



**PARCA
EVM**

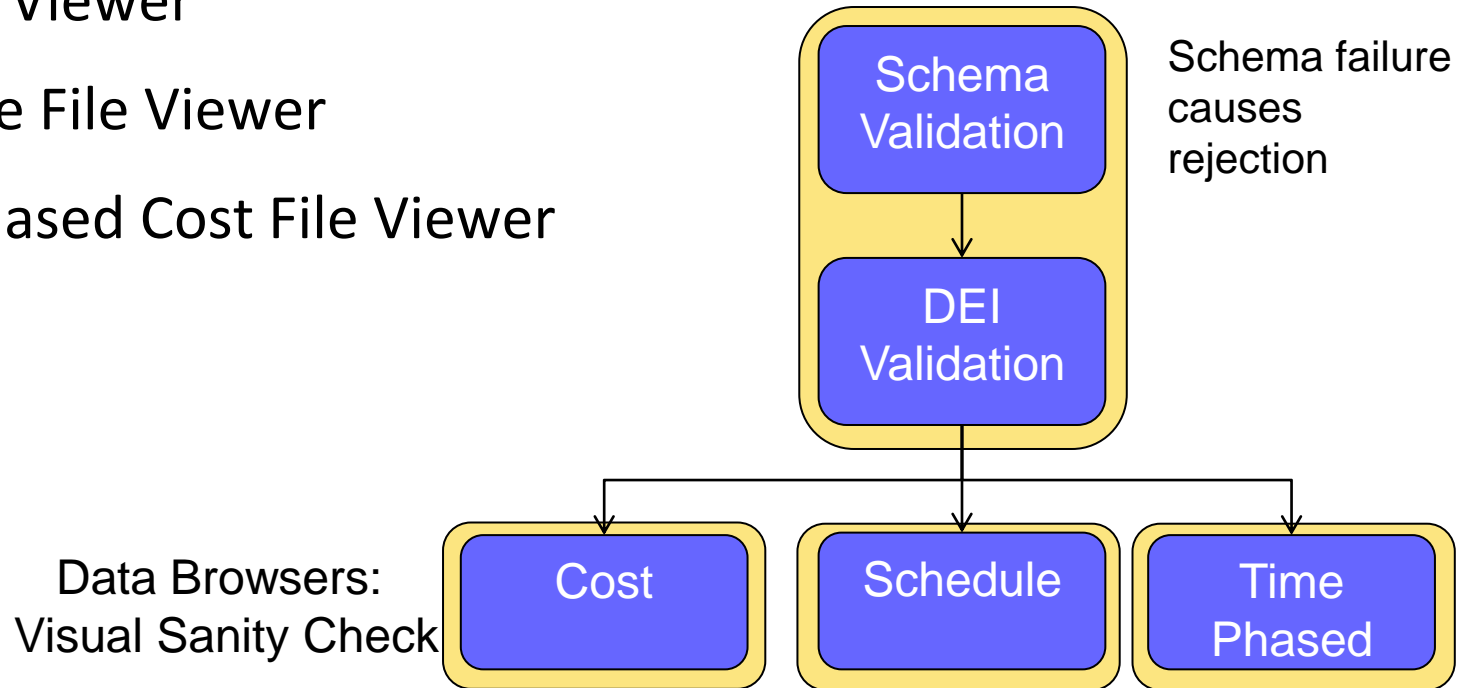
PARCA EVM IPMR XML Tools

May 9, 2014



IPMR XML File Utilities Overview

- ▶ Schema/DEI Compliance Validator
- ▶ CPR File Viewer
- ▶ Schedule File Viewer
- ▶ Time-Phased Cost File Viewer

