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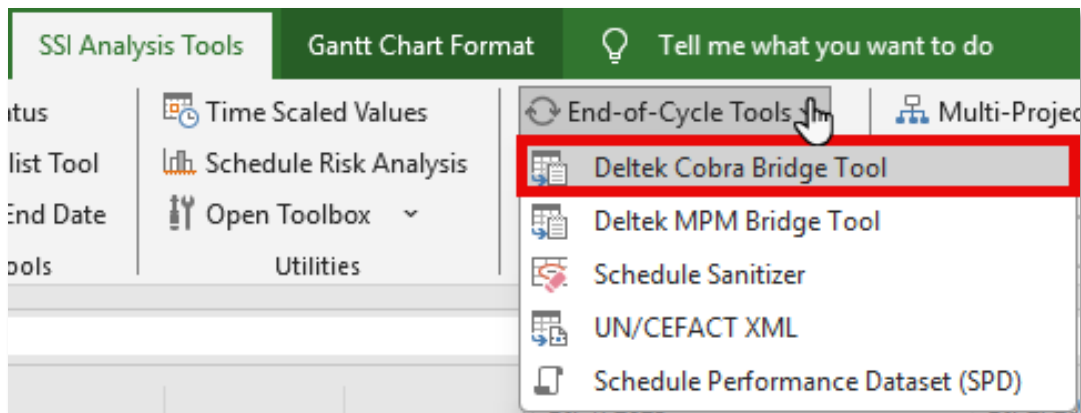
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SSI Earned Value Management/Cobra Bridge Tools

Overview

Many data elements in a project schedule can be shared with popular Earned Value Management Systems (EVMS) like Deltek Cobra™. To ensure exact traceability between a project schedule and the EVMS, SSI's **End-of-Cycle** tools include **Deltek Cobra Bridge tools** that create transaction files that can be uploaded into Cobra or MPM.



For example, **Planned Value** (PV or BCWS), can be taken from the Baseline values in a schedule. Likewise, **Earned Value** (EV or BCWP) can be derived from the completion or partial performance of scheduled tasks. Finally, the remaining work, cost and duration in a schedule is the **Estimate to Complete** (ETC) in an EVMS.

NOTE: SSI's **Time Scaled Values** tool in the **Utilities** group can also be used with most EVM tools to generate time-phased baseline and remaining work or cost values.



Common Definitions Used in Earned Value Management

Baseline: The “Planned Value” of the duration, start, finish and resource assignment values (if any) for a project. The Baseline is usually formally controlled in a project and does not change unless a formal change control review has been conducted and the change to the baseline has been approved. Terms and acronym used to describe the baseline include: Baseline, Budget, Planned Value (or PV), Budget Cost of Work Scheduled (or BCWS) and Budget at Complete (BAC).

Performance: The amount of progress taken on a task. Progress can be shown as a percent of the total task duration (% Complete), the percent of the total work or cost (Work % Complete) or as a percent of the Baselined duration, work or cost (% of Baseline Earned or “Earned Value”). Terms and acronym used to describe Performance include: Earned Value, Budgeted Cost of Work Performed (EV, BCWP – when taken as a percent of the Baseline), % Complete, Work % Complete, and Physical % Complete.

Actual Values: The actual number of hours or cost incurred to perform a task or a portion of a task. Actual values are often captured at a “rolled-up” level meaning that its value is not recorded on a task by task level. Rolled-up values are often captured for a collection of tasks having something in common such as their performing organization or position in the Work Breakdown Structure of a project. Terms and acronym used to describe Actual Values include: Actual Cost (AC), Actual Cost of Work Performed (ACWP) or Actual Value (AV).

NOTE: Actuals are not captured in MS Project, rather they are collected through a timekeeping or accounting system. This is the only EV metric that does not have a transaction file created.

Estimate to Complete: The current value of the duration, start, finish and resource assignment values (if any) for a project. The Current Schedule is usually not formally controlled and reflects projections for future tasks and associated resource needs based on how the project has performed up to this point. The **Estimate to Complete (ETC)** changes at the end of each reporting cycle and is used to forecast the projects key program events. Terms used to describe the Estimate to Complete include: ETC, Current Plan or Current Schedule.



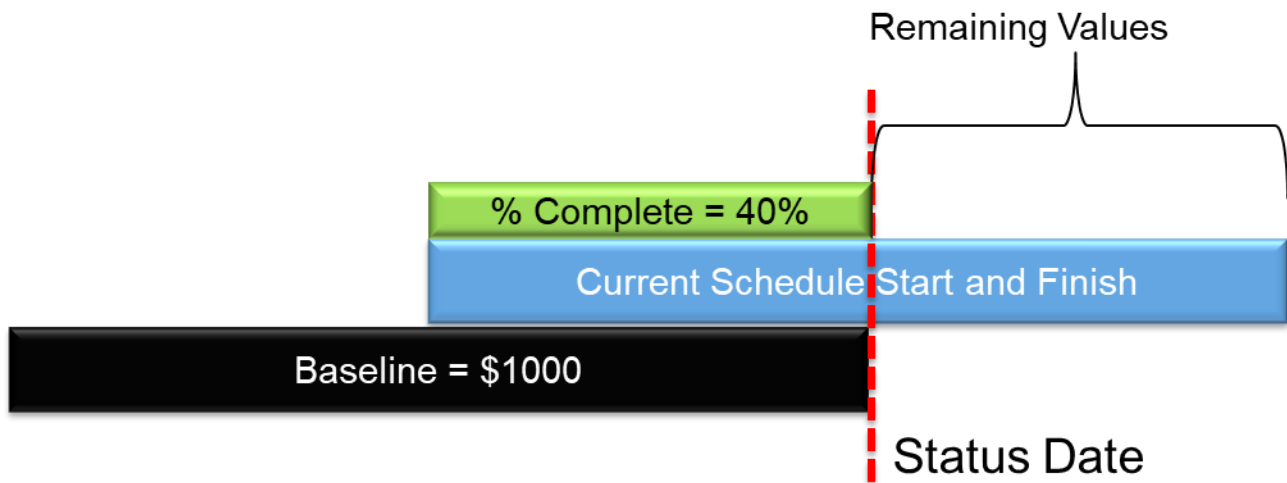
Variances: The difference between the current schedule and the baseline is known as the Cumulative Variance. The difference between the current schedule and the schedule at the end of the prior reporting period is known as the Current Period Variance. Terms and acronym used to describe Variances include: Variance at Complete (VAC), Schedule Variance (SV), Cost Variance (CV) and Variance Analysis Reports (VAR).

Estimate at Complete: The Estimate at Complete equals the total values of actual hours or dollars that have been incurred plus the total remaining value of work and cost until the end of the project. **EAC** is the acronym commonly used for Estimate at Complete.

