Is your Schedule Ready for the 14-Point DCMA Assessment?

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Introduction

The Defense Contract Management Agency (DCMA) is a Division of the Department of Defense (DoD) that interacts directly with defense suppliers to insure that DoD supplies and services are delivered on time and at the planned cost. DCMA has duties before and after contract awarding. After contract award, DCMA monitors contractors' deliverables to insure that expenditure, project execution, and schedules are in compliance with the contract. DCMA prepares a number of metrics that examines the health of the schedule and assess its robustness. These standard metrics are called the 14-point schedule assessment metrics. They also provide a starting point of discussion between the agency and the contractor regarding the project typically leading to more understanding of the contractor's approach in performing the project. Some of the 14 points are setup as tripwire metrics for use by OSD (Office of the Secretary of Defense) as part of its metrics. DCMA provides its contractors with a spreadsheet to fill out these metrics. Since they are computation intensive, understanding the requirements of the DCMA metrics and performing them can be a challenge especially since they are required with each schedule update or revision.

The 14-Point DCMA Schedule Assessment Checks

In the following section, an explanation of the metrics will be provided. A number of base statistics need to be calculated before starting the check. These statistics are:

Total Tasks: They are all the tasks except tasks that represent summary, subproject, level of effort, zero duration, or milestones

Complete Tasks: They are the tasks among the "Total Tasks" that have 100% completion and with an actual finish date before the status date.

Incomplete Tasks: They are the tasks among the "Total Tasks" that do not have 100% completion and with an actual finish date before the status date.

Baseline Count: They are the tasks among the "Total Tasks" that should have been completed before the status date in the original baseline schedule.

After identifying and calculating the previous statistics the following checks can be performed

1. Logic Check
2. Leads Check
3. Lags Check
4. Relationship Types Check
5. Hard Constraints Check
6. High Float Check
7. Negative Float Check
8. High Duration Check
9. Invalid Dates Check
10. Resources Check
11. Missed Tasks Check
12. Critical Path Test Check
13. Critical Path Length Index (CPLI)
14. Baseline Execution Index (BEI)

Logic Checks

The "logic check" is used to identify any activity that is missing a successor or predecessor or both. As a rule of thumb in scheduling, all activities have to be tied to at least one predecessor and one successor. This check does not confirm the correctness of the tie which has to be verified manually by the user. The "logic check" is performed by identifying any task that is an "Incomplete Task", "Total Task", and missing a successor and/or a predecessor. The "logic check" value is calculated as the number of activities that are missing a logic divided by the number of incomplete tasks. For the "check" to be acceptable, its value should not exceed 5%.

Leads Checks

The "leads check" is used to check the existence of any leads in the schedule because using leads in the schedule may lead to disturbance of the critical path and resources. The "leads check" is performed by identifying any activity that its predecessor has a lead, an "Incomplete Task", and a "Total Task". The "leads check" value is calculated as the number of tasks that have a lead. For the "leads check" to be acceptable, its value should be zero.

Lags Checks

The "lags check" is used to check the existence of any lags in the schedule because using lags in the schedule may lead to disturbance of the critical path. The "lags check" is performed by identifying any task with a predecessor that has a lag, an "Incomplete Task", and a "Total Task". The "lags check" value is calculated as the number of tasks that have a lag divided by the number of incomplete tasks. For the "lags check" to be acceptable, its value should not exceed 5%.

Relationship Type Checks

The "relationship type check" validates the type of relationship between the task and its predecessor assuming that most activities are tied by Finish to Start (FS) relationship and a much lower percentage is linked by Finish to Finish (FF) or Start to Start (SS) relationships and in more rare cases, the Start to Finish (SF) relationship is used. The "relationship type check" is performed by identifying the relationship type of any task that has a predecessor, an "Incomplete Task", and a "Total Task". It is calculated as the number of tasks that have FS, FF or SS relationships divided by the number of incomplete tasks. For the "relationship type check" to be acceptable, the percentage of tasks with FS relationships should not be less than 90% and tasks with SF relationships its value should not exceed 0%.

Hard Constraints Checks

The "hard constraints check" is used to identify any activity that has a hard constraint (such as Must-Finish-On, Must-Start-On, Start-No-Later-Than, and Finish-No-Later-Than). Hard constraints do not allow the logic to drive the schedule. The "hard constraints check" is performed by identifying any task that is an "Incomplete Task", "Total Task", and has a hard constraint. The "hard constraints check" value is calculated as the number of activities that has hard constraint divided by the number of incomplete tasks. For the "hard constraints check" to be acceptable, its value should not exceed 5%.

