TreasuryAccountSymbol

Proposed Type: complex

Treasury Account Symbol. An identification code assigned by the Department of the Treasury, in collaboration with OMB and the owner agency, to an individual appropriation, receipt, or other fund account. (These accounts are defined in TFM Volume I, Part 2, and Chapter 1500.) The term "Treasury Account Symbol" is a generic term used to describe any one of the account identification codes assigned by the Department of the Treasury. The term "Treasury Appropriation/Fund Symbol" (TAFS) is used to describe a particular type of TAS-one with budget authority. All financial transactions of the federal government are classified by TAS for reporting to the Department of the Treasury and OMB. Note that the proposed definition of TAS will be posted here when it becomes available [insert link to TAS on data elements page].

Source: GTAS Mapping.xlsx

Source: <http://fms.treas.gov/cars/factsheet_tas.html>

DATA Act element definitions in the table below correlate directly to the DATA Act element definitions found [here](http://fedspendingtransparency.github.io/data-exchange-standard/).

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Data Element** | **Description** | **Type** | **Length** | **Example** | **Data Act Element** |
| [allocationTransferID](#_Type:USSGLaccount) | This is a component of the TAS. Identifies the agency receiving funds through an allocation transfer. | String |  |  | - |
| [agencyID](#_Type:USSGLentryDetail) | This is a component of the TAS. Identifies the department, agency, or establishment of the U.S. government that is responsible for the TAS. | String |  | 20 | Funding Entity Information / Agency Code |
| agencyDescription |  | String |  |  | Funding Entity Information /Agency Name |
| beginningPOA | A component of the TAS. It identifies the last year of availability under law that an account may incur new obligations for annual and multiyear TAS. The field is blank for unavailable receipt TAS and TAS that have a value for availability type | String |  |  | - |
| endPOA | A component of the TAS. It identifies the last year of availability under law that an account may incur new obligations for annual and multiyear TAS. The field is blank for unavailable receipt TAS and TAS that have a value for availability type | String |  |  | - |
| availableTypeCode | This is a component of the TAS. Identifies no-year TAS (X), clearing/suspense TAS (F), and default TAS (C). This field is blank for TAS that have periods of availability and unavailable receipt TAS. | availableTypeCodeItemType  (enumeration)  (string) | 1 | C  F  X | - |
| mainAccount | This is a component of the TAS. Identifies the type and purpose of the fund. This field cannot be blank. | string |  | 0310 | - |
| subAccount | This is a component of the TAS. Identifies an available receipt or other Treasury-defined subdivision of the main account. This field cannot be blank. Subaccount 000 indicates that there is no subaccount. | string |  | 0 | - |
| beaCategoryCode | Budget Enforcement Act Code indicates if budget authority and outlays are controlled by annual appropriation acts (discretionary) or by permanent laws (mandatory). | beaCategoryCodeItemType  (enumeration) | 1 | D  G  M  N  S | - |
| budgetAgency | Identifies a department, agency or establishment of the U.S. Government that is responsible for the budget account. This is the same as the Agency Identifier shown as part of the TAS | String |  | 15 | - |
| budgetBureau | A Budget Bureau is an organizational unit within a Budget Agency and consists of one or more accounts for presentation in the President's Budget. | string |  | 0 | - |
| budgetSubFunction | OMB assigns each expenditure and offsetting receipt account a three-digit code that corresponds to the account's sub-functional classification (e.g., national defense, income security, agriculture). Annually, OMB consults with CBO and other relevant budget and appropriation committee staff members regarding functional and sub-functional classification. This process, which is required by statute, typically occurs from October through December. | string |  | 0 | - |