**Class Exercise – Earned Value Management Basics – BCWS, BCWP, ACWP, ETC & EAC**

This Example Represents a Collection of Work Packages Rolled up to the Control Account (CA) Level

- Microsoft Project Actual = \$600 (Is this useful?)
- Remaining Amount in Project = \$750
- Actual Amount in Accounting System = \$500



Metric	Value
Budget at Complete (BAC)	
"S" – Budgeted Cost of Work Scheduled (BCWS) through the status date	
"P" – Budgeted Cost of Work Performed (BCWP)	
"A" – Actual Cost of Work Performed (ACWP)	
Estimate to Complete (ETC)	
Estimate at Complete (EAC) (ACWP + ETC)	



Project Setup for Earned Value Integration with Deltek Products

Minimum Setup Requirements for EVM using Deltek Cobra™

1. Add **Work Package IDs** to tasks in the schedule. Tasks having **Work Package IDs** will be known as **Work Packages**. A **Work Package ID** is a unique code given to a task/activity in the schedule that represents work that will be performed in a project. You can use any convention you like for **Work Package IDs** (A, B, C, 1, 2, 3, A1, A2, A3 and so on)
2. Add a Work Package **Unique ID**. This is often the same as the Work Package ID if each is unique (Cobra Transaction File Matching Key is the Unique ID)
3. Add **Work Package Parent IDs** (Also known as Control Account or "CA"). Cobra allows Work Packages to be rollup to as many as three different parent IDs (CA1, CA2 and CA3)
4. Add the **Organizational Breakdown Structure (OBS) and Control Account Manager (CAM)** to tasks to support additional Cost Performance Reporting formats.
5. When creating transaction files for Work Package **Status**, a **Performance Measurement Technique (PMT)** and the Microsoft Project field used for **Earned Value Percent Complete** (often set to Physical % Complete) is also needed.

Figure 1 - EV Accounting Codes and IDs in a Project

Name ▼	Work Package ▼	Control Account ▼	OBS ▼	CAM ▼	PMT ▼	Physical % Complete
▸ Project Example						0%
▸ System Concept Development						0%
Manage the Systems Engineering Team	CA1.LOE1	CA1	Sys Eng	R.Smith	LOE	0%
▸ System Concept Development Tasks						0%
Document the Concept of Operation (CONOPS)	CA1.WP1	CA1	Sys Eng	T.Jones	50/50	0%
▸ Identify and Analyze Potential Solution Alternatives						0%
Generate Analysis of Alternatives (AoA) Study Plan	CA1.WP2	CA1	Sys Eng	T.Jones	0/100	0%
Perform AoA Study Plan Review	CA1.WP3	CA1	Sys Eng	T.Jones	50/50	0%



Making Deltek Cobra Transaction Files (Comma Separated Values (CSV))

There are 4 main types of transaction files that can be created using the Cobra Bridge tool:

1. **WBS Desc CSV** – includes the hierarchical (parent/child) structured of two values in the EV system
2. **Activity CSV** – includes attributes about each “Activity” (or EV element)
3. **Rem Res CSV** – and **Baseline Res CSV** – time phased resource assignment data for each EV element.
4. **Status CSV** – captures the performance of Work Packages.

Before you create the transaction files you must first go into the **Setup tabs** for each of the file types and configure which MS Project fields are being used for various Earned Value data. The name of the Setup tab references which transaction file the setting will apply to. For example the **Setup – Export Act** tab will apply to the **Activity** transaction file. The fields that are highlighted are the required fields while the non-highlighted fields are optional and allow you to export additional data into the EVM system.

Structured Solutions Cobra Integration

Make Files | **Setup - Export Act** | Setup - Export Reg | Setup - Export Stat | Setup Export Desc

Activity Export

CA1:	WBS	EVM:	None
CA2:	None	EVT Opt:	None
CA3:	None	Units To Do:	None
Work Package:	Text1	CAM:	None
Milestone:	None	Code 1:	None
MS Weight:	None	Code 2:	None
Id:	UniqueID	Code 3:	None
Description:	None	Code 4:	None
BL Start:	BaselineStart	Code 5:	None
BL Finish:	BaselineFinish	Code 6:	None
Fcst Start:	Start	Code 7:	None
Fcst Finish:	Finish	Code 8:	None
Early Start:	EarlyStart	Code 9:	None
Early Finish:	EarlyFinish	Budget Class:	None
Late Start:	LateStart	Forecast Class:	None
Late Finish:	LateFinish		

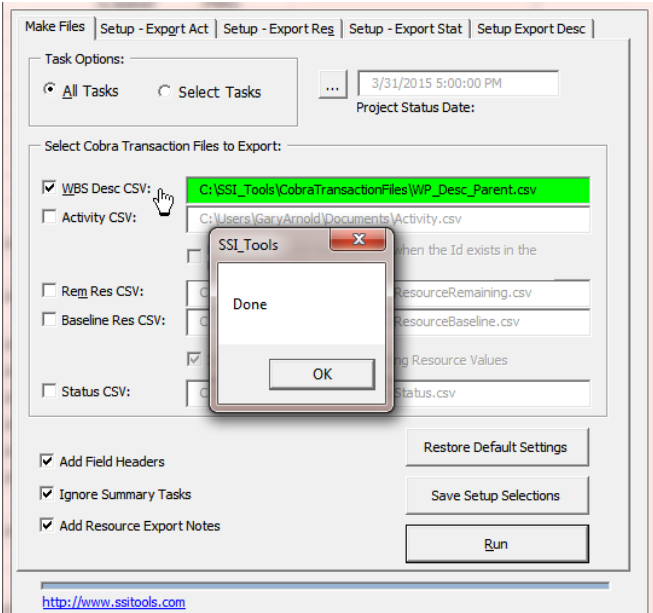
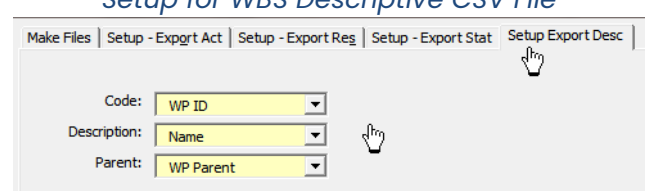
Save Setup Selections

Date Format in Output: mm/dd/yyyy

SSI TOOLS

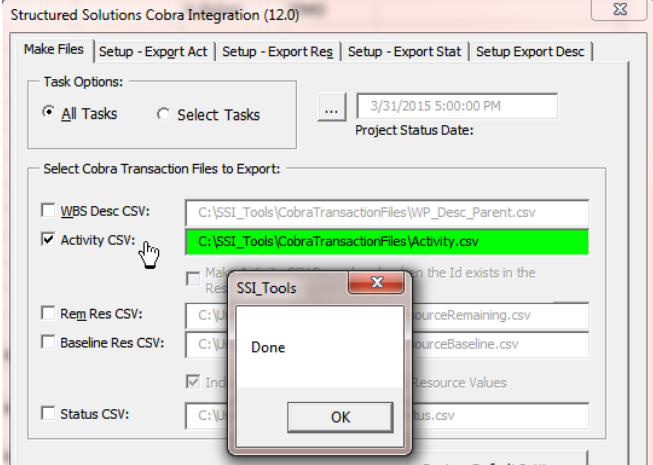
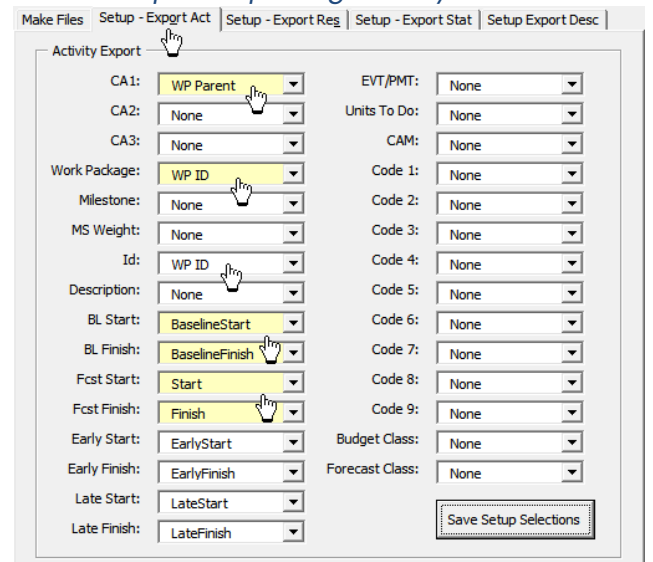


