Earned Value Made Simple

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Monday, July 12, 2004

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Agenda

- Scheduling tips for MSP
- EVMS features in MSP
- Integrating with Cobra

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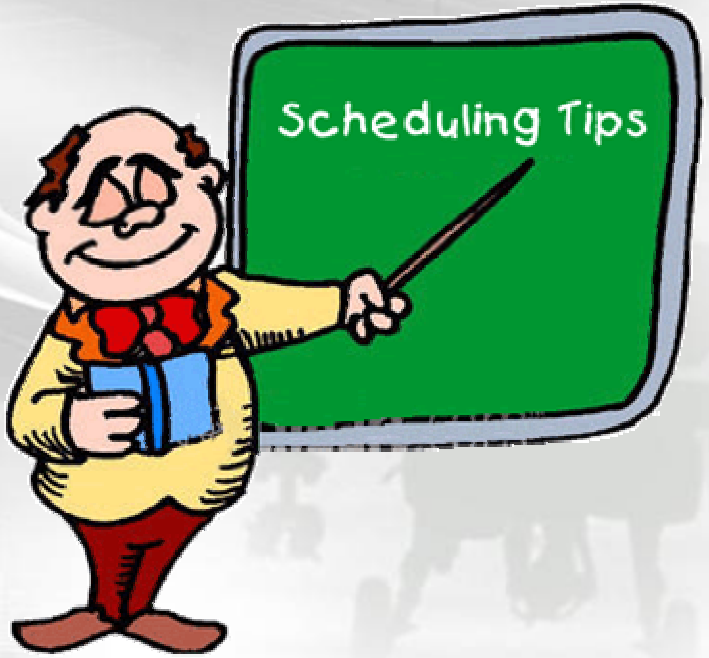
Scheduling Tips for MSP



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Tips

- Resource assignments in hours
- Durations changed based on other work
- Maintain time-phased resources
- Statusing activities

Tools\Options

Schedule | Calculation | Spelling

Schedule options for Microsoft Office Project

- [x] Show scheduling messages

Show assignment units as a: Percentage

Scheduling options for 'shuttle.mpp'

