

CSDR Cost and Hour Report (Flex File)

Version 1.0

File Format Specification

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1 Overview

This document is intended as a technical reference for computer programmers implementing software to support the exchange of data composing the CSDR Cost and Hour Report (Flex File).

2 Data Model

Data in a CSDR Cost and Hour Report (Flex File) are modeled as a collection of tables related by primary and foreign key constraints.

2.1 Data Model Conventions

2.1.1 Tables

A table has a collection of fields and a collection of records. Each field has a name and a primitive data type. Each record has a collection of field values. Each field value must be consistent with the data type of the corresponding field. Records have an implicit sequence.

2.1.2 Nullable Fields

Records may omit values for fields that are nullable but must include values for fields that are not nullable. Unless otherwise noted, omitted field values may be interpreted as null, undefined, or “not applicable”. All of these interpretations are considered equivalent.

2.1.3 Key Constraints

A primary key constraint defines a collection of fields for a table such that the corresponding field values uniquely identify each record. No two records may have the same collection of corresponding field values.

A foreign key constraint defines a correspondence between a field in one table and a field in another table such that the field value for each record in the former must match the field value for some record in the latter.

2.1.4 Enumerations

Enumerations are implicit lookup tables available for use with foreign key constraints.

2.1.5 Singletons

Singletons are tables with exactly one record.

2.1.6 Strings

Strings are sequences of text characters defined by the Unicode standard.

The following control characters are prohibited in all string values: (U+0000–U+0008), (U+000B–U+000C), (U+000E–U+001F), (U+007F). String values used as ID's are further limited to a character set representing common printable characters (U+0020–U+007E).

Most string values must have normalized whitespace. A string value with normalized whitespace cannot begin or end with whitespace characters, cannot contain any whitespace characters other than the space character (U+0020), and cannot contain any sequence of two or more contiguous space characters.

Normalized whitespace is not required for string values used for remarks or other expository text.

Comparison of string values for the purpose of verifying key constraints is not case sensitive.

Empty string values are interpreted as equivalent to null values for fields with a string data type. Records must include non-empty string values for string fields that cannot be null.

2.1.7 WBS Hierarchical Structure

The hierarchical structure of the WBS is determined based on the level and sequence of the elements reported. Specifically, elements must be sorted in a manner consistent with a depth-first search of the element hierarchy, such that the parent element of a given element must be the nearest preceding element with a reported level less than that of the given element. Each element that succeeds another must have a level that is no more than 1 greater than the level of the preceding element. The minimum level is 1.

2.2 Tables

2.2.1 ReportConfiguration

Table	ReportConfiguration		
Entity	ReportConfiguration		
Fields	Name	Data Type	Nullable
	DetailedStandardCategory	Boolean	No
	GA_AsStandardCategory	Boolean	No
	FCCM_AsStandardCategory	Boolean	No
	ForecastAtCompletion_ByNonrecurringOrRecurring	Boolean	No
	ForecastAtCompletion_ByStandardCategory	Boolean	No
Primary Key	[N/A]		
Foreign Keys	[N/A]		
Use Constraints	ReportConfiguration is a singleton.		

2.2.2 ReportMetadata

Table	ReportMetadata		
Entity	ReportMetadata		
Fields	Name	Data Type	Nullable
	SecurityClassification	String	No
	ProprietaryStatement	String	Yes
	ProgramName	String	Yes
	PhaseOrMilestoneID	StringID	Yes
	PrimeMissionProduct	String	Yes
	CommodityType	String	Yes
	ReportingOrganization_OrganizationName	String	Yes
	ReportingOrganization_DivisionName	String	Yes
	ReportingOrganization_CageCode	String	Yes
	ReportingOrganization_Location_Street	Text	Yes
	ReportingOrganization_Location_City	String	Yes
	ReportingOrganization_Location_State	String	Yes
	ReportingOrganization_Location_ZipCode	String	Yes
	ReportingOrganization_Location_Country	String	Yes
	ApprovedPlanNumber	String	Yes
	ApprovedPlanRevisionNumber	String	Yes
	CustomerName	String	Yes
	ContractTypeID	StringID	Yes
	ContractPrice	Decimal	Yes
	ContractCeiling	Decimal	Yes
	ContractNumber	String	Yes
	PeriodOfPerformance_StartDate	Date	Yes
	PeriodOfPerformance_EndDate	Date	Yes
	ReportCycleID	StringID	Yes
	SubmissionEvent_Number	Integer	Yes
	SubmissionEvent_Name	String	Yes
	SubmissionEvent_IsWildcard	Boolean	Yes
	ResubmissionNumber	Integer	Yes
	ReportAsOf	Date	Yes
	PointOfContact_Name	String	Yes
	PointOfContact_Department	String	Yes
	PointOfContact_TelephoneNumber	String	Yes
	PointOfContact_EmailAddress	String	Yes
	DatePrepared	Date	Yes
	ReportingPeriodID	Integer	No
Primary Key	[N/A]		
Foreign Keys	PhaseOrMilestoneID: PhaseOrMilestoneEnum(ID) ContractTypeID: ContractTypeEnum(ID) ReportCycleID: ReportCycleEnum(ID) ReportingPeriodID: ReportingPeriod(ID)		
Use Constraints	ReportMetadata is a singleton.		