#### USSGL Entry Detail

Element: USSEntryDetail

Proposed Type: complex

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Data Element** | **Description** | **Type** | **Length** | **Example** | **Data Act Element** |
| [USSGLaccount](#_Type:USSGLaccount) | Identifies the USSGL account. The USSGL account must be in the USSGL chart of accounts. | See complex type USSGLaccount below | - | - | - |
| [amount](#_Type:USSGLentryDetail) | This field contains the balance of the USSGL account. Each USSGL account on each row of the bulk file must have a balance. | monetaryItemType  (numeric) | Unbounded | 222750500.50 | - |
| debitCreditCode | Indicates whether the amount reported is debited or credited to the USSGL account | debitCreditCodeItemType  (enumeration) | 1 | D  C  debit  credit  undefined | - |
| beginningEndIndicator | Indicates whether the balance or an USSGL account/attribute combination is at the start of the fiscal year or at the end of a period | beginningEndIndicatorItemType  (enumeration) | 1 | B  E | - |
| authorityType | Distinguishes among the types of budgetary resources, where it is not possible to do so by the USSGL Account Number Code. For example, the USSGL rescission accounts (USSGL accounts 4392 and 4393) do not distinguish between rescissions of appropriations or contract authority. | authorityTypeItemType  (enumeration) | 1 | B  C  D  E  F  P  R  S | - |
| reimbursableFlag | Indicates whether amounts for goods, services, and joint project support are financed by offsetting collections. | reimbursableFlagItemType  (enumeration) | 1 | D  R | - |
| apportionmentCategoryCode | Identifies OMB apportionments by quarters (Category A) or by other specified time periods, programs, activities, projects, objects, or combinations of these (Category B), or are not subject to apportionment (Category E). | ApportionmentCategoryCodeItemType  (enumeration) | 1 | A  B  E | - |
| apportionmentCategoryBProgramCode | The code representing the category A/B and B program used on the SF 132 apportionment schedule. Apportionment Category B Program Code is the four digit number from 6011-6159 that represents a line on the apportionment schedule. The category B program code is required if the apportionment category is A/B or B. Category B programs are subject to the Anti-Deficiency Act | String |  | 6013 | - |
| programReportCategoryNumber | Identifies a program report category that agencies use when reporting their obligations in their detailed financial information. Agencies may use this code when reporting either Category A or Category B obligations. Unlike the Apportionment Category B Program, this code is NOT subject to the Anti-Deficiency Act | String |  | 999 | - |
| federalNonFederalIndicator | Indicates the type of entity involved in transactions with the reporting entity: other Federal entities (F); non-Federal  entities such as private/local/state/tribal/foreign  governments (N), exceptions for other non-Federal partners (E), or General Fund only, G. | federalNonFederalIndicatorItemType  (enumeration) | 1 | E  F  G  N  Z | - |
| tradingPartnerAgencyIdentifier | Represents the agency identifier of the other department, agency, or establishment of the U. S. government involved in transactions with the reporting entity. Required with the proprietary USSGLs if the Fed/Non-Federal Indicator = F or G. | String |  | 99 | - |
| tradingPartnerMainAccountCode | Represents the treasury main account code of the other department, agency, or establishment of the U. S. Government involved in transactions with the reporting entity. Required with the proprietary USSGLs if the Fed/Non-Federal Indicator = F. | String |  | 0000 | - |
| yearOfBudgetAuthorityCode | Identifies whether outlays are from the new budget authority (NEW) or from budget authority carried forward from the prior year (BAL). Used for expenditure TAS that are not credit financing TAS. | yearOfBudegtAuthorityCodeItemType  (enumeration) | 3 | BAL  NEW | - |
| availabilityTimeIndicator | Indicates whether a budgetary resource is available for new obligations in the current period, or in a subsequent period within the current fiscal year or after being reapportioned in a future fiscal year. | availabilityTimeIndicatiorItemType  (enumeration) | 1 | A  S | - |
| beaCategoryIndicator | Indicates whether the Budget Enforcement Act (BEA) category is mandatory or discretionary. | beaCategoryIndicatorItemType  (enumeration) | 1 | D  M | - |
| borrowingSource | Indicates whether borrowing took place from the public, Treasury, or a Federal financing bank. Required if authority type code is B (borrowing). | borrowingSourceItemType  (enumeration) | 1 | F  P  T | - |
| exchangeNonExchangeIndicator | Indicates whether the revenue, gains or losses balances being reported is exchange (X), non-exchange (T) or (E) exchange revenue with little or no associated costs. | exchangeNonExchangeIndicatorItemType  (enumeration) | 1 | E  T  X | - |
| custodialNonCustodialIndicator | Custodial amounts are reported on the Statement of Custodial Activity (SCA) or on the custodial footnote. Noncustodial amounts are not reported on the SCA nor on the custodial footnote. | custodialNonCustodialItemType  (enumeration) | 1 | A  S | - |
| budgetaryImpact | Indicates whether financing resources and non-exchange revenue have an impact on the budget | budgetaryImpactItemType  (enumeration)  (string) | 1 | D  E | - |
| priorYearAdjustmentCode | Changes to obligated or unobligated balances that occurred in the previous fiscal year but were not recorded in the appropriate TAFS as of October 1 of the current fiscal year. Exclude upward and downward adjustments to current-year/prior-year obligations and most reclassifications from clearing accounts. | priorYearAdjustmentCodeItemType  (enumeration) | 1 | B  P  X | - |
| creditCohortYear | Fiscal year when direct loans are obligated or guarantees committed by a program, even if disbursements occur in subsequent fiscal years. | gYearItemType) not used  (string) | 4 | 2014 | - |
| programIndicator | The amount of cost or revenue directly or indirectly traceable to programs | programIndicatorItemType  (enumeration) | 1 | P  Q | - |
| reductionType | The code representing the type of reduction being reported (e.g., Across The Board, Sequestration or Other) in detailed financial information. The domain values may change in subsequent fiscal | reductionTypeItemType  (enumeration) | 3 | AB1  AB2  AB3  AB4  AB5  ATB  SQ1  SEQ  XXX  OTR | - |

##### USSGL Account

Element: USSGLaccount

Xml Type: complex

Source: GTAS Mapping.xlsx

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Data Element** | **Description** | **Type** | **Length** | **Example** | **Data Act Element** |
| USSGLAccountNumber |  | string |  | 101000 | - |
| [objectClass](#_Type:USSGLentryDetail) |  | string |  | 11.1 | #74 |
| awardNumber | Award ID | string |  | FSA-5000000-14-0012 | #80 |

# Appendix

## Supporting Meta-data Identified

Meta-data is descriptive data, which creates context for the data it is describing. For example, an agency identifier is typically a number (71) but the meta-data of a description (Dept. of Agriculture) provides the end user with an understanding of what “71” means.

* NAICS codes and descriptions
* Recipient Identification numbers and meta-data
* USSGL Chart of Accounts Descriptions
* Agency descriptions/names