New tasks: Start On Project Start Date

Duration is entered in: Weeks

Work is entered in: Hours

Default task type: Fixed Work

- [x] New tasks are effort driven

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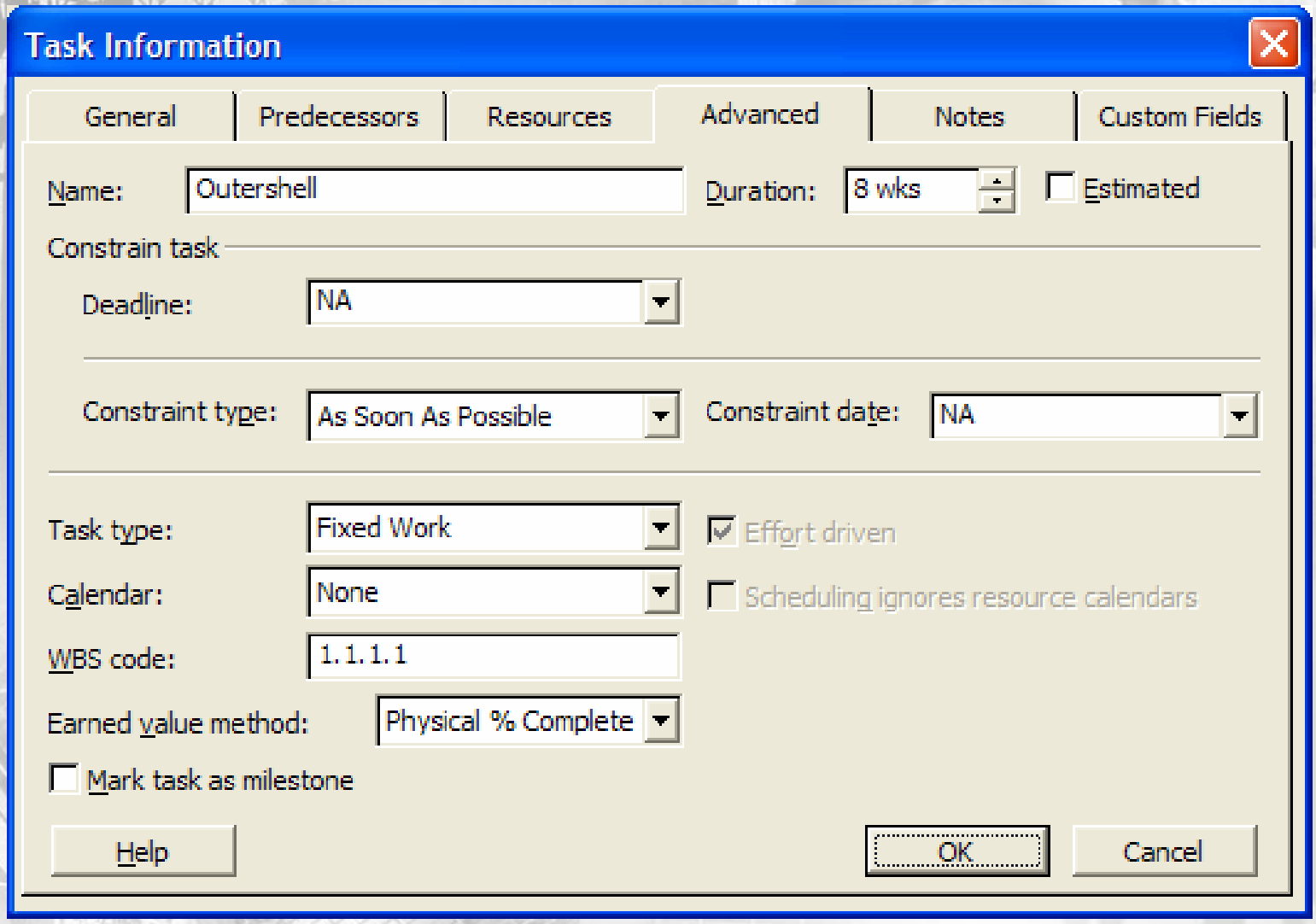
Task Settings



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Task Usage

Task Usage

	Task Name	Work	Duration	Details	July	August	September	October	November
1	**Inter-Planet Shuttle**	**4,055,702.35 hrs**	**35 wks**	Work	198,895.42h	198,893.82h	221,103.63h	663,104.45h	694,618.78h
2	**Design**	**587,316.47 hrs**	**13 wks**	Work	198,895.42h	198,893.82h	189,527.23h		
	Funding	*584,700.47 hrs*		Work	197,898.62h	197,898.62h	188,903.23h		
3	**Fuselage**	**1,336 hrs**	**7 wks**	Work	996.8h	339.2h			
4	**External Design**	**1,336 hrs**	**7 wks**	Work	996.8h	339.2h			
5	Outershell	672 hrs	6 wks	Work	492.8h	179.2h			
	AERO	*672 hrs*		Work	492.8h	179.2h			
	PARTS	*25,000*		Work	23,263.89	1,736.11			
6	Hydraulics	504 hrs	3 wks	Work	504h				
	AERO	*504 hrs*		Work	504h				
	PARTS	*75,000*		Work	75,000				
7	Quality Inspection	160 hrs	1 wk	Work		160h			
	AERO	*160 hrs*		Work		160h			
8	**Cockpit**	**1,280 hrs**	**7 wks**	Work		656h	624h		
9	**Internal Design**	**1,280 hrs**	**7 wks**	Work		656h	624h		
10	Control Bay	480 hrs	4 wks	Work		336h	144h		
	MECH	*480 hrs*		Work		336h	144h		
11	Engine Room	800 hrs	7 wks	Work		320h	480h		
	MECH	*800 hrs*		Work		320h	480h		
	CONTRACT	*500,000*		Work		200,000	300,000		
12	**Manufacturing Funding**	**3,468,385.9 hrs**	**22 wks**	Work			31,576.4h	663,104.45h	694,618.78h
	Funding	*3,466,045.9 hrs*		Work			31,545.35h	662,452.45h	693,997.82h
13	**Control Panel**	**2,340 hrs**	**22 wks**	Work			31.05h	651.98h	620.97h
14	System Controls	960 hrs	13 wks	Work			16h	336h	352h
	CNTRL	*960 hrs*		Work			16h	336h	352h
	PARTS	*600,000*		Work			9,248.55	194,219.65	203,468.21
15	Auto Controls	0 hrs	8 wks	Work					
	TRAVEL	*8,000*		Work			200	4,200	3,600
	SUB Contractor	*160,000*		Work			4,000	84,000	72,000