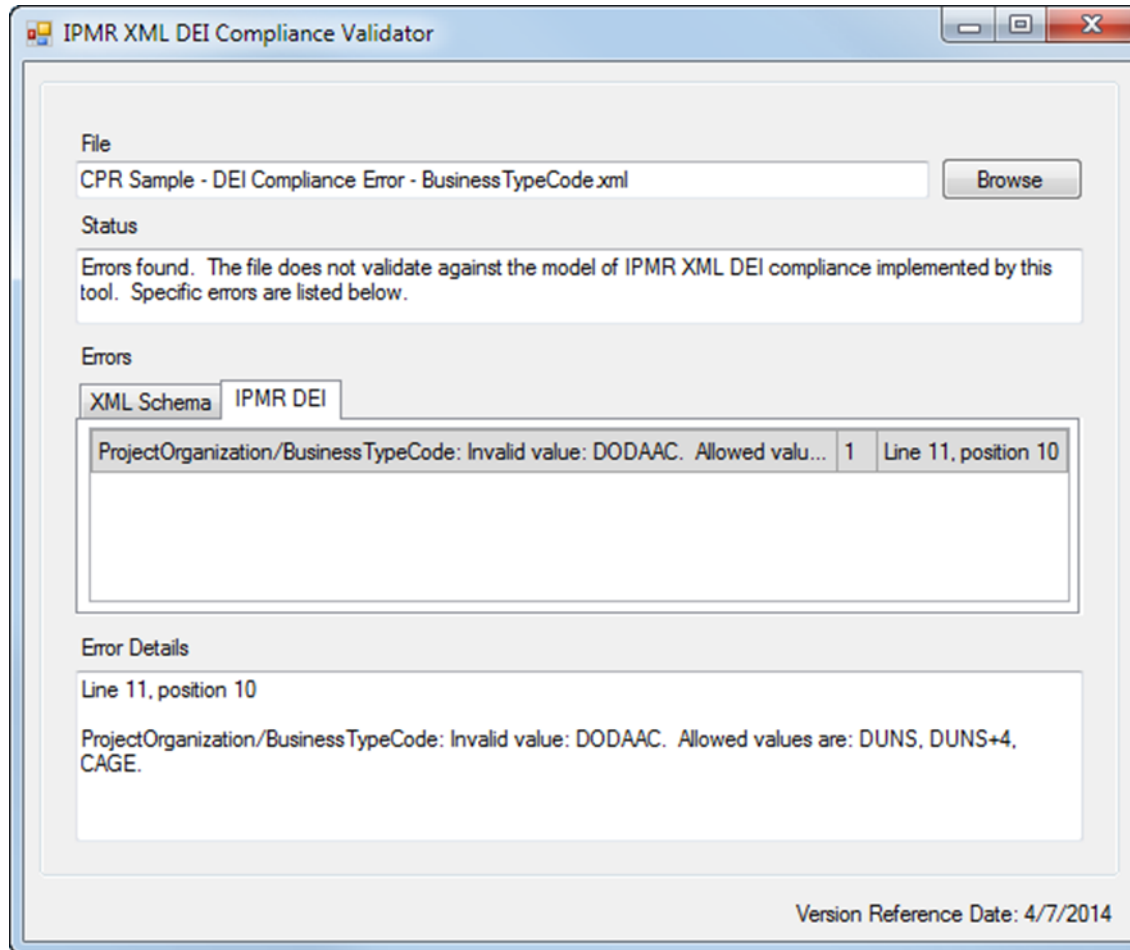


Encapsulate software libraries used by EVM-CR

*** Currently available for external test team ***



Schema / DEI Validator

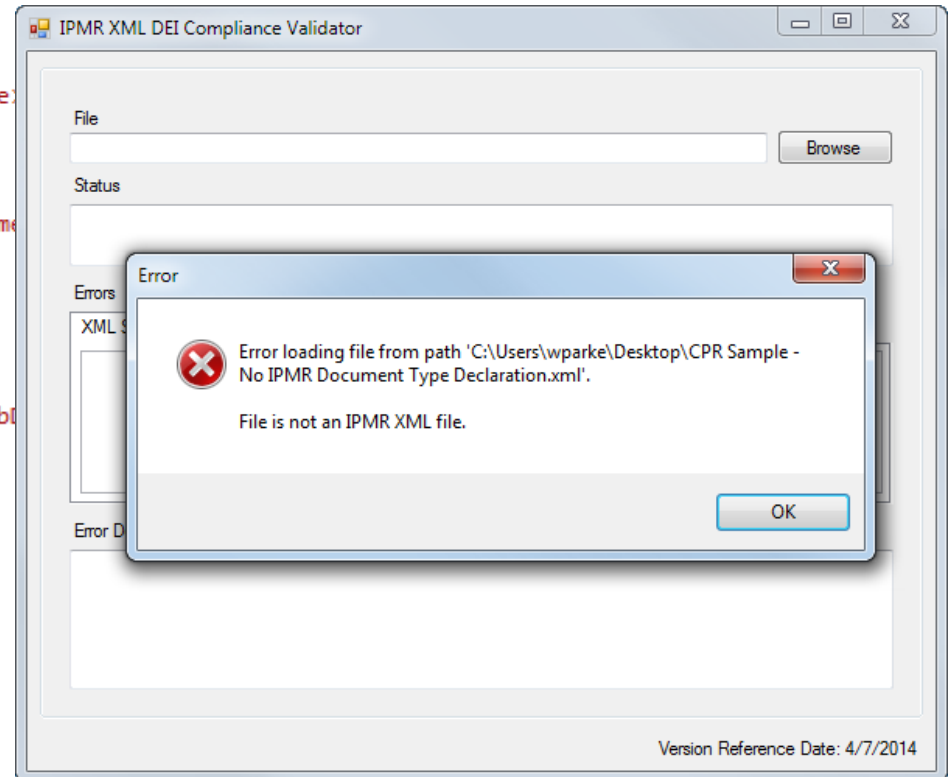


- ▶ Validates against:
 - UN/CEFACT XML schema
 - IPMR XML DEI
- ▶ Implements model of DEI compliance:
 - Model comprises rules inferred from DEI
 - Model is not definitive or exhaustive
 - Model will be updated over time



Validation Example: File Type Error

```
1 <?xml version="1.0" encoding="utf-8"?>
2 <rsm:CostSchedule xmlns:rsm="urn:un:uncece:uncefact:data:standard:CostSchedule:3" xmlns:ram="urn:u
3 <rsm:CostScheduleReportDocument>
4   <ram:CreationDateTime>2010-06-22T00:00:00</ram:CreationDateTime>
5   <ram:SubmissionDateTime>2010-06-23T00:00:00</ram:SubmissionDateTime>
6   <ram:Description />
7   <ram:SecurityTypeCode>UNC</ram:SecurityTypeCode>
8   <ram:OwnerProjectParty>
9     <ram:Name>Rambo Systems</ram:Name>
10    <ram:SpecifiedProjectOrganization>
11      <ram:BusinessTypeCode>CAGE</ram:BusinessTypeCode>
12      <ram:ID>7K837</ram:ID>
13      <ram:DesignatedProjectContact>
14        <ram:JobTitle>Program Manager</ram:JobTitle>
15        <ram:PersonName>Simpson, Lisa R</ram:PersonName>
16      </ram:DesignatedProjectContact>
17      <ram:PostalUnstructuredAddress>
18        <ram:PostcodeCode>49007</ram:PostcodeCode>
19        <ram:LineOne>PO Box 5555</ram:LineOne>
20        <ram:CityName>Kalamazoo</ram:CityName>
21        <ram:CountrySubDivisionName>MI</ram:CountrySub
22      </ram:PostalUnstructuredAddress>
23    </ram:SpecifiedProjectOrganization>
24  </ram:OwnerProjectParty>
25 </rsm:CostScheduleReportDocument>
```