2.2.3 OrdersOrLots

Table	OrdersOrLots		
Entity	OrderOrLot		
Fields	Name	Data Type	Nullable
	ID	StringID	No
	Name	String	No
	PhaseOrMilestoneID	StringID	Yes
	CustomerName	String	Yes
	ContractTypeID	StringID	Yes
	ContractPrice	Decimal	Yes
	ContractCeiling	Decimal	Yes
	PeriodOfPerformance_StartDate	Date	Yes
	PeriodOfPerformance_EndDate	Date	Yes
AppropriationTypeID	StringID	Yes	
Primary Key	ID		
Foreign Keys	PhaseOrMilestoneID: PhaseOrMilestoneEnum(ID) ContractTypeID: ContractTypeEnum(ID) AppropriationTypeID: AppropriationTypeEnum(ID)		
Use Constraints			

2.2.4 CLINs

Table	CLINs		
Entity	CLIN		
Fields	Name	Data Type	Nullable
	ID	StringID	No
	Name	String	No
	ContractTypeID	StringID	Yes
Primary Key	ID		
Foreign Keys	ContractTypeID: ContractTypeEnum(ID)		
Use Constraints			

2.2.5 EndItems

Table	EndItems		
Entity	EndItem		
Fields	Name	Data Type	Nullable
	ID	StringID	No
	Name	String	No
Primary Key	ID		
Foreign Keys	[N/A]		
Use Constraints			

2.2.6 WBS

Table	WBS		
Entity	WBSElement		
Fields	Name	Data Type	Nullable
	Level	Integer	No
	ID	StringID	No
	Name	String	No
	ParentID	StringID	Conditional
Primary Key	ID		
Foreign Keys	ParentID: WBSElement(ID)		
Use Constraints	<p>Order of records is significant. In particular, hierarchical structure is determined based on level and sequence of records. See above.</p> <p>The first record must have Level equal to 1. All other records must have Level greater than 1.</p> <p>The first record must have a null ParentID. All other records must have a ParentID equal to the ID of the parent record determined by the hierarchical structure.</p>		

2.2.7 Accounts

Table	Accounts		
Entity	Account		
Fields	Name	Data Type	Nullable
	ID	StringID	No
	Name	String	No
Primary Key	ID		
Foreign Keys	[N/A]		
Use Constraints			

2.2.8 FunctionalCategories

Table	FunctionalCategories		
Entity	FunctionalCategory		
Fields	Name	Data Type	Nullable
	ID	StringID	No
	Name	String	No
Primary Key	ID		
Foreign Keys	[N/A]		
Use Constraints			

2.2.9 FunctionalOverheadCategories

Table	FunctionalOverheadCategories		
Entity	FunctionalOverheadCategory		
Fields	Name	Data Type	Nullable
	ID	StringID	No
	Name	String	No
Primary Key	ID		
Foreign Keys	[N/A]		
Use Constraints			

2.2.10 UnitsOrSublots

Table	UnitsOrSublots		
Entity	UnitOrSublot		
Fields	Name	Data Type	Nullable
	ID	StringID	No
	EndItemID	StringID	No
	FirstUnitNumber	Integer	No
	LastUnitNumber	Integer	No
	OrderOrLotID	StringID	No
Primary Key	ID		
Foreign Keys	EndItemID: EndItem(ID) OrderOrLotID: OrderOrLot(ID)		
Use Constraints			

2.2.11 ReportingCalendar

Table	ReportingCalendar		
Entity	ReportingPeriod		
Fields	Name	Data Type	Nullable
	ID	Integer	No
	StartDate	Date	No
	EndDate	Date	No
Primary Key	ID		
Foreign Keys	[N/A]		
Use Constraints	Order of records is significant. Records must have contiguous, sequential ID values starting at 1 (i.e. 1, 2, 3, etc.). StartDate must be 1 day later than EndDate of the previous record, if any, and on or before EndDate of the current record.		