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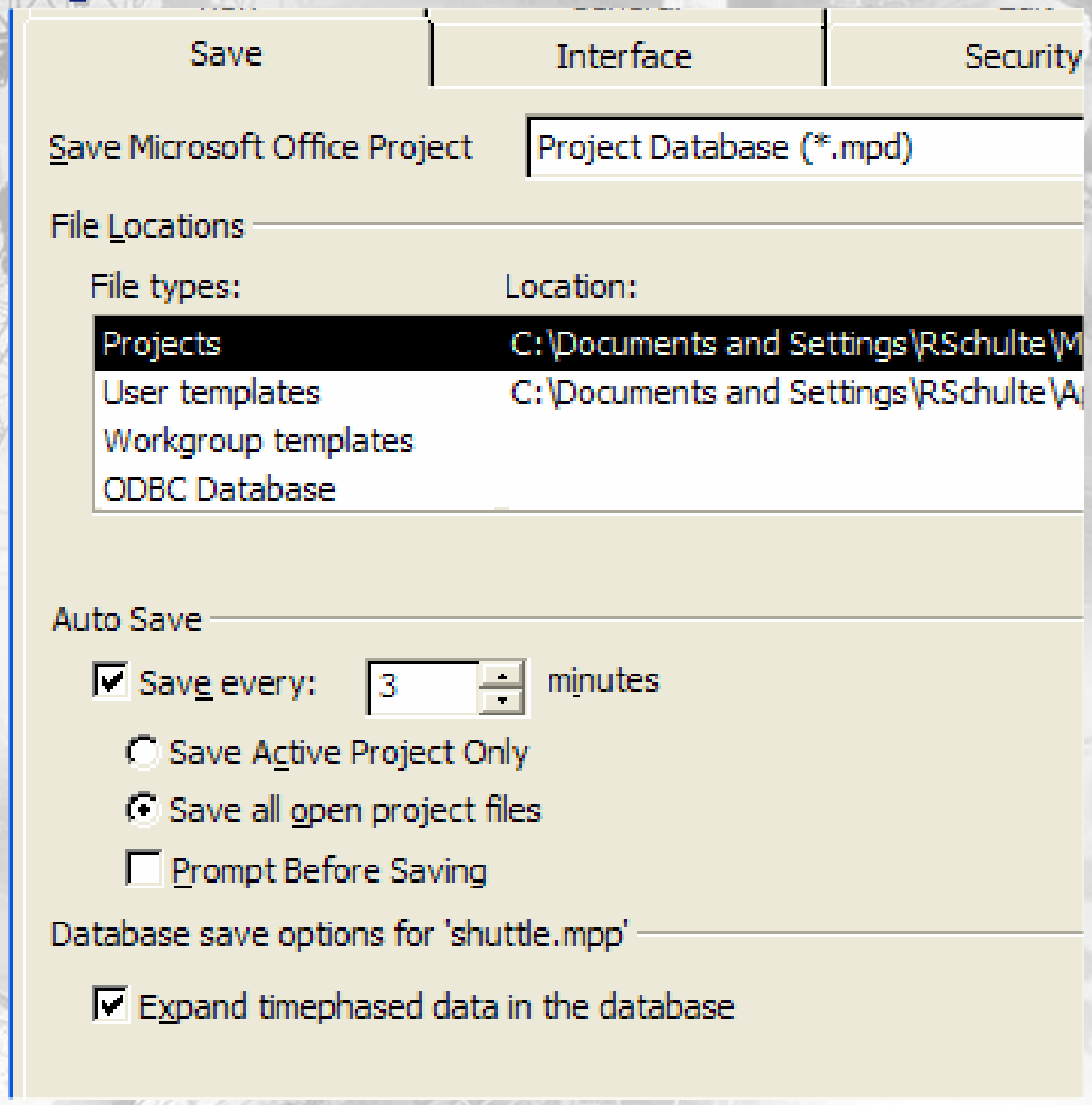
Time-phased Resources



