

# TECH TIP

#### ACCELERATION (360) SCHEDULE DELTEK ACUMEN

Have you ever wanted to see if a project schedule could be completed sooner but were overwhelmed with the idea of manually plugging different durations into activities, recalculating estimates, and then finding out that it didn't make a bit of difference? On a large 10,000+ activity schedule, this becomes an even more daunting task. More often than not, the sections of the schedule that you felt would be easy to accelerate made such a small difference that it really wasn't worth the effort.

Deltek Acumen has a module called Acceleration (sometimes referred to as 360) which is a tool that creates scenarios to find the optimal acceleration for the given schedule. It can help determine if an acceleration is even possible. It can be accomplished by two different types, targeted/goal-based acceleration or interactive acceleration. This set of instructions will focus on the Targeted Acceleration approach.

|   | -  |  | Werkleak - Deitek                       | Acumen   |                                       |  |  |  |  |  |  |
|---|--|--|---|--|---------------------------------------|--|--|--|--|--|--|
| S1 // Projects S2 // Diagnostic   | s S2 // Logic                            | S2 // Benchmarking S3 // Risk                                  | S4 // Acceleration                      | S5 // Dashboard                                  | Forensics                             |  |  |  |  |  |  |
| Microsoft® Oracle Microsoft Deltek<br>Project + Primavera + Excel® + Cobra®<br>Get External Data From | Safran Import All<br>Projects J<br>Impor | Filters Activity SmartGantt <sup>™</sup> Time<br>tt Activities | Cleanse Accelerate<br>Schedule Schedule | e Schedule Realism Ca<br>Adviser <sup>M</sup> Ca | Scenario Expor<br>libration - Scenari |  |  |  |  |  |  |
| Projects  | Activities - Initial Plan                | 1  |   |  |                                       |  |  |  |  |  |  |
| 😑 🦲 Workbook1 (54)  | Filters                                  |  |   |  |                                       |  |  |  |  |  |  |
| 🖸 🗹 Initial Plan (54)   | Timeline Id                              | Description  | Start Fin                               | ish R  | emaining 📃                            |  |  |  |  |  |  |
|   |  |  |   |  | 805d 🖵                                |  |  |  |  |  |  |
|   | ÷  |  |   |  | 805d 🖵                                |  |  |  |  |  |  |
|   | 4  |  |   |  |                                       |  |  |  |  |  |  |
|   | Initial Plan - Initial Pla               | an Project   |   |  |                                       |  |  |  |  |  |  |
|   | General Status R                         | Relationships Duration Uncertainty                             | Cost Uncertainty Cost                   | Resource Assignments                             | Risk Events                           |  |  |  |  |  |  |
|   | Id                                       | Initial Plan   |   | Descr  | iption Initial P                      |  |  |  |  |  |  |
|   | Project                                  | Initial Plan   |   | WBS  |                                       |  |  |  |  |  |  |
|   | Туре                                     | Project  |   | Calen  | dar 1. Stand                          |  |  |  |  |  |  |
|   | Platform                                 | Oracle Primavera P6  | acle Primavera P6                       |  |                                       |  |  |  |  |  |  |

Figure 1—Acumen S1 //Accelerate Schedule

These tech tips are offered free of charge in the spirit of sharing knowledge with others. They do not include technical support, should you have a problem with them. We are always interested in how they can be improved, please do not hesitate to email us your comments. These tips have been thoroughly tested by our consultants in a variety of environments. Please read these tech tips thoroughly and be sure that you understand them before trying to use them. We can not be responsible for issuest that develop because of the configuration of your hardware, technica environment or application of the tech memos. If you are not sure, then we urge you to contact Oracle technical support consultant for assistance

Within the program, a specific end date or acceleration target is chosen. The Accelerate Schedule button is located in the S1//Projects tab.