Cobra Import file - WBS Desc CSV

Steps	Description / Image																														
Make WBS Transaction File for use with Deltek Cobra™ • WBS Desc CSV is a Parent/Child hierarchical Code file for Cobra. • A common use has Work Package as the "Child" item and Control Account as the "Parent" but you can use this for any hierarchical Code structure in Cobra. • The output format for this is the "Code", "Description" and "Parent" for each Earned Value (EV) element. ○ "Code" is the "Child" of the "Parent" ○ "Description" is the name of the child element. The Tab named Setup Export Desc controls which Microsoft Project text fields map to Code, Description and Parent	<i>WBS Descriptive CSV File</i>  <i>Setup for WBS Descriptive CSV File</i> 																														
Example WBS Desc CSV <table border="1"> <thead> <tr> <th>Code</th><th>Description</th><th>Parent</th></tr> </thead> <tbody> <tr> <td>WP1.1</td><td>Document the Concept of Operation (CONOPS)</td><td>WP1</td></tr> <tr> <td>WP1.2</td><td>Generate Analysis of Alternatives (AoA) Study Plan</td><td>WP1</td></tr> <tr> <td>WP1.3</td><td>Perform AoA Study Plan Review</td><td>WP1</td></tr> <tr> <td>WP1.4</td><td>Develop Life Cycle Cost Estimate (LCCE)</td><td>WP1</td></tr> <tr> <td>WP1.5</td><td>Define Operations Requirements</td><td>WP1</td></tr> <tr> <td>WP1.6</td><td>Develop Acquisition Plan (AP)</td><td>WP1</td></tr> <tr> <td>WP1.7</td><td>Develop the Integrated Logistics Support Plan (ILSP)</td><td>WP1</td></tr> <tr> <td>WP1.8</td><td>Establish Acquisition Program Baseline (APB)</td><td>WP1</td></tr> <tr> <td>WP1.9</td><td>Conduct Solution Engineering Review (SER)</td><td>WP1</td></tr> </tbody> </table>		Code	Description	Parent	WP1.1	Document the Concept of Operation (CONOPS)	WP1	WP1.2	Generate Analysis of Alternatives (AoA) Study Plan	WP1	WP1.3	Perform AoA Study Plan Review	WP1	WP1.4	Develop Life Cycle Cost Estimate (LCCE)	WP1	WP1.5	Define Operations Requirements	WP1	WP1.6	Develop Acquisition Plan (AP)	WP1	WP1.7	Develop the Integrated Logistics Support Plan (ILSP)	WP1	WP1.8	Establish Acquisition Program Baseline (APB)	WP1	WP1.9	Conduct Solution Engineering Review (SER)	WP1
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Cobra Import file - Activity CSV

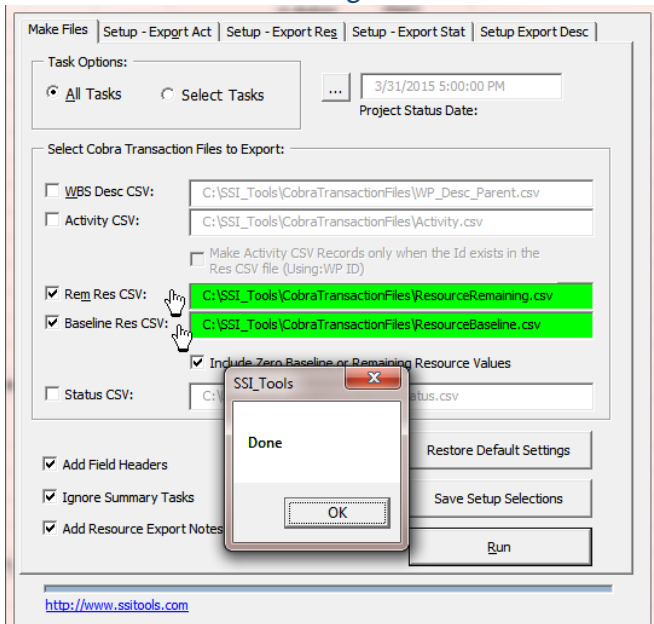
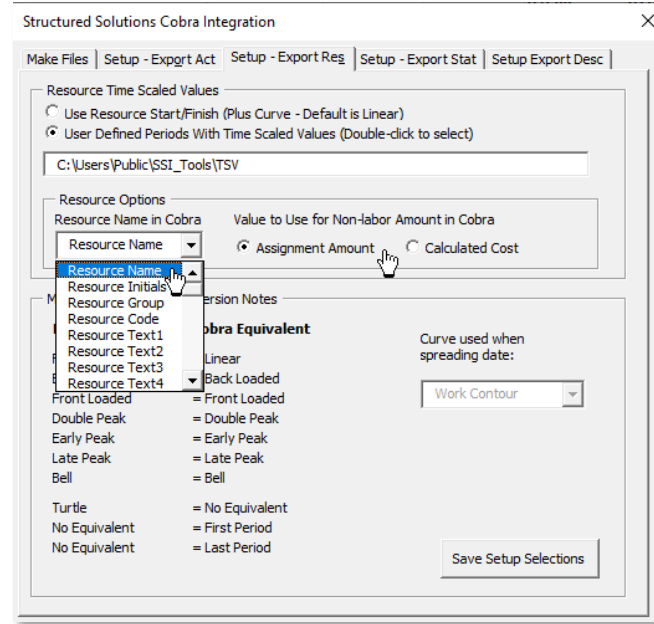
Steps	Description / Image
Make Activity Transaction File for use with Deltek Cobra™ • Activity CSV contains Schedule and other details about EV elements. Required and Recommended data includes: ○ “CA1” is often equal to the Work Package Parent or Control Account ○ “Work Package” is the EV element Work Package ID. ○ “Baseline Start/Finish” is taken from Microsoft Project’s baseline data. EV elements must have a baseline ○ “Fcst Start/Finish” (forecast Start/Finish) is taken from Microsoft Project’s current start and finish. ○ “Id” is the EV element’s Unique ID used to match the Microsoft Project record to the record in Cobra. SSI recommends including this value in an activity transaction file. The Tab named Setup Export Act controls which Microsoft Project text fields map to the Activity CSV file.	<i>Activity CSV File</i>  <i>Setup for Exporting Activity CSV File</i> 