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Featuring

EVMS Features in MSP

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EVMS Fields in MSP 2003

- ACWP fields
- Baseline Cost fields
- BCWP fields
- BCWS fields
- CPI fields
- CV fields
- CV% fields
- EAC (task field)
- Earned Value Method (task field)
- Physical Percent (%) Complete (task field)
- SPI fields
- SV fields
- SV Percent (%) fields
- TCPI (task field)
- VAC fields

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BCWS Fields

- **BCWS (task field) –** Time-phased baseline costs of the task up to the status date.
- **BCWS (assignment field) –** Time-phased baseline costs of an assignment up to the status date or today's date.

Baseline Cost

- Baseline Cost = (Work * Standard Rate) + (Overtime Work * Overtime Rate) + Resource Per Use Cost + Task Fixed Cost
- Editing the contents of the Baseline Cost field does not affect task or resource baseline cost calculations, nor any time-phased baseline costs for the task.

BCWS Time-phased fields

Task Name	Details						Mar 17, '03	
		W	T	F	S	S	M	T
3D Modeling	Work	8h	8h	8h			8h	8h
	Base. Work	8h	8h	8h			8h	8h
3D Modeling Zone 1	Work							
	Base. Work							
SHIP.LABOR.95.	Work							
	Base. Work							
3D Modeling Zone 2	Work	8h	8h	8h			8h	8h
	Base. Work	8h	8h	8h			8h	8h
SHIP.LABOR.95.	Work	8h	8h	8h			8h	8h
	Base. Work	8h	8h	8h			8h	8h
2d Const Dwg Extraction	Work	16h	16h	16h			16h	16h
	Base. Work	16h	16h	16h			16h	16h
2D Extraction Unit 101	Work	8h	8h	8h			8h	8h
	Base. Work	8h	8h	8h			8h	8h
SHIP.LABOR.95.	Work	8h	8h	8h			8h	8h
	Base. Work	8h	8h	8h			8h	8h
2D Extraction Unit 102	Work	8h	8h	8h			8h	8h
	Base. Work	8h	8h	8h			8h	8h

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BCWS Time-phased fields

- Editing the contents of the Baseline Cost field does not affect task or resource baseline cost calculations, nor any time-phased baseline costs for the task.
- **Edits are overwritten** by the new baseline values.

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BCWP (task field)

- This calculation is based on the percentage of work complete, as compared with the task's baseline **duration**. Project then calculates the cumulative baseline cost and provides the value of what the task's actual costs should be, given the task's progress to that point in the task's baseline duration.

Earned Value Method (task field)