| 🛞 Accelerate Schedule - Initial Plan  | 100 miles - 2   |  |       |         |         |        |   |           |        |                  | L                          | 9                     | 83    |
|---|---|--|-------|---------|---------|--------|---|-----------|--------|------------------|----------------------------|-----------------------|-------|
| Schedule Cleanser   |   |  |       |         |         |        |   |           |        |                  | As                         | sistant               |       |
| <ul> <li>Remove Redundant Logic<br/>Lower Redundancy Index™ t<br/>removing unnecessary (redu</li> <li>Remove Hard Constraints<br/>Removes all hard constraints<br/>Mandatory Start, Mandatory<br/>the schedule.</li> </ul>      | to zero by Remove<br>andant) links. the sche<br>forecast<br>s (MSO, MFO, Remove<br>y Finish) from Eliminat<br>relation: | Remove Leads         Removal of negative lags (leads) from         the schedule. Results in a more realistic         forecast.         Remove Lags         Elimination of positive durations on         relationing the last |       |         |         |        | Links on Summaries<br>n Elimination of positive durations on<br>tic relationships by converting the lags<br>activities. |           |        |                  |                            |                       | ^     |
| Remove Soft Constraints       Convert Lags         Remove all soft constraints (SNET, FNET, SNLT, FNLT, ALAP) from the schedule.       Elimination of positive durations on relationships by converting the lags to activities. |   |  |       |         |         |        |   |           |        |                  | Ŧ                          |                       |       |
| •   |   |  |       |         |         |        |   |           |        |                  |                            | •                     |       |
| Schedule Accelerator™   |   |  |       |         |         |        |   |           |        |                  |                            |                       |       |
| Accelerate Schedule Accel   | erate Activity  |  |       |         |         |        |   |           |        |                  |                            |                       |       |
| Current Finish Date:1/31/201  | 13  |  | Curre | ent Ren | naining | Durati | on: <b>805</b>  | days      |        |                  |                            |                       |       |
| Select Goal<br>New Finish Date 1/31/20<br>Reduce Project Remaining<br>Davs<br>Best Date Possible  | )13 15<br>9 Duration to 100% / 805  | 096<br>'<br>0 days   | 10%   | 20%     | 3096    | 40%    | 50%   | 6096<br>' | 70%    | 80%              | 90%                        | 100%<br>              |       |
| Select Acceleration Script  |   |  |       |         |         |        |   |           |        |                  |                            |                       |       |
| Normal Acceleration<br>Conservative Acceleration<br>Longest Duration Reduction  |   |  |       |         |         |        |   |           |        |                  |                            |                       | •     |
| Acceleration for Initial Plan   |   |  |       |         |         |        |   |           |        |                  |                            |                       |       |
| Start<br>1/1/2010   |   |  |       |         |         |        |   |           |        | 1/31/<br>Goal (0 | /2013<br>Or<br>1/<br>days) | riginal Fi<br>31/2013 | inish |
|   |   |  |       |         |         |        |   |           |        |                  |                            |                       |       |
|   |   |  |       | ОК      |         | Edit   | Script  | A         | dvance | ed >>            |                            | Cance                 |       |



The steps for a Targeted Acceleration process are:

- 1. Schedule Cleanse (optional step)
- 2. Select the schedule or activity to accelerate
- 3. Select the Acceleration goal
- 4. Choose the Acceleration Script (many prebuilt ones are available)
- 5. Run the Acceleration
- 6. Compare the Results (to the original file)
- 7. Export the Scenario for schedule program (optional)

The Schedule Cleanse is optional and can be done independent of this exercise using the Cleanse Schedule button on the S1//Projects tab. Cleanse simplifies certain aspects of a schedule and cleans up attributes that would be deemed unhealthy for a schedule to have. These include:

- Redundant logic
- Hard constraints
- Soft constraints
- Remaining leads
- Remaining lags
- Links on summaries

#### See Tech Tip "Schedule Cleanse" for more information.

The Schedule Accelerator allows for the user to select the entire schedule or a specific activity selected from the pulldown under the Accelerate Activity tab.

The Acceleration goal can be a specific date, best possible date, a number of days acceleration or a percentage of the overall schedule duration. Typically, I use the percentage and move the slider to an earlier finish date.