2.2.12 SummaryCostData

Table	SummaryCostData		
Entity	SummaryCostDataRecord		
Fields	Name	Data Type	Nullable
	OrderOrLotID	StringID	No
	Subtotal_TD	Decimal	No
	Subtotal_AC	Decimal	No
	GA_TD	Decimal	No
	GA_AC	Decimal	No
	UB	Decimal	No
	MR	Decimal	No
	FCCM_TD	Decimal	No
	FCCM_AC	Decimal	No
	Fee_TD	Decimal	No
	Fee_AC	Decimal	No
	Price_TD	Decimal	No
	Price_AC	Decimal	No
Primary Key	OrderOrLotID		
Foreign Keys	OrderOrLotID: OrderOrLot(ID)		
Use Constraints			

2.2.13 ActualCostHourData

Table	ActualCostHourData		
Entity	ActualCostHourDatum		
Fields	Name	Data Type	Nullable
	OrderOrLotID	StringID	Conditional
	CLIN_ID	StringID	No
	EndItemID	StringID	Conditional
	WBSElementID	StringID	Conditional
	AccountID	StringID	No
	NonrecurringOrRecurringID	StringID	No
	FunctionalCategoryID	StringID	No
	FunctionalOverheadCategoryID	StringID	No
	StandardCategoryID	StringID	Conditional
	DetailedStandardCategoryID	StringID	Conditional
	UnitOrSublotID	StringID	Conditional
	AllocationMethodID	StringID	Conditional
	ReportingPeriodID	Integer	No
	Tag1	String	Yes
	Tag2	String	Yes
	Tag3	String	Yes
	Tag4	String	Yes
	Tag5	String	Yes
	Tag6	String	Yes
	Tag7	String	Yes
	Tag8	String	Yes
	Tag9	String	Yes
	Tag10	String	Yes
	Tag11	String	Yes
	Tag12	String	Yes
	Tag13	String	Yes
	Tag14	String	Yes
	Tag15	String	Yes
	Tag16	String	Yes
	Tag17	String	Yes
	Tag18	String	Yes
	Tag19	String	Yes
	Tag20	String	Yes
	Tag21	String	Yes
	Tag22	String	Yes
	Tag23	String	Yes
	Tag24	String	Yes
	Tag25	String	Yes
	Value_Dollars	Decimal	Yes
	Value_Hours	Decimal	Yes
Primary Key	[N/A]		

Foreign Keys	OrderOrLotID: OrderOrLot(ID) CLIN_ID: CLIN(ID) EndItemID: EndItem(ID) WBSElementID: WBSElement(ID) AccountID: Account(ID) NonrecurringOrRecurringID: NonrecurringOrRecurringEnum(ID) FunctionalCategoryID: FunctionalCategory(ID) FunctionalOverheadCategoryID: FunctionalOverheadCategory(ID) StandardCategoryID: StandardCategoryEnum(ID) DetailedStandardCategoryID: DetailedStandardCategoryEnum(ID) UnitOrSublotID: UnitOrSublot(ID) AllocationMethodID: AllocationMethod(ID) ReportingPeriodID: ReportingPeriod(ID)
Use Constraints	<p>If AllocationMethodID is not null, then OrderOrLotID, EndItemID, WBSElementID, and UnitOrSublotID must all be null.</p> <p>If AllocationMethodID is null, then WBSElementID must not be null. If not null, WBSElementID must refer to an element with no child elements (i.e. a terminal or leaf node in the hierarchical structure).</p> <p>If AllocationMethodID is null and UnitOrSublotID is not null, then OrderOrLotID and EndItemID must both be null.</p> <p>If AllocationMethodID is null and UnitOrSublotID is null, then OrderOrLotID and EndItemID must both not be null.</p> <p>Some constraints for this table depend on field values reported in ReportConfiguration:</p> <p style="padding-left: 40px;">If DetailedStandardCategory has a value of true, DetailedStandardCategoryID must not be null and StandardCategoryID must be null; otherwise, StandardCategoryID must not be null and DetailedStandardCategoryID must be null.</p> <p>ReportingPeriodID must have a value that is less than or equal to the value of ReportingPeriodID in ReportMetadata.</p> <p>If omitted, Value_Dollars and Value_Hours each have a default value of zero.</p>