Example **Activity CSV**

CA1 (WP Parent)	WP (WP ID)	Id (WP ID)	BaselineStart (BaselineStart)	BaselineFinish (BaselineFinish)	FcstStart (Start)	FcstFinish (Finish)	EarlyStart (EarlyStart)	EarlyFinish (EarlyFinish)	LateStart (LateStart)	LateFinish (LateFinish)
WP1	WP1.1	WP1.1	1/1/2015	1/21/2015	1/1/2015	1/21/2015	1/1/2015	1/21/2015	1/1/2015	1/21/2015
WP1	WP1.2	WP1.2	1/22/2015	1/28/2015	1/22/2015	1/30/2015	1/22/2015	1/30/2015	1/22/2015	1/30/2015
WP1	WP1.3	WP1.3	1/29/2015	2/10/2015	2/2/2015	2/12/2015	2/2/2015	2/12/2015	2/2/2015	2/12/2015
WP1	WP1.4	WP1.4	1/29/2015	2/4/2015	2/2/2015	2/6/2015	2/2/2015	2/6/2015	2/2/2015	2/6/2015
WP1	WP1.5	WP1.5	1/29/2015	2/4/2015	2/2/2015	2/6/2015	2/2/2015	2/6/2015	2/2/2015	2/6/2015
WP1	WP1.6	WP1.6	2/11/2015	2/17/2015	2/13/2015	2/25/2015	2/13/2015	2/25/2015	2/13/2015	2/25/2015
WP1	WP1.7	WP1.7	1/29/2015	2/4/2015	2/2/2015	2/6/2015	2/2/2015	2/6/2015	2/2/2015	2/6/2015
WP1	WP1.8	WP1.8	1/29/2015	2/4/2015	2/2/2015	2/13/2015	2/2/2015	2/13/2015	2/2/2015	2/13/2015
WP1	WP1.9	WP1.9	2/19/2015	2/19/2015	2/26/2015	2/26/2015	2/26/2015	2/26/2015	2/26/2015	2/26/2015



Cobra Import file – Rem Res CSV and Baseline Res CSV

Steps	Description / Image									
Make Baseline and Remaining Resource Transaction Files for use with Deltek Cobra™ • Rem Res CSV contains time phased data for an EV element's Remaining work and cost assignments • Baseline Res CSV contains time phased data for an EV element's Baseline work and cost assignments ○ "ID" is the EV element's Unique ID used to match the Microsoft Project record to the record in Cobra. ○ "Resource Name" is the name of the assigned resource in Microsoft Project. This must match the name of a resource in the Cobra resource library. ○ "Amount" is taken from Microsoft Project's time phased baseline or remaining "Task Usage" data set ○ "From/To Date" is taken from Microsoft Project's baseline or remaining Start and Finish for the task containing the assignment. The Tab named Setup Export Res determines: ○ The Microsoft Project Resource field is used for the Resource Name in Cobra. ○ The Value to Use for Non-labor Amount in Cobra ▪ When using Assignment Amount for non-labor, SSI Tools uses the Amount, or Units, of non-labor instead of Units times the Standard Rate. ▪ When using Calculated Cost, the Units times the Standard Rate is used	<i>Baseline and Remaining Resource CSV Files</i>  <i>Setup for Baseline and Remaining Resource CSV Files</i> 									
<table border="1"> <thead> <tr> <th>Resource Name</th><th>Type</th><th>Std. Rate</th></tr> </thead> <tbody> <tr> <td>Test Tech</td><td>Work</td><td>\$75.00/hr</td></tr> <tr> <td>Material</td><td>Material</td><td>\$1.08</td></tr> </tbody> </table>	Resource Name	Type	Std. Rate	Test Tech	Work	\$75.00/hr	Material	Material	\$1.08	
Resource Name	Type	Std. Rate								
Test Tech	Work	\$75.00/hr								
Material	Material	\$1.08								



Using Linear or User Defined Periods for Baseline and Remaining Resource usage

Making a Resource Usage file with a Linear spread of work and cost amounts

The Tab named **Setup - Export Res** includes an option to spread the resource amounts across the Start and Finish dates for work packages.

- **Use Resource Start/Finish (Plus Curve)** makes a simple transaction file that gives the amount of each resource assignment plus the baseline or remaining start & finish period for the resource assignment amount.
- You can apply a **Curve** or **Work Contour** to the spread of resource assignment values using the control named **Curve used when spreading** (by) **date**.

Structured Solutions Cobra Integration

Make Files | Setup - Export Act | Setup - Export Res | Setup - Export Stat | Setup Export Desc

Resource Time Scaled Values

☒ Use Resource Start/Finish (Plus Curve - Default is Linear)

☐ User Defined Periods With Time Scaled Values (Double-click select)

C:\Users\Public\SSI_Tools\TSV\TSV_04-2018_2024-Fiscal_Cal.csv

Resource Options

Resource Name in Cobra: [Resource Name]

Value to Use for Non-labor Amount in Cobra: ☒ Assignment Amount ☐ Calculated Cost

MSP to Cobra Curve Conversion Notes

MSP Name	Cobra Equivalent
Flat	= Linear
Back Loaded	= Back Loaded
Front Loaded	= Front Loaded
Double Peak	= Double Peak
Early Peak	= Early Peak
Late Peak	= Late Peak
Bell	= Bell
Turtle	= No Equivalent
No Equivalent	= First Period
No Equivalent	= Last Period

Curve used when spreading date: [Work Contour]

Text24
Text25
Text26
Text27
Text28
Text29
Text30
Work Contour

Save Setup Selections

Example of Linear Resource Spread .csv file

Note that each resource is shown once no matter the From/To duration

Id (UniqueID)	Resource (Resource Name)	Amount (Remaining)	FromDate	ToDate	Class (None)	Curve (Work Contour)
100	Production Lead	120	10/20/2021	11/9/2021		Linear
100	Production Support	120	10/20/2021	11/9/2021		Linear
100	Test Engineer	120	10/20/2021	11/9/2021		Linear
100	Test Tech	120	10/20/2021	11/9/2021		Linear



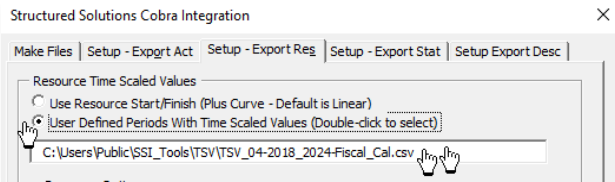
Using Linear or User Defined Periods for Baseline and Remaining Resource usage

Making a Resource Usage file with User Defined periods for work and cost amounts

The Tab named **Setup - Export Res** also includes an option to select **User Defined Periods** for Baseline or Remaining Resource assignment

User Defined Periods with Time Scaled Values makes a detailed transaction file showing the amount of a resource assignment in each reporting period according to the selected Defined Periods Table.

1. Double-click **User Defined Periods with Time Scaled Values** to select a defined periods table.
2. Double-click a **Defined Periods Table** to see its Period Label, Start and End
3. Select the **System Location for Defined Periods** if needed



Select Defined Periods

Select a Defined Periods Table - Double-Click to select

TSV_04-2018_2024-Fiscal_Cal.csv
 TSV_2015-4-4-5-FiscalCal.csv
 TSV_2018_2024-Fiscal_Cal.csv
 TSV_2019_2024-Fiscal_Cal.csv
 TSV_AccountingCal.csv
 TSV_AccountingCal_Jacobs.csv
 TSV_ExampleAccountingCal.csv

Reporting Periods Preview (Double-click to edit a period)

Period Label	Start	End
2018-04	03/31/2018	05/04/2018
2018-05	05/05/2018	06/01/2018
2018-06	06/02/2018	06/29/2018
2018-07	06/30/2018	08/03/2018

Note: Sample **Defined Periods Tables** are included with SSI Tools at c:\Users\Public\SSI_Tools\TSV (or the SSI tools install location). User defined periods can be edited using the **Preview** form or you can make and edit this table using Microsoft Excel as long as they are saved as .csv files and their name begins with "TSV_" like the examples shown above.