Once that is selected, you can choose an Acceleration Script.

Figure 3—Acumen Acceleration Scripts (built-in)

|         | Acceleration Script                 | Methodology   |
|---------|-------------------------------------|---|
| Norma   | l                                   | Reduce remaining durations by up to 50%                           |
| Conser  | vative                              | Reduce remaining durations by up to 20%                           |
| Longes  | t Duration Reduction                | Reduce long durations by up to 50%                                |
| Front-e | end Duration Reduction              | Reduce start of project activities remaining durations by 50%     |
| Back-er | nd Duration Reduction               | Reduce end of project activities remaining durations by 50%       |
| Lag-bas | sed Acceleration                    | Reduce predecessor and successor lags by 50%                      |
| Constra | aint Removal Only                   | Remove all consraints   |
| Constra | aint Removal and Duration Reduction | Remove all constraints + reduce remaining durations by up to 50%  |
|         |                                     | Remove all constraints + reduce predecessor and successor lags by |
| Extrem  | e Acceleration                      | 50% + reduce remaining durations by up to 100%                    |
| Planne  | d Activity Acceleration             | Reduce planned activity remaining durations by 50%                |



Several choices are pre-built. It is possible to customize a script for specific situations but typically the ones contained are sufficient.

Once happy with the selections, pick OK. Next, the Results box appears showing a summary of the iterations and specifics on Original Finish, Target Goal, Achieved Goal and a Graphic on Results

(see Figure 4).

| 🔅 Acceleration Results for Initial | Plan         |                              |                  |       |           | X      |  |  |
|------------------------------------|--------------|------------------------------|------------------|-------|-----------|--------|--|--|
| Script                             |              | Normal Accelerat             | tion             |       |           |        |  |  |
| Number of Iterations               |              | 61 of 250                    |                  |       |           |        |  |  |
| Original Project Finish            |              | 1/31/2013                    |                  |       |           |        |  |  |
| Targeted Goal                      |              | 8/15/2012                    |                  |       |           |        |  |  |
| Achieved Goal                      |              | 8/14/2012                    |                  |       |           |        |  |  |
| Targeted Acceleration              |              | N/A                          |                  |       |           |        |  |  |
| Achieved Acceleration              |              |                              |                  |       |           |        |  |  |
| Total Activity Reduction           |              |                              |                  |       |           |        |  |  |
| Total Lag Reduction                |              |                              |                  |       |           |        |  |  |
| Schedule Compression Efficiency    | тм           | 139.34 %                     |                  |       |           |        |  |  |
| Goal Achieved During Step          |              | Reduce Duration by up to 50% |                  |       |           |        |  |  |
|                                    |              | Initial Plan                 | 2 · ·            |       |           |        |  |  |
| 1/1/2010                           |              |                              | 8/15/2012        |       |           |        |  |  |
| Start                              |              |                              | 9/14/20          | 12    | Original  | Finish |  |  |
| 1/1/2010                           |              |                              | 0/14/20          | 12    | 1/31/201  | 3      |  |  |
| Data Date                          |              |                              | Goal (109 days   | )     |           |        |  |  |
|                                    | ון           | arget Achieved               |                  |       |           |        |  |  |
|                                    |              |                              |                  |       |           |        |  |  |
|                                    |              |                              |                  |       |           |        |  |  |
|                                    |              |                              |                  |       |           |        |  |  |
|                                    |              |                              |                  |       |           |        |  |  |
|                                    |              |                              |                  |       |           |        |  |  |
|                                    |              |                              |                  |       |           |        |  |  |
|                                    |              |                              |                  |       |           |        |  |  |
|                                    |              |                              |                  |       |           |        |  |  |
| Do not Add                         |              | Add Connection and           | Add Connects and | Add C |           |        |  |  |
| Do not Add                         | Add Scenario | Add Scenario and             | Add Scenario and | Add 5 | Diamano a | and    |  |  |
| Scenario                           |              | try another Script           | go to Forensics  | go to | Diagnos   | tics   |  |  |

Figure 4—Acumen Acceleration Results

Once this box appears, the user has several options. If not happy with the current iteration, you can simply select Do not Add Scenario and it cancels the function.

