Database Management and Optimization

This course focuses on more advanced database topics such as optimal usage of accessories and packages within D-Tools. Methodology and best practices are discussed to build a solid framework for efficient and effective usage of D-Tools SI. Database Management Techniques are reviewed and discussed.

Course Outline

D-Tools Accessories

- o Accessories Overview & Best Practices
- o Accessory Example #1 – DVD Player
- o Accessory Example #2 – Wall Plate Kit

D-Tools Packages

- o Introduction to D-Tools Packages
- o Package Examples
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- o Importing CSV Files

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D-Tools Accessories

Using accessories are one method of "optimizing" your D-Tools database for maximum efficiency and effectiveness and also makes for more accurate project specifications. Accessories are attached to products so that when specifying the parent items you can add items along with it that complement the installation of that parent item. Accessories can be both products and labor items.

Basic Rules for Accessories

1. Accessories cannot be added to accessories, they do not run three levels deep.
2. Packages cannot be added as accessories.
3. In general, using bulk wire as accessories is frowned upon by best practice as it does not allow for an efficient process with respect to wire length specification, head assignment and ease of documentation in Visio and AutoCAD. (Packages are more effective for adding bulk wires)

Accessory Framework or Template

An Accessory Framework is a very useful tool in deploying a D-Tools database and becomes increasingly important as the number of users in the organization grows. It allows for your company to develop a standard by which products are "accessorized" and maintains a level of consistency in the database that can be hard to achieve. It is recommended to create an Accessory Framework document to track which accessories are added to each type of product. The Accessory Framework document provides a method for documenting your company's standards. These standards can be documented for each Category and Subcategory of product.

For example:

- Video Sources → Blu-Ray: This is a specific type of item that should get a standard set of accessories added to it such as interconnects, programming labor, etc.

Benefits of an Accessory Framework:

- Creating a standard for using accessories in your database keeps everyone on the same page
- Standardizes which accessory products are used for specific product Types
- Tip: Start with major product types: Audio/Video Sources, Receivers, etc.

Notes

Accessory Example #1 – Blu-ray Player

Adding the Accessories

1. In the Product Explorer, open the product OPPO BDP-103D
2. Go to the Accessory Tab
3. Add HDMI Video interconnect = DTI HDMI-3M
4. Add Mount Kit = OPPO RACK MOUNT KIT 103
5. Add Programming Labor = DTI Crestron Programming-1

Accessory Behavior

- **Prompt:** Best for items you want to add sometimes, but want to be required to make a selection. Good for having multiple choices of accessories, like flat panel mounts
- **Recommend:** Best for items you add most of the time, but sometimes may choose not to use.
- **Default:** This is best for something you use all the time

Accessory Example #2 – Wall Plate Assembly

Wall Plate Assemblies are used to create "Kits" for various types of wall plates. The main reason we create the assemblies this way is for integration into Visio & AutoCAD. It is essential to have a specific product with which to use on the drawings to represent the wall plate as a whole, rather than a series of parts. This wall plate Kit item is created so that we can have a unique shape assigned to each type of plate to further automate the design process.

1. In the Product Explorer, open DTI Multimedia Plate
2. Go to the Accessory Tab to review the accessories
3. Notice that all of the accessories are Default Accessories
    - This is so you do not have to choose these accessories every time you add the plate.
4. Go to the Price tab – notice that the price is set to "0.00"
    - The price of the kit comes from all of the accessory items
    - The labor is set to zero, you will see why later when we use this item in a package.
5. This item will be used later in the course when we discuss packages