Example of User Define periods for Resource Spread .csv file

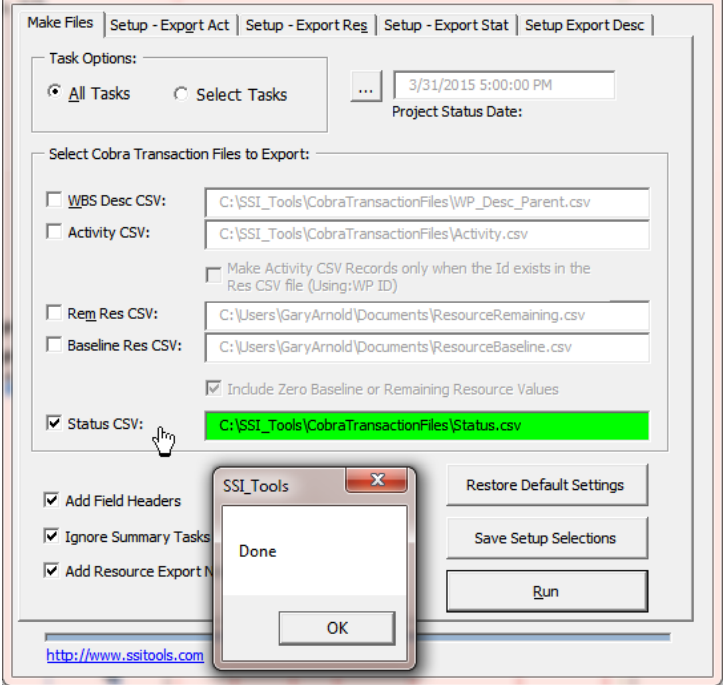
Note that each resource may be shown more than once according to the number of user defined periods for its work and cost amounts



Id (UniqueID)	Resource (Resource Name)	Amount (Remaining)	FromDate	ToDate	Class (None)
100	Production Lead	64.00	10/20/2021	10/29/2021	
100	Production Lead	56.00	10/30/2021	11/9/2021	
100	Production Support	64.00	10/20/2021	10/29/2021	
100	Production Support	56.00	10/30/2021	11/9/2021	
100	Test Engineer	64.00	10/20/2021	10/29/2021	
100	Test Engineer	56.00	10/30/2021	11/9/2021	
100	Test Tech	64.00	10/20/2021	10/29/2021	
100	Test Tech	56.00	10/30/2021	11/9/2021	



Cobra Import file – Status CSV

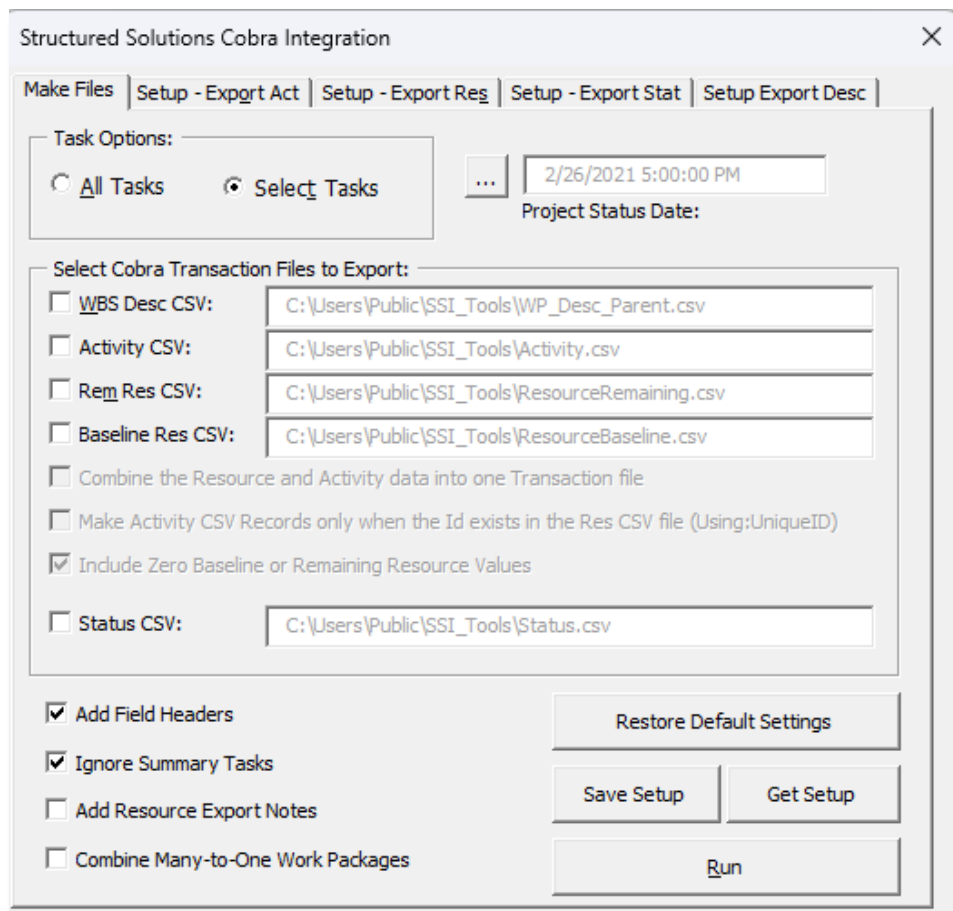
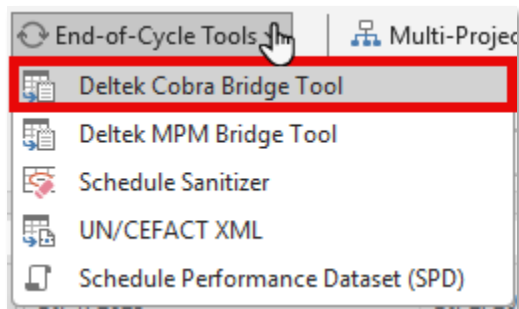
Steps	Description / Image																																																		
Make Status Transaction File for use with Deltek Cobra™ • Status CSV contains the Actual Start/Finish and Percent Complete for EV elements ○ Status file generation requires a Microsoft Project field used for the Earned Value or Performance Measurement technique (EVT/PMT). Select EVM on the Setup – Export Act tab ○ Other options for Status transaction files are set on the tab named Setup – Export Stat	 Example Status CSV <table border="1"><thead><tr><th>CA1 (WP Parent)</th><th>WorkPackage (WP ID)</th><th>ActualStart</th><th>ActualFinish</th><th>PercentComplete (Physical % Complete)</th></tr></thead><tbody><tr><td>WP1</td><td>WP1.1</td><td>1/1/2015</td><td>1/21/2015</td><td>100%</td></tr><tr><td>WP1</td><td>WP1.2</td><td>1/22/2015</td><td>1/30/2015</td><td>100%</td></tr><tr><td>WP1</td><td>WP1.3</td><td>2/2/2015</td><td>2/12/2015</td><td>100%</td></tr><tr><td>WP1</td><td>WP1.4</td><td>2/2/2015</td><td>2/6/2015</td><td>100%</td></tr><tr><td>WP1</td><td>WP1.5</td><td>2/2/2015</td><td>2/6/2015</td><td>100%</td></tr><tr><td>WP1</td><td>WP1.6</td><td>2/13/2015</td><td>2/25/2015</td><td>100%</td></tr><tr><td>WP1</td><td>WP1.7</td><td>2/2/2015</td><td>2/6/2015</td><td>100%</td></tr><tr><td>WP1</td><td>WP1.8</td><td>2/2/2015</td><td>2/13/2015</td><td>100%</td></tr><tr><td>WP1</td><td>WP1.9</td><td>2/26/2015</td><td>2/26/2015</td><td>100%</td></tr></tbody></table>	CA1 (WP Parent)	WorkPackage (WP ID)	ActualStart	ActualFinish	PercentComplete (Physical % Complete)	WP1	WP1.1	1/1/2015	1/21/2015	100%	WP1	WP1.2	1/22/2015	1/30/2015	100%	WP1	WP1.3	2/2/2015	2/12/2015	100%	WP1	WP1.4	2/2/2015	2/6/2015	100%	WP1	WP1.5	2/2/2015	2/6/2015	100%	WP1	WP1.6	2/13/2015	2/25/2015	100%	WP1	WP1.7	2/2/2015	2/6/2015	100%	WP1	WP1.8	2/2/2015	2/13/2015	100%	WP1	WP1.9	2/26/2015	2/26/2015	100%
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WP1	WP1.3	2/2/2015	2/12/2015	100%																																															
WP1	WP1.4	2/2/2015	2/6/2015	100%																																															
WP1	WP1.5	2/2/2015	2/6/2015	100%																																															
WP1	WP1.6	2/13/2015	2/25/2015	100%																																															
WP1	WP1.7	2/2/2015	2/6/2015	100%																																															
WP1	WP1.8	2/2/2015	2/13/2015	100%																																															
WP1	WP1.9	2/26/2015	2/26/2015	100%																																															