2.2.14 ForecastAtCompletionCostHourData

Table	ForecastAtCompletionCostHourData		
Entity	ForecastAtCompletionCostHourDatum		
Fields	Name	Data Type	Nullable
	OrderOrLotID	StringID	No
	WBSElementID	StringID	No
	NonrecurringOrRecurringID	StringID	Conditional
	StandardCategoryID	StringID	Conditional
	DetailedStandardCategoryID	StringID	Conditional
	Value_Dollars	Decimal	Yes
Value_Hours	Decimal	Yes	
Primary Key	OrderOrLotID, WBSElementID, NonrecurringOrRecurringID, StandardCategoryID, DetailedStandardCategoryID		
Foreign Keys	OrderOrLotID: OrderOrLot(ID) WBSElementID: WBSElement(ID) NonrecurringOrRecurringID: NonrecurringOrRecurringEnum(ID) StandardCategoryID: StandardCategoryEnum(ID) DetailedStandardCategoryID: DetailedStandardCategoryEnum(ID)		
Use Constraints	<p>Constraints for this table depend on field values reported in ReportConfiguration:</p> <p>If ForecastAtCompletion_ByNonrecurringOrRecurring has a value of true, NonrecurringOrRecurringID must not be null; otherwise, NonrecurringOrRecurringID must be null.</p> <p>If ForecastAtCompletion_ByStandardCategory has a value of true, exactly one of either StandardCategoryID or DetailedStandardCategoryID must not be null; otherwise, both must be null. In the former case, if DetailedStandardCategory has a value of true, DetailedStandardCategoryID must not be null and StandardCategoryID must be null; otherwise, StandardCategoryID must not be null and DetailedStandardCategoryID must be null.</p>		

2.2.15 AllocationMethods

Table	AllocationMethods		
Entity	AllocationMethod		
Fields	Name	Data Type	Nullable
	ID	StringID	No
	AllocationMethodTypeID	StringID	No
	IsUnitOrSublotAllocationMethod	Boolean	No
	Name	String	Yes
Primary Key	ID		
Foreign Keys	AllocationMethodTypeID: AllocationMethodTypeEnum(ID)		
Use Constraints	Each AllocationMethod must have at least one associated AllocationComponent.		

2.2.16 AllocationComponents

Table	AllocationComponents		
Entity	AllocationComponent		
Fields	Name	Data Type	Nullable
	AllocationMethodID	StringID	No
	OrderOrLotID	StringID	Conditional
	EndItemID	StringID	Conditional
	WBSElementID	StringID	No
	UnitOrSublotID	StringID	Conditional
	PercentValue	Decimal	Conditional
Primary Key	AllocationMethodID, OrderOrLotID, EndItemID, WBSElementID, UnitOrSublotID		
Foreign Keys	AllocationMethodID: AllocationMethod(ID) OrderOrLotID: OrderOrLot(ID) EndItemID: EndItem(ID) WBSElementID: WBSElement(ID) UnitOrSublotID: UnitOrSublot(ID)		
Use Constraints	<p>If IsUnitOrSublotAllocationMethod is true for the associated AllocationMethod, then OrderOrLotID and EndItemID must be null and UnitOrSublotID must not be null. Otherwise, OrderOrLotID and EndItemID must not be null and UnitOrSublotID must be null.</p> <p>If the AllocationMethodTypeID of the associated AllocationMethod has a value of PERCENT, then PercentValue must be non-null and greater than zero. Otherwise, PercentValue must be null.</p> <p>WBSElementID must refer to an element with no child elements (i.e. a terminal or leaf node in the hierarchical structure).</p>		

2.2.17 SummaryRemarks

Table	SummaryRemarks		
Entity	SummaryRemark		
Fields	Name	Data Type	Nullable
	OrderOrLotID Text	StringID Text	No Yes
Primary Key	OrderOrLotID		
Foreign Keys	OrderOrLotID: OrderOrLot(ID)		
Use Constraints			