Clicking:

- Add Scenario creates a copy with these modified characteristics into the Workbook currently open in Acumen.
- Add Scenario and try another Script, which means, I'm ok with the answer but am curious by running a different script and if the results will vary.



Add Scenario and go to Forensics – takes you to Forensics to see an immediate comparison of the original and modified file. Forensics would be my primary location to go after Accelerating the schedule. There I can review the remaining durations of the activities and see which activities were modified through this process. You can see in the right columns, the comparison between the Initial Plan and the Scenarios created.

| S1 //       | // Projects | s S2<br>Projects (3<br>Activiti<br>Relatio | // Diag<br>)<br>es (0)<br>nships<br>Foren | gnosti<br>(<br>(0)<br>sic Ch | cs<br>Reso<br>Calenda | S2 // Logic<br>urces (0)<br>rs | S2 // Benchma | rking S3<br>Duration (11) | // Risk<br>Total F<br>Start (2<br>Finish | S4 // Accelerat<br>loat (14) Early St<br>25) Early Fir<br>(26) Late Sta | ion S5 // C<br>art (25) Lat<br>ish (26) Loi<br>rt (31) | Dashboard<br>te Finish (32)<br>ngest Path (4) | Forensics        | Publish | Metrics |        | Fields       |        |    | Ī |
|-------------|-------------|--|---|------------------------------|-----------------------|--------------------------------|---------------|---------------------------|--|---|--|---|------------------|---------|---------|--------|--------------|--------|----|---|
| nalysis     |             |  | R   | lemai                        | ining (               | Ouration - 11 (20 %)           |               |                           |  |   |  |   |                  |         |         |        |              |        |    |   |
| 🖸 Initial P | lan         |  |   | #                            | ID                    | Description                    | Activity Type | Remaining Dura            | tion   Wi                                | 3S Code   | WBS Name   | Initial Plan                                  | Initial Plan Sce | enario  |         | Initia | I Plan Scena | irio 1 |    |   |
| 🗀 Initial   | Plan Sce    | enario                                     | Þ   | 1                            | 0350                  | Bid reviews                    | Normal        |                           | 30 Ini                                   | tial Plan.0050  | Procurement  | 30  | ▼ -15            | (-50%)  | 15      | •      | -15          | (-50%) | 15 |   |
| Initial     | Plan Sci    | enario 1                                   |   | 2                            | 0420                  | Phase 2                        | Normal        |                           | 10 Ini                                   | tial Plan.0060.0440   | Domestic   | = 10  | ▼ -4             | (-40%)  | 6       | ▼      | -5           | (-50%) | 5  |   |
|             | Tian Sci    | chuno 1                                    |   | 3                            | 0430                  | Phase 1                        | Normal        |                           | 4 Ini                                    | tial Plan.0060.0440   | Domestic   | = 4   | =                |         | 4       | •      | -1           | (-25%) | 3  |   |
|             |             |  |   | 4                            | 0460                  | Phase 5                        | Normal        |                           | 20 Ini                                   | tial Plan.0060.0440   | Domestic   | = 20  | ▼ -10            | (-50%)  | 10      | •      | -10          | (-50%) | 10 |   |
|             |             |  |   | 5                            | 0470                  | Phase 4                        | Normal        |                           | 15 Ini                                   | tial Plan.0060.0440   | Domestic   | = 15  | ▼ -7             | (-47%)  | 8       | •      | -7           | (-47%) | 8  |   |
|             |             |  |   | 6                            | 0480                  | Phase 3                        | Normal        |                           | 5 Ini                                    | tial Plan.0060.0440   | Domestic   | = 5   | ▼ -1             | (-20%)  | 4       | •      | -1           | (-20%) | 4  |   |
|             |             |  |   | 7                            | 0530                  | Electrical                     | Normal        |                           | 40 Ini                                   | tial Plan.0070  | Construction   | 40  | -20              | (-50%)  | 20      |        | -20          | (-50%) | 20 |   |
|             |             |  |   | 8                            | 0570                  | First Wave                     | Normal        |                           | 40 Ini                                   | tial Plan.0070  | Construction   | 40  | -20              | (-50%)  | 20      | •      | -20          | (-50%) | 20 |   |
|             |             |  |   | 9                            | 0580                  | Site Establishment             | Normal        |                           | 30 Ini                                   | tial Plan.0070  | Construction   | 30  | -15              | (-50%)  | 15      |        | -15          | (-50%) | 15 |   |
|             |             |  |   | 10                           | 0590                  | Site Clearance                 | Normal        |                           | 20 Ini                                   | tial Plan.0070  | Construction   | 20  | -10              | (-50%)  | 10      |        | -10          | (-50%) | 10 |   |
|             |             |  |   | 11                           | 0600                  | Preliminaries                  | Normai        |                           | 40 Ini                                   | tial Plan.0070  | Construction   | 40  | -20              | (-50%)  | 20      | •      | -20          | (-30%) | 20 |   |
|             |             |  |   |                              |                       |                                |               |                           |  |   |  |   |                  |         |         |        |              |        |    |   |