High Float Checks

The "high float check" is used to identify any activity that has a total float of more than 44 working days (2 month) . High float may result from logically inaccurate or missing relationships. The "high float check" is performed by identifying any task that is an "Incomplete Task", "Total Task", and has a total float exceeding 44 working days. The "high float check" value is calculated as the number of activities that has high float (more than 44 working days) divided by the number of incomplete tasks. For the "high float check" to be acceptable, its value should not exceed 5%.

Negative Float Checks

The "negative float check" is used to identify any activity that has a total float less than zero. Negative float indicates delayed tasks that require mitigation and/or explanation. The "negative float check" is performed by identifying any task that is an "Incomplete Task", "Total Task", and has a total float less than zero. The "negative float check" value is calculated as the number of activities that has negative float (less than zero) divided by the number of incomplete tasks. For the "negative float check" to be acceptable, its value should not exceed 0%.

High Duration Checks

The "high duration check" is used to identify any activity that has an original duration of more than 44 working days (2 month). Such a high duration may indicate the need for further breakdown to enhance the cost and task control. The "high duration check" is performed by identifying any task that is an "Incomplete Task", "Total Task", and has an original duration exceeding 44 working days. The "high duration check" value is calculated as the number of activities that has high duration (more than 44 working days) divided by the number of incomplete tasks. For the "high duration check" to be acceptable, its value should not exceed 5%.

Invalid Dates Checks

The "invalid dates check" is used to identify any activity that had a scheduled start/finish before the statused date and an actual start/finish date after the statused date. Such a situation does not allow prediction of the actual completion date in the future. The "invalid dates check" is performed by identifying any task that is a "Total Task", and has a scheduled start/finish before the statused date and an actual start/finish date after the statused date. The "invalid dates check" value is calculated as the number of activities that has invalid dates (an actual start/finish date after the statused date while the scheduled start/finish was before the statused date). For the "invalid dates check" to be acceptable, its value should not exceed 0%.

Resources Checks

The "resources check" is used to identify any activity that does not have recourses or cost. The "resources check" is performed by identifying any task that is an "Incomplete Task", "Total Task", and does not have recourses or cost. The "resources check" value is calculated as the number of activities that do not have recourses or cost divided by the number of incomplete tasks. For the "resources check" to be acceptable, its value should not exceed 0%.

Missed Task Checks

The "missed task check" is used to identify any activity that had a scheduled finish date before the statused date but did not finish or finished after the baseline finish date. This shows how the updated schedule is in compliance with the baseline schedule. The "missed task check" is performed by identifying any task that is a "Total Task", and has a scheduled finish before the statused date and an actual finish or forecasted finish date after the baseline scheduled date. The "missed task check" value is calculated as the number of activities that are missed task (has a scheduled finish before the statused date and an actual finish or forecasted finish date after the baseline scheduled date) cost divided by the baseline count. For the "missed task check" to be acceptable, its value should not exceed 5%.

Critical Path Test

The "critical path test" is used to assess the integrity of the schedule specially the critical path. It is one of the two Trip Wires that are required by the OSD (office of Secretary of defense). The "critical path test" is performed by adding an intentional delay (600 working days) to the remaining duration of a critical task and then verify if the project completion date is delayed by a proportional duration (600 working days). By adding such a delay, any missing predecessors or successors will lead to a mismatch between the project overall delay and the intentional one. The "critical path test" will be passed if there is a matching between the project completion delay and the intentional added duration.

Critical Path Length Index (CPLI)

The critical path length index (CPLI) is used to assess if the project finish date will be real or not. It is one of the two Trip Wires that are required by the OSD (office of Secretary of defense). The CPLI is calculated by adding the

length of the critical path to the total float of the latest activity and divide the summation by the length of the critical path. For the CPLI to be acceptable, its value should not exceed 5%.

Baseline Execution Index (BEI)

The baseline execution index (BEI) is used to assess the number of completed activities to date with respect to those planned to be completed in the baseline. It is one of the two Trip Wires that are required by the OSD (office of Secretary of defense). The BEI is calculated by summation of completed tasks (any task that is a "Total Task", and has an actual finish date before the statused date) and dividing it by the baseline count (any task that is a "Total Task", and has an forecasted finish date before the statused date). For the BEI to be acceptable, its value should not be below 95%.

