Lessons Learned – Schedule Updating and Maintenance using Primavera P6

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- **Degree:**
  - BA Journalism

- **University:**
  - Baylor University, Waco, TX

- **Years of Experience:**
  - 17

- **Professional Field:**
  - Construction, primary focus on scheduling and project controls, implementation of scheduling systems and document control systems

- **Something you do not know about me:**
  - Started my construction career working as a scheduling assistant during college using Primavera DOS version
  - Currently Vice President of Primavera Services for Hill International
Hannah Schumacher, PSP, PMI-SP, LEED AP

- **Degree:**
  - BS Construction Management
  - BS Building Construction Technology

- **University:**
  - Wentworth Institute of Technology, Boston, MA

- **Years of Experience:**
  - 20+

- **Professional Field:**
  - Construction, primary focus on scheduling and project controls

- **Something you do not know about me:**
  - Started my construction career working as a General Laborer during college
  - Worked as an Estimator, Planner / Scheduler, Project Controls Engineer, Project Engineer, Scheduling Engineer, Scheduling Director
  - Currently Managing Consultant for Hill International
Lessons Learned – Schedule Updating & Maintenance using Primavera P6

- Many specifications are requiring the use of the latest Primavera software (P6).
- Our presentation focuses on the use of Primavera P6 to update and maintain schedules.

- The Schedule Update Process consists of 4 main steps:
  1. PLAN
  2. UPDATE
  3. REVIEW / ANALYZE
  4. COMMUNICATE
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- **PLAN**
  - Understand Contract and Specification Requirements
  - Determine Update Frequency
  - Establish Baseline / Contract Schedule
  - Assign Responsibility to each activity
  - Provide Training
  - Gather Data
  - Visit Job site, hold update meeting, and validate data
  - Understand P6 settings that affect updates
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- Understand Contract and Specification Requirements
  - Frequency of updates
  - Procedures for updates versus revisions
  - Earned Value requirements
  - Cost and/or resource status requirements
  - Change management procedures
  - Software requirements
Determine Update Frequency

- Factors to consider:
  - Contract Requirements
  - Internal company policy
  - Project budgeting Considerations

- Benefits to frequent updates:
  - Greater accuracy of as-built documentation
  - Promotes early identification of issues
  - Promotes timely issue resolution / mitigation
  - Enhances user’s skill in application & management of schedule
  - Provides starting point to which user can return if errors are made in updating process
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- Establish Baseline / Contract Schedule
  - Baseline is the accepted as-planned schedule (Contract Schedule)
  - In Primavera “Baseline” is a snapshot of project plan (similar to “Target” in P3)
    - Number of baselines (maximum number is set by Administrator)
    - User can assign up to 3 baselines to current schedule for data comparisons
    - Can copy baselines when copying project

![Screen Captures Assign Baselines](image-url)
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- Assign Responsibility to each activity
  - Use Activity Code
    - Global vs. Project Specific
    - Group and Sort by Activity Code
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- Assign Responsibility to each activity
- Assign Resource / Role
  - CAUTION: Resources and Roles are Global (use unique identifier)
- Group by resources in Assignments window
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• Provide training
  • How to update the schedule
  • How to review the schedule
  • How to add fragnets for change management
  • Content of update reports
  • What information is needed from each individual
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- Gather Data – Use Update Layout or Report
- Visit the jobsite, hold an update meeting, and validate data
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- Understand P6 settings that affect updates
- Security access settings
  - Based on Organizational Breakdown Structure (OBS) Read / Write access can be defined down to the Work Breakdown Structure (WBS).
  - Set by the Administrator (Admin, Security Profiles)
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• Understand P6 settings that affect updates

• Percent Complete Types
  • Duration Percent Complete (default)
  • Physical Percent Complete
  • Units Percent Complete

• Default type defined at the Project Level (Projects Details, Defaults tab) and can be changed at the Activity Level (Activity Details, General Tab)

• Project Level defaults only apply to new activities.
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• Understand P6 settings that affect updates
• Duration Types
  • Fixed Duration and Units (default)
  • Fixed Duration and Units/Time
  • Fixed Units
  • Fixed Units/Time
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• Understand P6 settings that affect updates