**Class Exercise – Make Deltek Cobra Bridge files**

Open the Example Project for SSI EVM Tools (ExampleProjectEVM.mpp)*

*If needed, download the Example Project at: [Example Project for EVM Tools Exercises](#)
and the Example Accounting Calendar at: [Example Accounting Calendar](#)

1. Open the [Example Project for EVM Tools](#) in Microsoft Project
2. Save the [Example Accounting Calendar](#) in C:\Users\Public\SSI_Tools\TSV or similar path if SSI Tools is not in the default installation location.
3. Select **Deltek Cobra Bridge Tools** from the **Performance and EV** group of the **SSI Analysis Tools** menu





Exercise continues next page

4. Click the tab named **Setup – Export Act** and make the following settings if not already configured like this:

Structured Solutions Cobra Integration

Make Files | Setup - Export Act | Setup - Export Res | Setup - Export Stat | Setup Export Desc

Activity Export		EVM:	PMT/EVT
CA1:	WP Parent	EVT Opt:	None
CA2:	OBS	Units To Do:	None
CA3:	None	CAM:	Contact
Work Package:	WP ID	Code 1:	None
Milestone:	None	Code 2:	None
MS Weight:	None	Code 3:	None
Id:	UniqueID	Code 4:	None
Description:	None	Code 5:	None
BL Start:	BaselineStart	Code 6:	None
BL Finish:	BaselineFinish	Code 7:	None
Fcst Start:	Start	Code 8:	None
Fcst Finish:	Finish	Code 9:	None
Early Start:	EarlyStart	Budget Class:	None
Early Finish:	EarlyFinish	Forecast Class:	None
Late Start:	LateStart		
Late Finish:	LateFinish		

Save Setup Selections

Exercise continues on next page



5. Click the tab named **Setup – Export Res** and make the following settings if not already configured like this: (Enter the path and name of the accounting calendar file from step 2 if different than the example below)

The screenshot shows the 'Structured Solutions Cobra Integration' dialog box with the 'Setup - Export Res' tab selected. The dialog has five tabs: 'Make Files', 'Setup - Export Act', 'Setup - Export Res', 'Setup - Export Stat', and 'Setup Export Desc'. The 'Setup - Export Res' tab contains the following sections:

- Resource Time Scaled Values:** Two radio buttons. The first is 'Use Resource Start/Finish (Plus Curve - Default is Linear)'. The second is 'User Defined Periods With Time Scaled Values (Double-click to select)', which is selected. Below this is a text box containing the path 'C:\Users\Public\SSI_Tools\TSV\TSV_ExampleAccountingCal.csv'.
- Resource Options:** A section with two sub-sections. The first is 'Resource Name in Cobra' with a dropdown menu showing 'Resource Name'. The second is 'Value to Use for Non-labor Amount in Cobra' with two radio buttons: 'Assignment Amount' (selected) and 'Calculated Cost'.
- MSP to Cobra Curve Conversion Notes:** A table mapping MSP names to Cobra equivalents, and a dropdown for 'Curve used when spreading date:'.

MSP Name	Cobra Equivalent
Flat	= Linear
Back Loaded	= Back Loaded
Front Loaded	= Front Loaded
Double Peak	= Double Peak
Early Peak	= Early Peak
Late Peak	= Late Peak
Bell	= Bell
Turtle	= No Equivalent
No Equivalent	= First Period
No Equivalent	= Last Period

Curve used when spreading date: Work Contour

Save Setup Selections

Exercise continues on next page



6. Click the tab named **Setup – Export Stat** and make the following settings if not already configured like this:

Structured Solutions Cobra Integration

Make Files | Setup - Expgrt Act | Setup - Export Reg | **Setup - Export Stat** | Setup Export Desc

CA1: WP Parent

CA2: OBS

CA3: None

Work Package: WP ID

Actual Start: Actual Start

Actual Finish: Actual Finish

Fcst Start: None

Fcst Finish: None

Early Start: None

Early Finish: None

Late Start: None

Late Finish: None

Percent Complete: Physical % Complete

Milestone: None

Units Complete: None

Earned Value: None

BAC: None

Budget Class: None

Note - when PMT = L, Status Performance is taken at the Resource Assignment Level (For each Resource Name)

Resource: Per Resource Setup

Status Options for Many-to-one WPs

Basis: NA

Basis Value: NA

Save Setup Selections

Exercise continues on next page



- Click the tab named **Setup Export Desc** and make the following settings if not already configured like this:

Structured Solutions Cobra Integration

Make Files | Setup - Export Act | Setup - Export Res | Setup - Export Stat | **Setup Export Desc**

Code: WP ID

Description: Name

Parent: WP Parent

- Click the tab named **Make Files** and make the following settings. Change file paths if the examples shown do not exist on your system.
- Click **Run** to make 5 Cobra bridge transaction files with the names shown below

Structured Solutions Cobra Integration

Make Files | Setup - Export Act | Setup - Export Res | Setup - Export Stat | Setup Export Desc

Task Options:

☐ All Tasks ☒ Select Tasks

Project Status Date: 2/26/2021 5:00:00 PM

Select Cobra Transaction Files to Export:

☒ WBS Desc CSV: C:\Users\Public\SSI_Tools\WP_Desc_Parent.csv

☒ Activity CSV: C:\Users\Public\SSI_Tools\Activity.csv

☒ Rem Res CSV: C:\Users\Public\SSI_Tools\ResourceRemaining.csv

☒ Baseline Res CSV: C:\Users\Public\SSI_Tools\ResourceBaseline.csv

☐ Combine the Resource and Activity data into one Transaction file

☐ Make Activity CSV Records only when the Id exists in the Res CSV file (Using:UniqueID)

☐ Include Zero Baseline or Remaining Resource Values

☒ Status CSV: C:\Users\Public\SSI_Tools>Status.csv

☒ Add Field Headers

☒ Ignore Summary Tasks

☐ Add Resource Export Notes

☐ Combine Many-to-One Work Packages

Restore Default Settings

Save Setup Get Setup

Run

Date Format in Output: mm/dd/yyyy

SSI TOOLS



Exercise continues on next page

10. Inspect the files you just created by opening each in Microsoft Excel. Each file should look similar to the examples below.

WBS Desc CSV is a Parent/Child Code file commonly used for Work Package to Control Account hierarchical structures in Cobra.

	A	B	C
1	Code	Description	Parent
2	WP1.1	Document the Concept of Operation (CONOPS)	WP1
3	WP1.2	Generate Analysis of Alternatives (AoA) Study Plan	WP1
4	WP1.3	Perform AoA Study Plan Review	WP1
5	WP1.4	Develop Life Cycle Cost Estimate (LCCE)	WP1
6	WP1.5	Define Operations Requirements	WP1
7	WP1.6	Develop Acquisition Plan (AP)	WP1
8	WP1.7	Develop the Integrated Logistics Support Plan (ILSP)	WP1
9	WP1.8	Establish Acquisition Program Baseline (APB)	WP1
10	WP1.9	Conduct Solution Engineering Review (SER)	WP1
11	WP2.1	Review CONOPS & Requirements Documents	WP2
12	WP2.2	Conduct Site Surveys	WP2
13	WP2.3	Develop System Hardware Requirements	WP2

Activity CSV Provides schedule information about Work Packages. It can include the name of the Control Account Manager (CAM), Performance Measurement Technique (EVT/PMT) and other codes associated with the Work Package such as Contract Line-Item Number (CLIN), Organizational or Work Breakdown Structure (OBS or WBS) and so on.

The **Id** (column D) is used to link the Activity data to the Resources data in the two tables below.

	A	B	C	D	E	F	G	H	I	J	K	L	M	N
	CA1(WP				BaselineStart	BaselineFinish(	FcstStart(	FcstFinish(	EarlyStart(	EarlyFinish(	LateStart(	LateFinish(	EVT(PMT	
1	Parent)	CA2(OBS)	WP(WP ID)	Id(UniqueID)	(BaselineStar	BaselineFinish)	Start)	Finish)	EarlyStart)	EarlyFinish)	LateStart)	LateFinish)	/EVT)	CAM(Contact)
2	WP1	Sys Eng	WP1.1	15	1/1/2021	1/21/2021	1/1/2021	1/28/2021	1/1/2021	1/28/2021	1/1/2021	1/28/2021	F	D.Dart
3	WP1	Sys Eng	WP1.2	17	1/22/2021	1/28/2021	1/29/2021	2/4/2021	1/29/2021	2/4/2021	1/29/2021	2/4/2021	F	D.Dart
4	WP1	Sys Eng	WP1.3	18	1/29/2021	2/10/2021	2/5/2021	2/17/2021	2/5/2021	2/17/2021	2/5/2021	2/17/2021	H	D.Dart
5	WP1	Sys Eng	WP1.4	19	1/29/2021	2/4/2021	2/5/2021	2/11/2021	2/5/2021	2/11/2021	2/5/2021	2/11/2021	H	D.Dart
6	WP1	Sys Eng	WP1.5	20	1/29/2021	2/4/2021	2/5/2021	2/11/2021	2/5/2021	2/11/2021	2/5/2021	2/11/2021	H	D.Dart
7	WP1	Sys Eng	WP1.6	21	2/11/2021	2/17/2021	2/18/2021	2/24/2021	2/18/2021	2/24/2021	2/18/2021	2/24/2021	F	D.Dart

Exercise continues on next page



Rem Res and Baseline Res CSV Provide the amount of work or cost by calendar period if using an accounting calendar with the **User Defined Periods** option on the tab named **Setup – Export Res**, or just a work or cost value spread across baseline or forecast dates if using the **Resource Start/Finish** option on the tab named **Setup – Export Res**.

The **Id** (column D) is used to link the Activity data to the Resources data in the two tables below.

Baseline Res CSV is the Baseline work or cost amounts by Baseline Start and Finish dates. These are the Cobra inputs for the Budgeted Cost of Work Scheduled (BCWS)

	A	B	C	D	E	F
1	Id(UniqueID)	Resource(Resource Name)	Amount(Baseline)	FromDate	ToDate	Class(None)
2	100	Production Lead	80	9/20/2021	10/1/2021	
3	100	Production Lead	40	10/2/2021	10/8/2021	
4	100	Production Support	80	9/20/2021	10/1/2021	
5	100	Production Support	40	10/2/2021	10/8/2021	
6	100	Test Engineer	80	9/20/2021	10/1/2021	

Rem Res CSV is the Remaining work or cost amounts by Forecast Start and Finish dates. These are the Cobra inputs for the Estimate to Complete (ETC)

	A	B	C	D	E	F
1	Id(UniqueID)	Resource(Resource Name)	Amount(Remaining)	FromDate	ToDate	Class(None)
2	100	Production Lead	40	9/27/2021	10/1/2021	
3	100	Production Lead	80	10/2/2021	10/15/2021	
4	100	Production Support	40	9/27/2021	10/1/2021	
5	100	Production Support	80	10/2/2021	10/15/2021	
6	100	Test Engineer	40	9/27/2021	10/1/2021	

Status CSV Provide the Cobra inputs for Budgeted Cost of Work Performed (BCWP). Each work package shows its Actual Start & Finish, if any and the assessed Percent Complete for Earned Value.

	A	B	C	D	E	F	G
			WorkPackage (WP ID)	ActualStart	ActualFinish	PercentComplete (Physical % Complete)	BudgetElement(Resource Name)
1	CA1(WP Parent)	CA2(OBS)					
2	WP1	Sys Eng	WP1.1	1/1/2021	1/28/2021	100%	
3	WP1	Sys Eng	WP1.2	1/29/2021	2/4/2021	100%	
4	WP1	Sys Eng	WP1.3	2/5/2021	2/17/2021	100%	
5	WP1	Sys Eng	WP1.4	2/5/2021	2/11/2021	100%	
6	WP1	Sys Eng	WP1.5	2/5/2021	2/11/2021	100%	
7	WP1	Sys Eng	WP1.6	2/18/2021	2/24/2021	100%	

End of Exercise



Using the “Combine Many-to-One Work Packages” option

Some organizations choose to set up their schedule so that more than one task in the Schedule rolls-up to a single Work Package item in the EV system. If you do that you will need to use the option named **Combine Many-to-One Work Packages** on the tab named **Make Files**.