2.2.18 WBSElementRemarks

Table	WBSElementRemarks		
Entity	WBSElementRemark		
Fields	Name	Data Type	Nullable
	OrderOrLotID WBSElementID	StringID StringID	No No
	Text	Text	Yes
Primary Key	OrderOrLotID, WBSElementID		
Foreign Keys	OrderOrLotID: OrderOrLot(ID) WBSElementID: WBSElement(ID)		
Use Constraints			

2.2.19 WBSDictionaryDefinitions

Table	WBSDictionaryDefinitions		
Entity	WBSDictionaryDefinition		
Fields	Name	Data Type	Nullable
	WBSElementID Text	StringID Text	No Yes
Primary Key	WBSElementID		
Foreign Keys	WBSElementID: WBSElement(ID)		
Use Constraints			

2.2.20 CostHourTagDefinitions

Table	CostHourTagDefinitions		
Entity	CostHourTagDefinition		
Fields	Name	Data Type	Nullable
	CostHourTagID Name	StringID String	No No
	Text	Text	Yes
Primary Key	CostHourTagID		
Foreign Keys	CostHourTagID: CostHourTagEnum(ID)		
Use Constraints			

2.3 Primitive Data Types

Primitive Data Types	
Boolean	Values of two-valued logic (i.e. “true” and “false”).
Date	Year, month, and day, without reference to the time of day or a specific time zone.
Decimal	Number that can be represented with decimal digits, with possible integral and/or fractional component.
Integer	Number that can be represented with decimal digits, with no fractional component.
String	A sequence of Unicode characters, with normalized whitespace.
StringID	A sequence of Unicode characters, with normalized whitespace and limited character set.
Text	A sequence of Unicode characters intended for remarks or other expository text.

2.4 Enumerations

2.4.1 PhaseOrMilestoneEnum

Enumeration	PhaseOrMilestoneEnum	
Values	ID	Name
	PRE_A	Pre-A
	A	A
	B	B
	C_LRIP	C-LRIP
	C_FRP	C-FRP
	O_AND_S	O&S
	MULTIPLE	Multiple
Use Constraints		

2.4.2 ContractTypeEnum

Enumeration	ContractTypeEnum	
Values	ID	Name
	CS	Cost Sharing
	CPAF	Cost Plus Award Fee
	CPFF	Cost Plus Fixed Fee
	CPIF	Cost Plus Incentive Fee
	CPIF_PI	Cost Plus Incentive Fee (with Performance Incentives)
	FFP	Firm Fixed Price
	FPIF	Fixed Price Incentive, Firm Target
	FPIST	Fixed Price Incentive, Successive Targets
	FPIST_PI	Fixed Price Incentive, Successive Targets (with Performance Incentives)
	FPIFT_PI	Fixed Price Incentive, Firm Targets (with Performance Incentives)
	FPAF	Fixed Price Award Fee
	FP_EPA	Fixed Price with Economic Price Adjustment
	FP_PPR	Fixed Price with Prospective Price Redetermination
	FCP_RPR	Fixed Ceiling Price with Retroactive Price Redetermination
	FFP_LOET	Firm Fixed Price, Level of Effort Term
	IDIQ	Indefinite Delivery Indefinite Quantity
	LC	Letter Contract and Undefinitized Contractual Action (UCA)
	TM	Time and Materials
	OTHER	Other
MULTIPLE	Multiple	
Use Constraints		

2.4.3 AppropriationTypeEnum

Enumeration	AppropriationTypeEnum	
Values	ID	Name
	RDTE	RDT&E
	PROCUREMENT	Procurement
	O_AND_M	O&M
Use Constraints		

2.4.4 ReportCycleEnum

Enumeration	ReportCycleEnum	
Values	ID	Name
	INITIAL	Initial
	INTERIM	Interim
	FINAL	Final
Use Constraints		

2.4.5 NonrecurringOrRecurringEnum

Enumeration	NonrecurringOrRecurringEnum	
Values	ID	Name
	NONRECURRING	Nonrecurring
	RECURRING	Recurring
Use Constraints		