• Activity types
  • Milestones
  • Task Dependent and Resource Dependent
  • Level of Effort and WBS Summary
  • Default Activity type is set at Project Level (Project Details, Defaults tab)

• Change type at Activity Level (Activity Details, General tab)
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• Understand P6 settings that affect updates
• Calculation settings (General)
  • Relationships to and from other Projects
  • Open ends
  • Schedule Calculation options
    • Retained Logic
    • Progress Override
    • Actual Dates
• Critical activity definition
• Calculate SS lag
• Float definition
• Calendar for scheduling relationship lag
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• Understand P6 settings that affect updates

• Resource settings
  • Resource Details for Labor, Nonlabor, Material
  • Auto Compute Actuals
  • Calculate costs from units

• Activity Details
  • Override Resource Details settings
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• Understand P6 settings that affect updates
• Resource settings at Project Level (Project Details, Calculations tab)
  • Link Actual and Actual This Period Units and Costs (when using Financial Periods)
• Resources Drive activity dates by default (Project Details, Resources tab)
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• Understand P6 settings that affect updates

• Financial Periods
  • Defined at Admin Level (Admin menu, Financial Periods)
  • CAUTION: Financial Periods are GLOBAL
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• Opening the file – (Exclusive / Shared / Read Only)
• Importing and Configuring ‘Outside’ Information
• Maintain Baseline
• Rename File
• Assign and Compare Baselines
• Enter Status (dates, percent complete, resources, costs)
• Enter Revisions / Forecast (activities, durations, logic)
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- Opening the file

  - **Exclusive**
    - only one user can change / modify the schedule
    - Recommended to use when updating / statusing

  - **Shared**
    - multiple users can change / modify the schedule AT THE SAME TIME
    - CAUTION: this is the default when selecting project from Project Window, right-click, select Open

  - **Read Only**
    - view only mode
    - can not change / modify the schedule
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- Importing and Configuring ‘Outside’ Information
- Import Configuration utility – how to handle duplicate data.
  - Do Not Import
  - Insert New
  - Keep Existing
  - Update Existing
  - Delete

<table>
<thead>
<tr>
<th>Do Not Import</th>
<th>Insert New</th>
<th>Keep Existing</th>
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<tbody>
<tr>
<td>Existing</td>
<td>New</td>
<td>Existing</td>
<td>New</td>
</tr>
<tr>
<td>A</td>
<td>A*, B</td>
<td>A</td>
<td>A* , B</td>
</tr>
<tr>
<td>A (after import)</td>
<td>A, A*, B</td>
<td>A, B</td>
<td>A* , B</td>
</tr>
<tr>
<td></td>
<td>(after import)</td>
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</tbody>
</table>

A* = Same ID but modified data
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• Maintain Baseline (Activity window, Project, Maintain Baseline)

• Rename File to new version (i.e. EX00 → EX01) (Project Window)

• P6 allows user to copy current schedule as a ‘Reflection’, make changes and merge back into current schedule

• CAUTION: The following data items when deleted in a Reflection copy WILL NOT be deleted in current schedule during the merge: Activities, Relationships, Resource Assignments, WBS elements, Work Products and Documents, Project Expenses, Project Issues and Project Risks. These would need to be manually deleted. (Oracle Knowledgebase ID 908732.1)
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• Assign and Compare Baselines
  • Project: Standard baseline for comparison for all users (typically the Contract Baseline Schedule)
  • User Baseline (Primary, Secondary, Tertiary)
    • *Primary Baseline allows for dates, resource, etc. comparisons*
    • *Secondary and Tertiary compare date information only*