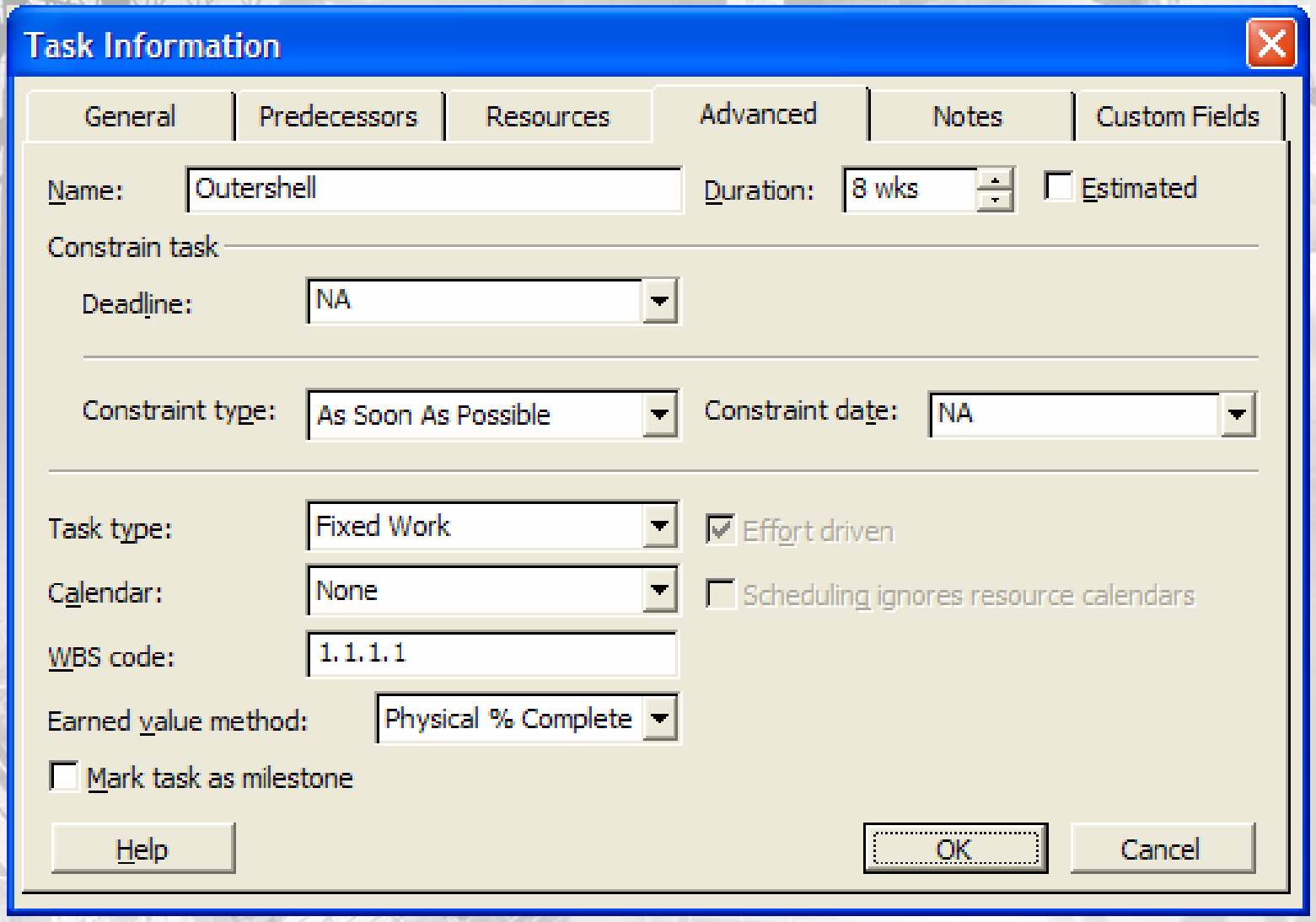
- The Earned Value Method field provides choices for whether the % Complete or Physical % Complete field is to be used to calculate budgeted cost of work performed (BCWP).

- New to MSP 2003

Physical Percent (%) Complete

- Add the Physical % Complete field to a task view and enter values when the calculated percent complete would not be an accurate measure of real work performed or measured. Unlike the % Complete field, the Physical % Complete field is **independent of the total duration** or actual duration values used by the % Complete field to calculate BCWP.