Notes

D-Tools Packages

Packages are one of the most useful elements of the D-Tools database. They provide you the ability to use up to three "layers" in the database as well as build tremendous amounts of efficiency and accuracy into your projects. Packages are essentially containers for other products and labor in your catalog. As you can see in the graphic below, items in a package can also include accessories. This section will explain the methodologies and best practices for building D-Tools packages.
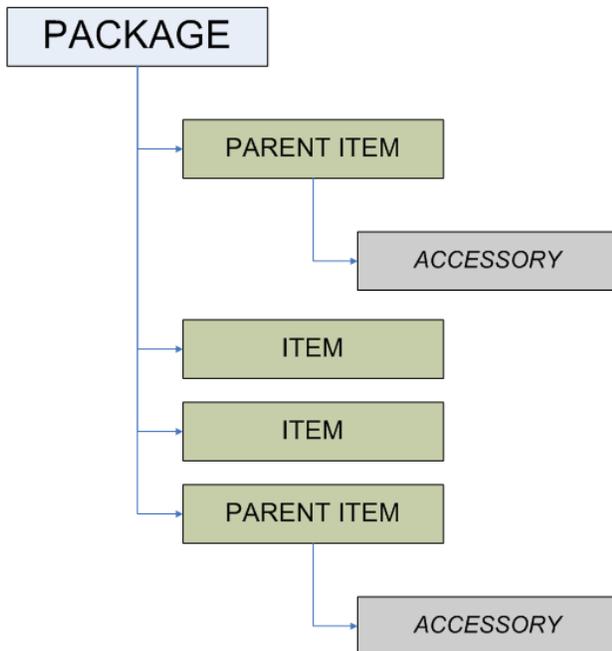
Package Editor

The Package Editor is where we build our packages by adding products and labor to the package assembly.

Open a Package Item for Editing:

1. Select Start → Catalog → Manage Packages to open the Package Explorer window
2. Select the package "Wiring Assembly – Structured – Multimedia"
3. Click Edit

Notes

Package Fields

1. **Package Name** - The Package Name is the name for the package that will be found in the Lookup menu when searching to add a package to a project, but is also the name shown on the proposal.
2. **Package Group** - Packages can be organized intro groups which allow for package organization. Packages can be grouped into types of packages: Wiring packages or Room packages, or they can be grouped by System types like "Structured Cabling" or "Lighting Control". Maybe a combination of the two.
3. **Package Description** – This could be shown on client reports along with the package name in order to give the client an idea of what they are getting without showing them all the details of the package and giving them a shopping list. It can also be used internally to describe the intent/scope of a package
4. **Package Image** – The package image works similar to product and labor images. They can be used to display on proposals, but are not available to be displayed on Visio drawings.

Package Options

1. **Prompt Accessories** – When this option is checked, the accessories for items in the package will behave as designed in the product catalog for the individual products (Prompt, Recommend, Default). If unchecked, the prompt option will not be deployed. Prompt accessories will not be included. Recommended & default accessories will automatically be included.
2. **Summarize in Client Reports** – Selecting this option will display package names only and suppress the package details on client reports. (Unless you have chosen to override this setting in your reports)
3. **Ignore Labor Calculations** – Selecting this option will ignore the product labor allocations and use only labor items added into the package.
4. **Include Accessories**: If checked, this option follows normal accessory rules per individual accessory items setup in the database for parent products. If this is unchecked, accessories for items in the package will be ignored.

Implementation Tips

1. **Package Naming Convention** – Using a consistent naming convention for your packages allows your users to easily select packages because they are consistently named and organized together in the packages list, but also makes proposals look more professional, because they will be better organized.
2. **Using Labor Items in Packages:** – When using labor items only in packages (ignore labor calculations checked) be sure to account for labor in all phases.

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Package Contents

1. **Package Items -** Package items are displayed in the window in the middle of the package editor. Item quantities can be adjusted in the window, as can wire lengths and Head End assignments.

2. **Base Price** - Base Price for parts (equipment). Does not include labor or taxes! Labor and tax information is calculated on a package once it has been added to a project.

3. **Discount** - Allows you to apply a discount to the package price. Note: This is based on the equipment price only, does not include any labor or taxes!

4. **Net Price** – This is the Net equipment price after the discount has been applied.

5. **Estimated Installation price**: This will give you the estimated installation price (Parts, Labor & Taxes) based upon the global settings in your setup & configuration.