Validation Example: DEI Compliance Error

```

1 <?xml version="1.0" encoding="utf-8"?>
2 <rsm:CostSchedule xmlns:rsm="urn:un:unece:uncefact:data:standard:CostSchedule:3" xmlns:ram="urn:u
3 <rsm:CostScheduleReportDocument>
4 <ram:CreationDateTime>2010-06-22T00:00:00</ram:CreationDateTime>
5 <ram:SubmissionDateTime>2010-06-23T00:00:00</ram:SubmissionDateTime>
6 <ram:Description>CostInstructionVersion2012-10-03</ram:Description>
7 <ram:SecurityTypeCode>UNC</ram:SecurityTypeCode>
8 <ram:OwnerProjectParty>
9 <ram>Name>Rambo Systems</ram>Name>
10 <ram:SpecifiedProjectOrganization>
11 <ram:BusinessTypeCode>DODAAC</ram:BusinessTypeCode>
12 <ram:ID>7K837</ram:ID>
13
14
15
16
17 <ram:PostalUnstructuredAddress>
18 <ram:PostcodeCode>49007</ram:PostcodeCode>
19 <ram:LineOne>PO Box 5555</ram:LineOne>
20 <ram:CityName>Kalamazoo</ram:CityName>
21 <ram:CountrySubDivisionName>MI</ram:CountrySubDivi
22 </ram:PostalUnstructuredAddress>
23 </ram:SpecifiedProjectOrganization>
24 </ram:OwnerProjectParty>
25 </rsm:CostScheduleReportDocument>

```

Use Notes
Enter "DUNS", "DUNS+4", or "CAGE".

IPMR XML DEI Compliance Validator

File: CPR Sample - DEI Compliance Error - BusinessTypeCode.xml

Status: Errors found. The file does not validate against the model of IPMR XML DEI compliance implemented by this tool. Specific errors are listed below.

Errors:

XML Schema	IPMR DEI
ProjectOrganization/BusinessTypeCode: Invalid value: DODAAC. Allowed valu...	1 Line 11, position 10

Error Details:

Line 11, position 10

ProjectOrganization/BusinessTypeCode: Invalid value: DODAAC. Allowed values are: DUNS, DUNS+4, CAGE.

Version Reference Date: 4/7/2014



Validation Example: Schema Error

```
1 <?xml version="1.0" encoding="utf-8"?>
2 <rsm:CostSchedule xmlns:rsm="urn:un:unece:uncefact:data:standard:CostSchedule:3" xmlns:ram="urn:u
3 <rsm:CostScheduleReportDocument>
4   <ram:CreationDateTime>2010-06-22T00:00:00</ram:CreationDateTime>
5   <ram:SubmissionDateTime>2010-06-23T00:00:00</ram:SubmissionDateTime>
6   <ram:Description>CostInstructionVersion2012-10-03</ram:Description>
7   <ram:SecurityTypeCode>Unclassified</ram:SecurityTypeCode>
8   <ram:OwnerProjectParty>
9     <ram:Name>Rambo Systems</ram:Name>
10    <ram:SpecifiedProjectOrganization>
11      </xsd:annotation>
12    </xsd:enumeration>
13    <xsd:enumeration value="UNC">
14      <xsd:annotation>
15        <xsd:documentation xml:lang="en">
16          <ccts:Name>Unclassified</ccts:Name>
17          <ccts:Description>Information which is o
18        </xsd:documentation>
19      </xsd:annotation>
20    </xsd:enumeration>
21    </xsd:restriction>
22    <ram:CountrySubDivisionName>MI</ram:CountrySubDiv
23  </ram:PostalUnstructuredAddress>
24  </ram:SpecifiedProjectOrganization>
25 </ram:OwnerProjectParty>
</rsm:CostScheduleReportDocument>
```

IPMR XML DEI Compliance Validator

File: C:\PR Sample - Schema Error - SecurityTypeCode.xml

Status: Errors found. The file does not validate against the UN/CEFACT XML schema used for IPMR XML documents. Specific errors are listed below.

Line	Column	Error
1	Line 7, position 41	The 'um:un:unece:uncefact:data:standard:ReusableAggregateBusinessInformati...

Error Details: Line 7, position 41

The 'um:un:unece:uncefact:data:standard:ReusableAggregateBusinessInformationEntity:8:SecurityTypeCode' element is invalid - The value 'Unclassified' is invalid according to its datatype 'um:un:unece:uncefact:data:standard:QualifiedData Type:8:SecurityClassificationTypeCode Type' - The Enumeration constraint failed.