2.4.6 StandardCategoryEnum

Enumeration	StandardCategoryEnum	
Values	ID	Name
	DIRECT_ENGINEERING_LABOR	Direct Engineering Labor
	ENGINEERING_LABOR_OVERHEAD	Engineering Labor Overhead
	DIRECT_MANUFACTURING_TOUCH_LABOR	Direct Manufacturing Touch Labor
	DIRECT_MANUFACTURING_OTHER_LABOR	Direct Manufacturing Other Labor
	MANUFACTURING_OPERATIONS_LABOR_OVERHEAD	Manufacturing Operations Labor Overhead
	DIRECT_MAINTENANCE_TOUCH_LABOR	Direct Maintenance Touch Labor
	DIRECT_MAINTENANCE_OTHER_LABOR	Direct Maintenance Other Labor
	MAINTENANCE_OPERATIONS_LABOR_OVERHEAD	Maintenance Operations Labor Overhead
	OTHER_DIRECT_COSTS	Other Direct Costs
	OTHER_OVERHEAD	Other Overhead
	DIRECT_MATERIALS	Direct Materials
	MATERIAL_OVERHEAD	Material Overhead
	GENERAL_AND_ADMINISTRATIVE	General & Administrative
	FACILITIES_CAPITAL_COST_OF_MONEY	Facilities Capital Cost of Money
Use Constraints		

2.4.7 DetailedStandardCategoryEnum

Enumeration	DetailedStandardCategoryEnum	
Values	ID	Name
	DIRECT_ENGINEERING_LABOR	Direct Engineering Labor
	ENGINEERING_LABOR_OVERHEAD	Engineering Labor Overhead
	DIRECT_MANUFACTURING_TOUCH_LABOR	Direct Manufacturing Touch Labor
	DIRECT_MANUFACTURING_SUPPORT_LABOR	Direct Manufacturing Support Labor
	DIRECT_MANUFACTURING_TOOLING_LABOR	Direct Manufacturing Tooling Labor
	DIRECT_MANUFACTURING_OTHER_LABOR	Direct Manufacturing Other Labor
	MANUFACTURING_OPERATIONS_LABOR_OVERHEAD	Manufacturing Operations Labor Overhead
	DIRECT_MAINTENANCE_TOUCH_LABOR	Direct Maintenance Touch Labor
	DIRECT_MAINTENANCE_SUPPORT_LABOR	Direct Maintenance Support Labor
	DIRECT_MAINTENANCE_OTHER_LABOR	Direct Maintenance Other Labor
	MAINTENANCE_OPERATIONS_LABOR_OVERHEAD	Maintenance Operations Labor Overhead
	DIRECT_PROGRAM_MANAGEMENT_LABOR	Direct Program Management Labor
	DIRECT_OTHER_LABOR	Direct Other Labor
	DIRECT_SERVICES	Direct Services
	OTHER_DIRECT_NON_LABOR	Other Direct Non-Labor
	OTHER_OVERHEAD	Other Overhead
	DIRECT_REPORTING_SUBCONTRACTOR	Direct-Reporting Subcontractor
	INTERCOMPANY_WORK_ORDERS	Intercompany Work Orders
	PURCHASED_PARTS	Purchased Parts
	PURCHASED_EQUIPMENT	Purchased Equipment
	RAW_MATERIALS	Raw Materials
	DIRECT_TOOLING_AND_EQUIPMENT	Direct Tooling and Equipment
	OTHER_MATERIAL	Other Material
	MATERIAL_OVERHEAD	Material Overhead
	GENERAL_AND_ADMINISTRATIVE	General & Administrative
	FACILITIES_CAPITAL_COST_OF_MONEY	Facilities Capital Cost of Money
	Use Constraints	

2.4.8 AllocationMethodTypeEnum

Enumeration	AllocationMethodTypeEnum	
Values	ID	Name
	PERCENT	Percent
	PRORATE	Prorate
Use Constraints		

2.4.9 CostHourTagEnum

Enumeration	CostHourTagEnum	
Values	ID	Name
	TAG1	Tag 1
	TAG2	Tag 2
	TAG3	Tag 3
	TAG4	Tag 4
	TAG5	Tag 5
	TAG6	Tag 6
	TAG7	Tag 7
	TAG8	Tag 8
	TAG9	Tag 9
	TAG10	Tag 10
	TAG11	Tag 11
	TAG12	Tag 12
	TAG13	Tag 13
	TAG14	Tag 14
	TAG15	Tag 15
	TAG16	Tag 16
	TAG17	Tag 17
	TAG18	Tag 18
	TAG19	Tag 19
	TAG20	Tag 20
	TAG21	Tag 21
	TAG22	Tag 22
	TAG23	Tag 23
	TAG24	Tag 24
TAG25	Tag 25	
Use Constraints		

3 File Format

The file format for a CSDR Cost and Hour Report (Flex File) is a ZIP file containing multiple text file entries. One text file entry conveys type and version information. All other text file entries convey data represented in JSON. Each JSON file entry corresponds to a single data table.