With this option selected, the Budgeted Cost of Work Scheduled (BCWS), the Estimate to Complete (ETC) and the Budgeted Cost of Work Performed (BCWP) are rolled-up to a common Work Package ID as shown in **Figure 2** and **Figure 3** below:

Figure 2 – Using the Many-to-One option for Work Packages.

	Name	WP Name	WP ID	WP Parent	PMT/EVT	Contact	Physical % Complete	Remaining Duration	Baseline Start	Baseline Finish	Start	Finish
14	System Concept Development Tasks						89%	3.31 days	1/1/21	2/17/21	1/1/21	2/24/21
15	Document the Concept of Operation (CONOPS)	CONOPS	WP1.1	WP1	F	D.Dart	100%	0 days	1/1/21	1/21/21	1/1/21	1/28/21
16	Identify and Analyze Potential Solutions						100%	0 days	1/22/21	2/10/21	1/29/21	2/17/21
17	Generate Analysis of Alternatives (AoA) Study Plan	System Concept Documentation	WP1.2	WP1	F	D.Dart	100%	0 days	1/22/21	1/28/21	1/29/21	2/4/21
18	Perform AoA Study Plan Review	System Concept Documentation	WP1.2	WP1	F	D.Dart	100%	0 days	1/29/21	2/10/21	2/5/21	2/17/21
19	Develop Life Cycle Cost Estimate (LCCE)	System Concept Documentation	WP1.2	WP1	F	D.Dart	100%	0 days	1/29/21	2/4/21	2/5/21	2/11/21
20	Define Operations Requirements	System Concept Documentation	WP1.2	WP1	F	D.Dart	100%	0 days	1/29/21	2/4/21	2/5/21	2/11/21
21	Develop Acquisition Plan (AP)	System Concept Documentation	WP1.2	WP1	F	D.Dart	100%	0 days	2/11/21	2/17/21	2/18/21	2/24/21
22	Develop the Integrated Logistics Support Plan (ILSP)	System Concept Documentation	WP1.2	WP1	F	D.Dart	100%	0 days	1/29/21	2/4/21	2/5/21	2/11/21
23	Establish Acquisition Program Baseline (APB)	System Concept Documentation	WP1.2	WP1	F	D.Dart	0%	5 days	1/29/21	2/4/21	2/5/21	2/11/21
24	Solution Engineering Review (SER)						100%	0 days	2/18/21	2/18/21	2/25/21	2/25/21
25	Conduct Solution Engineering Review	System Review	WP1.3	WP1	F	D.Dart	100%	0 days	2/18/21	2/18/21	2/25/21	2/25/21

Figure 3 Cobra Activity Import file with rollups – colors show how tasks in schedule rollout to Cobra import data

CA1(WP Parent)	CA2(OBS)	WP(WP ID)	Id(WP ID)	Description(WP Name)	BaselineStart(BaselineStart)	BaselineFinish(BaselineFinish)	FcstStart(Start)	FcstFinish(Finish)	EarlyStart(EarlyStart)	EarlyFinish(EarlyFinish)	LateStart(LateStart)	LateFinish(LateFinish)	EVT(PMT /EVT)	CAM(Contact)
WP1	Sys Eng	WP1.1	WP1.1	CONOPS	1/1/2021	1/21/2021	1/1/2021	1/28/2021	1/1/2021	1/28/2021	1/1/2021	1/28/2021	F	D.Dart
WP1	Sys Eng	WP1.2	WP1.2	System Concept Documentation	1/22/2021	2/17/2021	1/29/2021	2/24/2021	1/29/2021	2/24/2021	1/29/2021	11/10/2021	F	D.Dart
WP1	Sys Eng	WP1.3	WP1.3	System Review	2/18/2021	2/18/2021	2/25/2021	2/25/2021	2/25/2021	2/25/2021	2/25/2021	2/25/2021	F	D.Dart



In this example, some tasks map one-to-one to work packages and others map many-to-one. It is important to note that tasks do **not** rollup to their respective Work package or Control Account by project summary tasks. Instead, SSI Tools uses codes to determine how to combine and structure tasks for the EV system.

- **All** the highlighted tasks rollup to WP1 **WP Parent**, based on having a common value in that field.
- **Task 15** is a one-to-one Work Package, meaning one Task = one Work Package. The same is true for **Task 25**.
- Even though **Tasks 17 – 23** do not rollup to a common summary task in the schedule, they do rollup to the same Work Package (WP1.2) and the same Control Account (WP1) via the codes in WP ID and WP Parent.

When using the Many-to-one option, SSI Tools finds all the tasks in the schedule with the same Work Package ID (WP ID). Whenever this is the case, SSI Tools summarizes tasks by their Work Package ID and provides data in its .csv files as follows:

- Minimum Baseline and Forecasted Start.
- Maximum Baseline and Forecasted Finish.
- Work and Cost are summarized by Resource and Work Package ID and will be distributed by accounting periods exactly as the work and cost is distributed in the project.
- Status for BCWP is rolled up according to each task's weight, which can be determined by its work or cost amounts or by Explicit Weights entered by the user for each task in a many-to-one group.



Special Setup in the project when using the Many-to-One option

Structured Solutions Cobra Integration

Make Files | Setup - Export Act | Setup - Export Res | Setup - Export Stat | Setup

On the tab named **Setup Export Stat** you can specify how to weight tasks in a many-to-one group for determining BCWP. Options include Baseline Work, Cost or Duration. You can also enter an Explicit weight in a number field. Each task's Weighted Percent Complete, relative to all tasks in the many-to-one group, determine BCWP for the Work Package in total.

Status Options for Many-to-one WPs

Basis: Baseline Work ▼

Basis Value: NA ▼

**Setup for Work Package Names (or Description)**

On the tab named **Setup Export Act** you must specify a text field where the Description for each Work Package is entered. You can't use Project's Name field since it is likely to be different for all the tasks in a many-to-one group. Therefore, you must put a common name in a text field.

Figure 2 - Using the Many-to-One option for Work Packages shows the common name for rows 17 – 24. *Even if a task is not part of a many-to-one group, you still must put a Work Package name in a text field since SSI Tools will get the work package description from the text field for all work packages regardless of one-to-one or many-to-one usage.

Structured Solutions Cobra Integration

Make Files Setup - Export Act Setup - Export R

Activity Export

CA1: WP Parent

CA2: OBS

CA3: None

Work Package: WP ID

Milestone: None

MS Weight: None

Id: WP ID

Description: WP Name

BL Start: BaselineStart

BL Finish: BaselineFinish

Fcst Start: Start

Fcst Finish: Finish

Early Start: EarlyStart

Early Finish: EarlyFinish

Late Start: LateStart

Late Finish: LateFinish

Setup for Id

Id is used to link the Activity CSV to the Resource CSV, therefore, when using the many-to-one option, you can't use project's Unique ID for this purpose since each task in a many-to-one group would have a unique id if you did. The Work Package ID is often a good choice for Id when using many-to-one.

Fields that MUST all be the same when using many-to-one work packages

- Performance Measurement Techniques (PMT/EVT)
- Control Account Manager (CAM)
- Control Account (the parent of the Work Package)