Version Reference Date: 4/7/2014



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IPMR Data Viewers: Cost

CPR File Viewer

File Navigate Options Help

Open Files EVM Validity Checks Browse File Views Custom Views Export to Excel

(F1) Header (F1) WBS Elements (F1) Summary Elements (F3) Baseline (F4) Staffing

ReportDate	Element Name	Element ID	Reporting Level	Cum CPI	Cum SPI	Cum BCWS	Cum BCWP
2010-06-23	Weapon System	1	2	0.725	0.955	88,403,104	84,401,916
2010-06-23	All Up Ons (AUO) Space Vehicle	11	3	0.683	0.946	60,652,325	57,381,444
2010-06-23	DeathStar Stuff	111	4	0.825	1.00	2,032,020	2,032,020
2010-06-23	Spaceframe Structure	1110	5	0.825	1.00	2,032,020	2,032,020
2010-06-23	Spaceframe Structure	1110X	6			0	0
2010-06-23	Spaceframe Design NRE	1110XA1CG	6	0.825	1.00	2,031,682	2,031,682
2010-06-23	Spaceframe Design RE	1110XA1CH	6				
2010-06-23	Interconnect Design NRE	1110XA1CI	6	0.282	1.00	338	338
2010-06-23	Interconnect Design RE	1110XA1CJ	6				
2010-06-23	Guidance Electronics Unit (ZZZ)	112	4	0.698	0.941	34,308,362	32,276,075
2010-06-23	Guidance Electronics Unit (ZZZ)	1120	5	0.449	0.904	7,911,061	7,154,889
2010-06-23	Guidance Electronics Unit (ZZZ)	1120X	6	0.67	0.889	1,290,138	1,146,498
2010-06-23	ZZZ Algorithm Development (GNC)	1120XA1DM	7	0.67	1.00	1,146,498	1,146,498
2010-06-23	CLIN 3 ZZZ Software	1120XA2DH	7			143,640	0
2010-06-23	Space Vehicle Electrical Support	1120XA1CF	6	1.687	1.00	373,386	373,386

WBS Element Select Options
Filter by reporting level:
 2 (2)
 3 (6)
 4 (11)
 5 (12)
 6 (94)
 Total WBS Rows: 148

Cumulative CPI and SPI Thresholds
 Small variation - highlight yellow and bold values that vary from 1 by more than:
 Large variation - highlight red, bold, and underline values that vary from 1 by more than:
 Highlight

Element Count: 148 of 148
 Summary EAC: \$143,665,020
 Freeze element name column

Choose a file: CPR Sample.xml Choose a period: 2010-06-23

Version 1.0.3.4

Program Name: DeathStar Contract Number: N0000-00-N-0000 CPR Sample.xml



IPMR Data Viewers: Schedule

The screenshot shows the IPMR XML IMS File Viewer application. The main window displays a table of tasks with the following data:

Row	ID	Name	Description	Task Type	Pre (by)
1	1	Sea System Sch...		Summary Task	
2	2	Contract Mileston...		Summary Task	
3	3	Contract Award		Milestone	
4	4	CWBS Index and...		Milestone	3FS
5	5	Initial Report		Activity	4FS
6	6	Interim Report 1		Activity	5FS
7	7	Interim Report 2		Activity	6FS
8	8	Interim Report 3		Milestone	7FS
9	9	Final Report		Milestone	17F
10	10	Production Milest...		Summary Task	
11	11	Start of Construct...		Milestone	
12	12	Begin Keel Laying		Milestone	
13	13	Begin Main Engin...		Milestone	
14	14	Launch Readine...		Milestone	
15	15	Initial Operation C...		Milestone	
16	16	Start Final Outfit		Milestone	
17	17	Final Contract Tri...		Activity	16F

The right-hand pane shows a detailed view for the selected task (ID 1):