• Add Scenario and go to Diagnostics – takes you to S2//Diagnostics to run the Metrics desired. Review the changes and improvements made by the scenario. Going to Diagnostics also allows graphically, at a project level, the view of improvements made by the Acceleration. At first glance it looks like a roughly 5-month improvement using the Normal Acceleration script.



|           |                  | -                   | the second second | - 10 C             | - Secondario   |                          | 2-81      | Workbool           | k1 - Deltek A           | Acumen     |
|-----------|------------------|---------------------|-------------------|--------------------|--|--------------------------|-----------|--------------------|-------------------------|------------|
|           | S1 // Pro        | jects               | S2 // Diagnostics | S2 // Logic        | S2 // Benchma  | arking S:                | 3 // Risk | S4 // Acc          | eleration               | S5 // I    |
| Pre       | ojects Fields F  | Resources<br>Ribbor | Hierarchy Charts  | Trend<br>Analysis™ | Start 1/1/2010*<br>Finish 1/31/2013*<br>Interval Years *<br>Phases | Add Reset<br>Phase Dates | Charts    | Charts<br>Intersec | Apply to<br>All<br>Tabs | Fuse<br>An |
| Met       | Project / Sna    | apshot              |                   |                    | Time   | eline                    |           |                    |                         |            |
| rics      |                  | *                   | 2010              | 2011               |  | 2012                     |           | 2013               |                         |            |
| CA Metric | D Initial        | Plan                |                   |                    |  |                          |           |                    |                         |            |
| WP        | Initial<br>Scena | Plan<br>irio        |                   |                    |  |                          |           |                    |                         |            |
| Metrics   |                  |                     |                   |                    |  |                          |           |                    |                         |            |
|           | Missing          | Logic               | 8 (38%)           |                    | 1 (5%)   | 1 (79                    | 6)        |                    | (100%)                  |            |
|           | Logic Der        | nsity™              | 2.14              |                    | 2.30   | 2.2                      | )         |                    | 1.00                    |            |

Figure 6—Acumen S2//Diagnostics

If the scheduler had a large schedule file, this utility could be a big time saver in the first step to accelerating a project schedule. This tool would identify those activities most able to be shortened, focusing on the critical path activities. The user can then use this information in a couple different ways. The results could be exported out as an XER file for inclusion into the database. Typically, that file would be used as a baseline target to compare (not used to replace the actual current schedule). It could also be used as a starting point for modifying the actual schedule file. While both Acumen and MSProject, P6 or Deltek Open Plan are open, use the information from Acumen to input back into the schedule to accelerate in the live file one activity at a time. This allows the ability to be selective with the information gathered in Acumen, using only those items realistically able to be reduced. Only the scheduler and team know the real areas for potential reduction.