• Check earned value settings (Admin, Earned Value, Earned Value Calculation)
  • These settings determine which baseline dates will be used for comparison.
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• Prior to statusing, make sure time is shown to alleviate non-standard start/finish times (Edit, User Preferences)
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- Enter Status
  - Actual Start dates
  - Actual Finish dates
  - Percent complete
  - Remaining duration
  - Resources and/or Costs
- Enter Manually
- Apply Actuals (Tools menu, Apply Actuals)
- Update Progress (Tools menu, Update Progress)
  - CAUTION: Apply Actuals and Update Progress use PLANNED Dates versus Scheduled Dates or Early Dates which may be different
- Calculate the schedule (Tools, Schedule) with new Data Date
  - Recommendation: To improve speed and efficiency of the program, turn off option to “Schedule automatically when a change affects dates”
- Review data entered
- Maintain Baseline (with ‘Status only’ in title)
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Schedule Updating & Maintenance using Primavera P6

- Enter Revisions / Forecast
  - New Activities
  - Delete Activities (Do not reuse Activity IDs)
  - Revise Logic
  - Revise Durations
- Calculate the schedule (Tools, Schedule) with new Data Date
  - CAUTION – To improve speed and efficiency of the program, turn off option to “Schedule automatically when a change affects dates”
- Review data entered
- Maintain Baseline (with ‘Revision’ added to title)
- Review compared to ‘status only’ update as well as previous update and Baseline schedule
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- REVIEW & ANALYZE

- Review and Verify data input (Scheduler self-check)
- Compare to previous update and Contract schedule
- Review Logic reports / Layouts and Changes made
- Finalize and Maintain Baseline (of this finalized update)
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- Review and Verify data input (Scheduler self-check)
  - Open Ends (activities with no Predecessors and/or Successors)
  - Dangling Relationship ties (Start to Start and/or Finish to Finish ties without a Predecessor and/or Successor)
  - Incorrect and non-overlapping lag ties that result in gaps in sequencing
    - Start to Start lag that exceeds the activity duration
    - Finish to Finish lag that exceeds the successor duration
    - Finish to Start lag
  - Out of Sequence progress
  - Actual dates in the future
  - Incorrect times
  - Calendars
  - Activities on the data date (verify predecessor logic)
  - Excessive float values
  - Negative float
  - New activities, durations, logic and impact to plan
  - Critical Path and Near Critical Path
  - Constructability issues
  - Stacking of trades
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• Compare to previous update and Contract schedule
• Create comparison layouts
  • Assign appropriate baseline (Project menu, Assign Baseline)
  • Select baseline bars (View, Bars) and baseline data columns
    • Note: varying baseline types (Project vs. User Baselines – Primary, Secondary, Tertiary) allow for different levels of data for comparison.
• Check earned value settings (Admin Preferences, Earned Value)
  • Determines what dates will be used for comparison – Planned or Start/Finish
  • Recommendation: use “Budgeted values with current dates”
  • CAUTION: Setting is global, not project specific, affects all projects in the database
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• Comparison layout:
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- Review Logic reports / Layouts and Changes made
- Schedule Log
- Claim Digger
- Tabular Reports
- Schedule Analyzer for the Enterprise (SAe)
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• Once the entire team has reviewed and approved the draft update, finalize and Maintain Baseline
  • Maintain Baseline (Project, Maintain Baseline, Save Copy)
  • Export
  • Backup to safe location(s)
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- COMMUNICATE
  - Layouts
  - Reports
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- Layouts
  - Global (available to all projects in the database)
  - User (available to only the user)
  - Project (specific only to the project)
- Bar charts
- Look ahead schedules
- Critical Path
- Near Critical Path
- Responsibility sorts
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- Time Scale Logic (available in P6 v7 Service Pack 3) (Tools, Time Scale Logic Logic Diagram)
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• Standard Reports
  • Schedule
  • Resource
  • Cost

• Customized Reports using Report Editor or Report Wizard
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• CONCLUSION
  • Understand contract and specification requirements
  • Understand the P6 settings that affect updates
  • Provide training to those responsible for providing and reviewing the update data
  • Visit the jobsite and walk the job
  • Hold an update meeting and verify data
  • Update Frequently
  • Review and Analyze the schedule
  • Maintain Baselines for comparison
  • Compare to previous updates and Baseline Schedule
  • Communicate the schedule using Reports and Layouts
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- We hope that you can use schedule updating and maintenance lessons learned outlined in this presentation to update your schedules quickly and efficiently using Primavera P6™

Questions?

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