Task	
Row	1
ID	1
Name	Sea System Schedule
Description	
Task Type	Summary Task
Predecessors (by row)	
Successors (by row)	
WBS Data Node ID	
IMP Data Node ID	
OBS Data Node ID	
SOW Data Node ID	
SUB Data Node ID	
Risk Level Description	
Calculated Completion Pe	0%
Assessed Completion Per	0%
Priority Ranking	
Eamed Value Method	
Milestone Level	
Free Float Duration	0 days
Total Float Duration	0 days
Milestone Weight	
Total Duration	1,308 days
Remaining Duration	1,303.24 days
Critical Path Indicator	True



IPMR Data Viewers: Time Phased Cost

IPMR XML Time-Phased Cost File Viewer

Open Files | Browse File Data | About

TPC Sample.xml

Header | Summary Costs | WBS Costs

By Period | By Element

Units: Dollars

Name	End Date	WBS Code	Name	BCWS	BCI
Historical Period	03/25/2007	1	Weapon System		
Historical Period	04/22/2007	11	All Up Ons (AUO) Space Vehicle		
Historical Period	05/20/2007	111	DeathStar Stuff		
Historical Period	06/24/2007	1110	Spaceframe Structure		
Historical Period	07/22/2007	1110X	Spaceframe Structure		
Historical Period	08/19/2007	1110XA1CG	Spaceframe Design NRE	346,201	
Historical Period	09/23/2007	1110XA1CH	Spaceframe Design RE		
Historical Period	10/21/2007	1110XA1CI	Interconnect Design NRE	338	
Historical Period	11/18/2007	1110XA1CJ	Interconnect Design RE		
Historical Period	12/31/2007	112	Guidance Electronics Unit (ZZZ)		
Historical Period	01/27/2008	1120	Guidance Electronics Unit (ZZZ)		
Historical Period	02/24/2008	1120X	Guidance Electronics Unit (ZZZ)		
Historical Period	03/30/2008	1120XA1DM	ZZZ Algorithm Development (GNC)		
Historical Period	04/27/2008	1120XA2DH	CLIN 3 ZZZ Software		
Historical Period	05/25/2008	1120XA1CF	Space Vehicle Electrical Support	22,784	
Historical Period	06/29/2008	1120XA1CK	Power Development NRE	46,161	
Historical Period	07/27/2008	1120XA1CL	Power Development RE		
Historical Period	08/24/2008	1120XA1DA	Time Port Development	189,374	
Historical Period	09/28/2008				



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NEXT STEP CROSS-FILE VALIDATIONS



Cost/Schedule Cross File Validation Example

▶ IMS activities must trace to WBS elements

▶ IPMR DID:

The IMS shall have traceability to the Integrated Master Plan (IMP) (if applicable), Organizational Breakdown Structure (OBS), Control Accounts, WBS and Statement of Work.

...
The WBS in the IMS shall be consistent with the Format 1 structure if applicable.

▶ IPMR Schedule DEI

ReportedHierarchicalStructure	complexType	Sequence	0	>0	2	
<p>This sequence is for two purposes:</p> <ol style="list-style-type: none"> 1. To provide information about the task parent/child relationships when the integrated master schedule data includes summary tasks. This is useful for reproducing a view that reflects the source data task outline structure. 2. To provide the reporting structure hierarchy details for a work breakdown structure (WBS), integrated master plan (IMP), integrated project team (IPT), or organization breakdown structure (OBS) for the WBS, IMP, IPT, or OBS codes assigned at the activity level. This provides the means to trace the detail activities up through the hierarchical structures as needed. It also provides a means to reconcile the schedule data with the Contract Performance Report (CPR) or Integrated Program Management Report (IPMR) cost data which are typically reported at a higher level within the WBS. 					2.2	
					2.3	
						2.4



Cross File Implied Rules

- ▶ 1) Each IMS activity must have a WBS code reference
- ▶ 2) Either:
 - Each WBS code reference must match a WBS code from the CPR WBS, or
 - Each WBS code reference must match a WBS code from the IMS WBS
- ▶ 3) If IMS activities map to CPR WBS, IMS WBS is not required
- ▶ 4) If IMS WBS is reported, then it must reconcile with CPR WBS

Note: Why Report WBS in IMS File? IMS activities may trace to WBS elements at a lower level than those reported in the CPR