Earned value method



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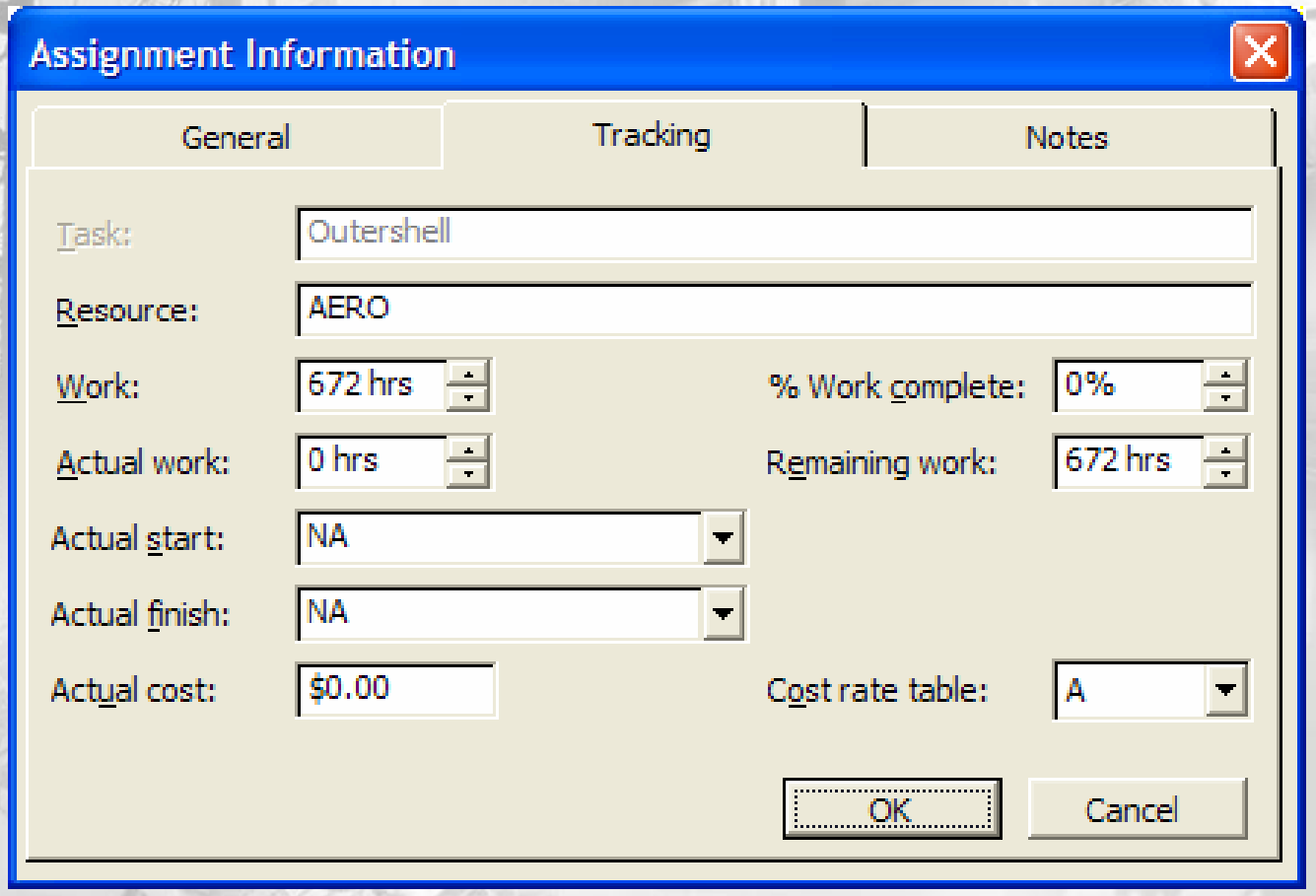
% Work Complete