Schedule Cracker and The 14-Point DCMA Checks

Evaluating the 14 check points is very time consuming and requires tremendous processing of data. With every project revision the whole process has to be repeated to stay up to date with project's progress. On the other hand, using the Schedule Cracker solution for project analytics, immediately provides the full assessment upon loading of the schedule. Furthermore, it visually illustrates the pass/fail disposition of each check point through a green status light for passed checks and a red status light for those that failed alongside the DCMA mandated thresholds.

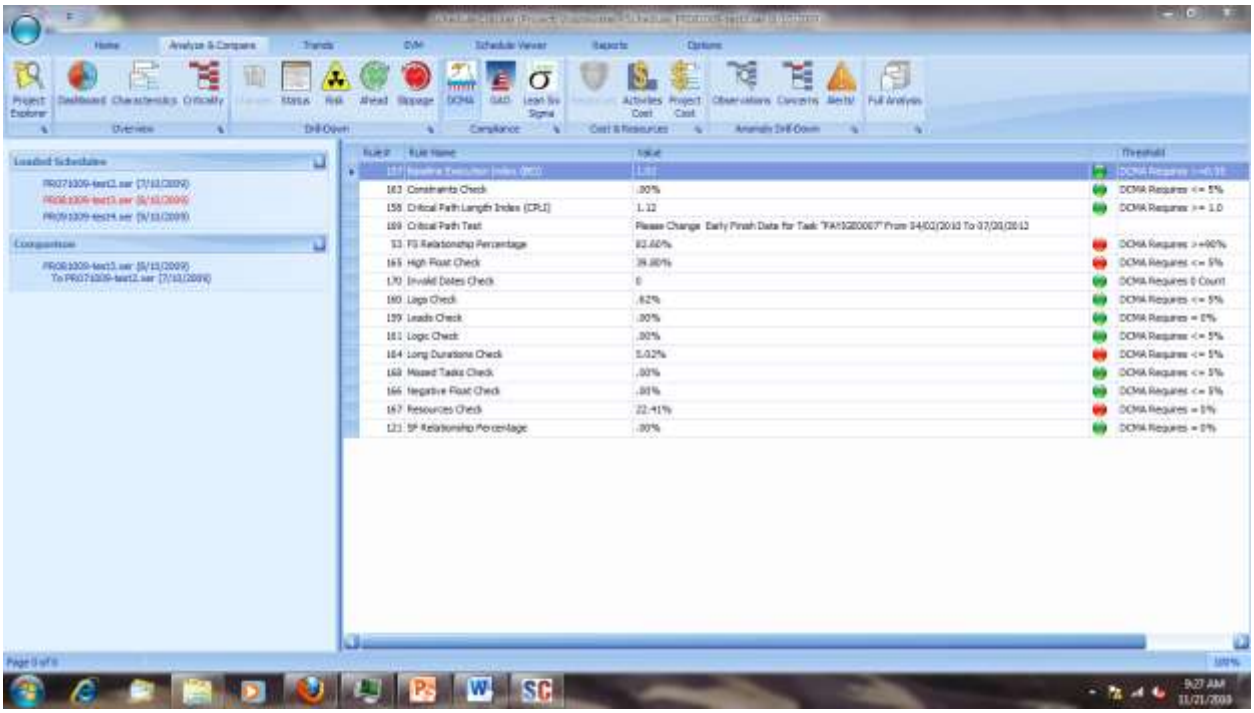

Figure1: DCMA Compliance Screenshot at the Schedule Cracker Software

About US

 Schedule Cracker ™ is an enterprise class Business Intelligence tool for Project Management right at your desktop. It Provides deep analysis and visualization of a project's CPM schedule through interactive dashboards and a library of over 200 analytical metrics. Leveraging the latest technology and standards for software development to fully comply with the DCMA, GAO, and EVM's ANSI 748 standards. Schedule Cracker patent pending procedures analyze and compare project schedules for alerts, trend the project's performance over multiple schedule revisions, forecast future performance, and perform full earned value analysis. It features:

- Schedule and comparison analysis to identify characteristics and anomalies.
- Evaluate Schedule Compliance with DCMA, GAO, and Earned Value Analysis for ANSI 748.
- Tornado and Pareto Dashboards for striking visualization of analysis results.
- Alerts for activities that require attention (patent pending procedure).
- Trend analysis and forecasting of metrics across the multiple schedule revisions (patent pending procedure).
- Pre-built reports that cover schedule wide as well as activity centric analysis with support for export to multiple formats.
- State of the art Business Intelligence focused user interface presented through a Ribbon design that supports advanced Drill-Down, Filtering, and Grouping.
- Completely standalone application with self-contained capabilities that do not require pre-existing installations of Scheduling or Spreadsheet software.