3.1 File Conventions

Text file entries must be encoded in UTF-8. Compressed file entries must be compressed using the DEFLATE compression method. File entries must not be encrypted.

The file entry for a table may be omitted if the table has no records. The file entry for a singleton may be omitted if all its fields are null. The file entry for type/version information must always be included.

3.2 File Contents

ZIP File Entries		
	Name	Table
	FileType.txt	[N/A]
	ReportConfiguration.json	ReportConfiguration
	ReportMetadata.json	ReportMetadata
	OrdersOrLots.json	OrdersOrLots
	CLINs.json	CLINs
	EndItems.json	EndItems
	WBS.json	WBS
	Accounts.json	Accounts
	FunctionalCategories.json	FunctionalCategories
	FunctionalOverheadCategories.json	FunctionalOverheadCategories
	UnitsOrSublots.json	UnitsOrSublots
	ReportingCalendar.json	ReportingCalendar
	SummaryCostData.json	SummaryCostData
	ActualCostHourData.json	ActualCostHourData
	ForecastAtCompletionCostHourData.json	ForecastAtCompletionCostHourData
	AllocationMethods.json	AllocationMethods
	AllocationComponents.json	AllocationComponents
	SummaryRemarks.json	SummaryRemarks
	WBSElementRemarks.json	WBSElementRemarks
	WBSDictionaryDefinitions.json	WBSDictionaryDefinitions
	CostHourTagDefinitions.json	CostHourTagDefinitions

3.3 File Type/Version

The 'FileType.txt' file entry specifies the type and version of the CSDR Cost and Hour Report (Flex File).

This file entry must contain the following exact text string (excluding quotation marks):

"CSDR_COST_HOUR_REPORT/1.0".

4 Representation in JSON

4.1 JSON Conventions

Each table is represented in JSON as an array of objects. Singletons are an exception. They are represented directly as a single object. Objects correspond to records, and the sequence of objects in JSON represents the implicit sequence of records in the table.

Each record is represented in JSON as an object with name/value pairs corresponding to field values. The name of each pair must exactly match the name of the corresponding field, and the value of each pair must follow the conventions below for representing the corresponding primitive data type in JSON. Names must be unique within the scope of each object and each name must correspond to a field defined for the table.

Objects must include name/value pairs for fields that are not null, and these pairs must not have a JSON value of null or an empty JSON string value. Conversely, objects may or may not include name/value pairs for fields that are null. If included, these pairs must have a JSON value of null or an empty JSON string value. Only pairs for fields with a primitive data type of String, StringID, or Text may have an empty JSON string value.

Primitive data types are represented as follows:

Representation of Primitive Data Types	
Boolean	JSON value of true or false.
Date	JSON string encoding a valid date, without time component or time zone, formatted as follows: "yyyy-mm-dd" (e.g. "2016-01-31").
Decimal	JSON number.
Integer	JSON number with fractional component equal to zero.
String	JSON string, with normalized whitespace.
StringID	JSON string, with normalized whitespace and limited character set.
Text	JSON string.

4.2 JSON Schema Sample

Schema	WBS.json
	<pre>{ "\$schema": "http://json-schema.org/draft-04/schema#", "type": "array", "items": { "type": "object", "properties": { "Level": {"type": "number"}, "ID": {"type": "string"}, "Name": {"type": "string"}, "ParentID": {"type": ["string", "null"]} }, "required": ["Level", "ID", "Name"] } }</pre>

4.3 JSON Data Sample

Data	WBS.json
<pre>[{ "Level": 1, "ID": "1.0", "Name": "Total" }, { "Level": 2, "ID": "1.1", "Name": "Subsystem 1.1", "ParentID": "1.0" }, { "Level": 2, "ID": "1.2", "Name": "Subsystem 1.2", "ParentID": "1.0" }]</pre>	

5 References

JSON - The JSON Data Interchange Format, ECMA-404. 2013.

JSON Schema - json-schema.org

Unicode - The Unicode Standard, Version 9.0. 2016.

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