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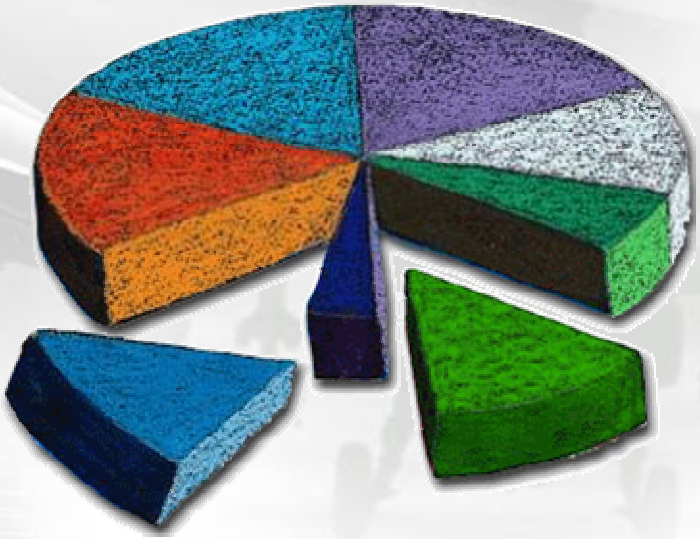
Integrating with Cobra



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What is Cobra?

Released in 1989 - used on government, NASA, and commercial projects

Cobra enables you to bring all types of costs such as budgets, actual costs, and more into a single repository for earned value calculations, forecasting and flexible reporting.

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Who uses Cobra?

- Lockheed Martin
  - CSOC
  - Government Services
- Boeing IDS Standard
  - Space shuttle
  - F18
- Halliburton
  - Rebuild Iraq & infrastructures

LOCKHEED MARTIN

BOEING

HALLIBURTON

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Budgets and Actual Costs

- Budgets
  - Track Scope Changes
  - “What-ifs”
  - Revenue - Profit/Loss
  - Funding
  - Contingency
- Actual costs
  - Booked actuals
  - Accruals - estimated actuals
  - Commitments

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Multiple Forecast

- Customer reports
- Program manager's
- Statistical forecasts
- What's in the schedule
- Different rates
- Reclassify approved forecasts to budget
- Freeze the forecast

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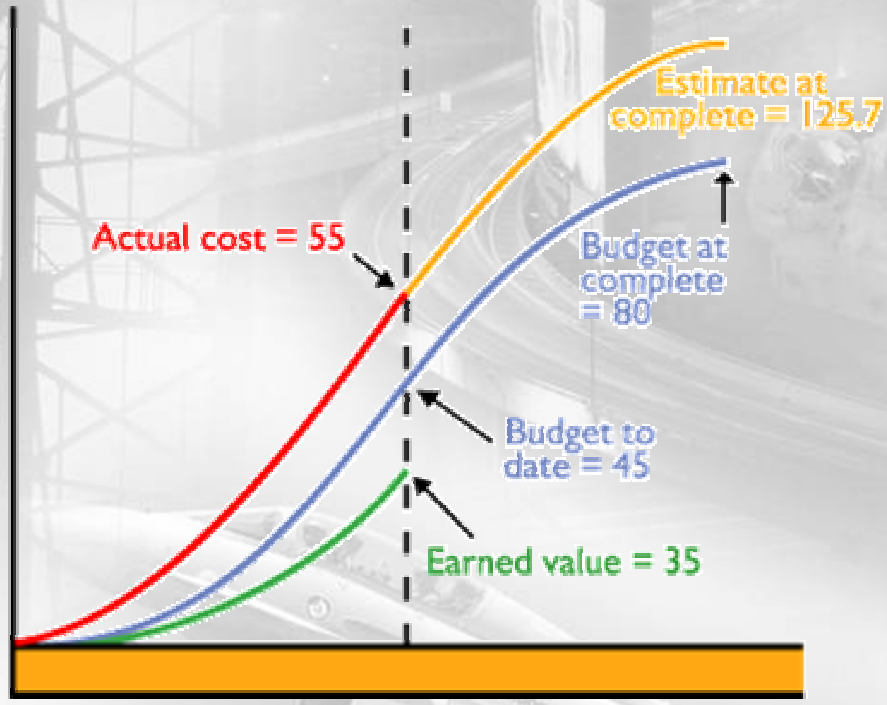
What is it going to cost?



The estimate to complete is multiplied by 1/CPI

ETC = 80-35 = $45k

CPI = earned value/actual cost = 35/55 = 0.636

ETC = 1/0.636 x 45 = $70.7k

Estimate at complete (EAC) is $125.7k

Schedule Integration

- Completely create Cobra program from a schedule with no dual data entry
- Load resource definitions and rates
- Load WBS and codes
- Load forecast and status from the schedule
- Integrates with:
  - Microsoft® Project® 2000/2002/2003
  - Open Plan®
  - Primavera's P3® /P3e® /P3ec®
  - Excel®

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Budget Elements

- User-Defined Calculations
  - Overhead, G&A
  - Multiple currencies
  - Estimating overtime
  - Labor rate escalation
- Hours and Dollars Reporting
- Roll-up Structure Reporting

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Earned Value

- Supports 10 earned value techniques
  - weighted milestones
  - apportioned effort
  - user-defined percent
- Exception reporting CPR1-5, C/SSR, 533
- Choose reporting criteria at run time
- Data stored is time-phased for each burden type

Multi-Project

- Load actual costs into one master project
- Reporting:
  - Program
  - Organization/Company
  - Division
- Drill down analysis
- Processes
  - Calculate earned value
  - Global cost recalculation
  - Load status and more

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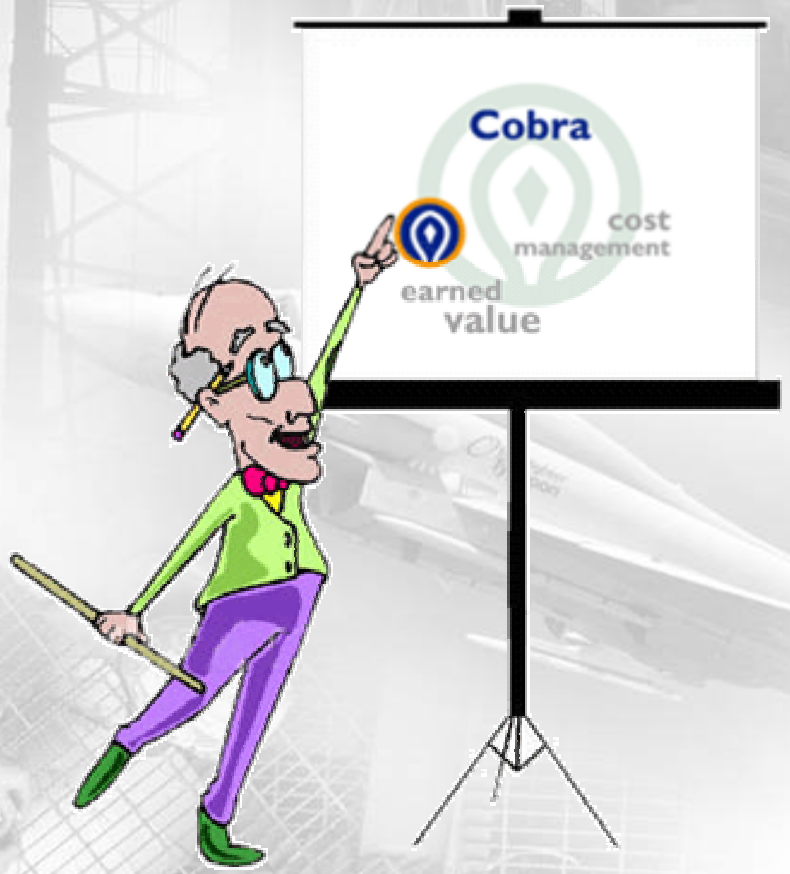
Batch Processing

- Advancing the calendar
- Loading of actual costs
- Integrating with the schedule
- Calculating earned value
- Updating reports on your intranet

Can be scheduled using your job server! No need to access Cobra to provide comprehensive cost information to project managers.

Product Demo

- Actions speak louder than words!



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