Package Naming Convention

A *package naming convention* is a useful tool to keep your packages organized in your catalog as well as provide consistency and meaning to your staff and customers. The package naming convention that we have created consists of three parts:

- **Package Category**
    i. Wiring
    ii. Room Solution
    iii. Equipment

- **Package Type**
    i. We recommend using the System Name ex: House A/V, Theater

- **Package Keywords**
    i. Descriptive words or phrases differentiating one package from another

- **Examples:**
    i. Wiring – Distributed Audio – (2) Spk/Ctrl
    ii. Room Solution – House A/V - (2) Spk/Ctrl - Ceiling
    iii. Equipment – House A/V – Controller, Amplifier & Sources

Implementation Tip

Shorter package names work well when using Mobile Quote because the entire package name is visible.

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Building a Package

Create the Package

1. Navigate to the Package Explorer (Start→Catalog→Manage Packages)
2. Click the New Button
3. Enter the Package Name and Description.
    a. Wiring – Structured – Multimedia
4. Package Group: Set the group to "Wiring Packages".
    a. You can click the Package Groups button to manage your group names.
5. Set the Package Options
    a. Prompt Accessories = False (we do not want to be prompted for this package)
    b. Ignore Labor in Products = True (we are going to use labor items for this package)
    c. Summarize in Client Reports = True (we want to hide the details for this package)
    d. Include Accessories = True

Add Products to Package

1. Click Add Products
2. Using the Quick Filter select Category = Plates
3. Click Apply
4. Select Model = DTI MULTIMEDIA PLATE.
5. Click Add and Close
6. Click Add Products again
7. Using the Quick Filter select Category Type = Bulk Wire
8. Select Wire and Cable Category and click Apply.
9. Select the following wire items:
    a. RG6
    b. CAT5E
10. Set Quantity on Wire Items = 2
11. Enter Wire Length and Head End = DIST PNL

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Add Labor to Package

1. Click Add Labor
2. Select the following labor items:
   a. BUNDLED WIRE PULL
   b. PLATE TRIM-LARGE
3. Click Add and Close

Implementation Tip

When configuring wire items in a package you can set wire length = 0 in order to make your package more flexible with respect to various sizes of jobs. This will automatically use each project's default wire length for these wire items, saving you the trouble of managing different packages for various sizes of project.

Database Maintenance Utilities

SI provides a series of maintenance and mass update utilities which make the database management process much more efficient and effective. The Mass Update Utilities can be used to update a few products or hundreds, but it is important to respect the power it wields. Any tool that "mass updates" anything can be extremely helpful or damaging if used incorrectly. The mass update tools work most effectively when coupled with Queries, another very useful tool.

Find Usages & Replace

This tool is extremely useful for database maintenance purposes. The scenario goes like this: You have selected a particular interconnect, say an HDMI cable from XYZ manufacturer. You have utilized this cable as an accessory throughout your database as well as in various packages. Today you have decided to switch loyalty to manufacturer ABC and their HDMI cables. How do you update D-Tools to reflect this change all throughout the catalog? Previously, you spent a lot of time and effort getting your database cleaned up! Now…you use Find Usages & Replace to scour the catalog for every instance that a specific item is used as an accessorily or as a member of a package. You then can pick and choose specific usages to replace or replace them all with your new preferred HDMI cable

Exercise: Replace Usages

1. From the Product Explorer, search for HDMI-3M

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2. Select this cable from the Product Explorer window

3. Choose the Find Usages & Replace tool

4. A window opens showing every usage as accessories and packages.

5. Select all items and packages

6. At the bottom of the window select a replacement product from your catalog.

7. Choose HDMI-2M

Creating and Using Database Queries

Database Queries are extremely useful tool in SI. They allow us to save search filters so that we can quickly identify specific types of items in order to update them in the database or specify them in a project. Successfully creating queries relies heavily on having a very uniform database structure with respect to Categories and Subcategories as you will see here.

Exercise: Create the Query

1. From the Product Explorer, Select the Query tool so we can create a new query

2. Name the Query "DVD & Blu-Ray"

3. You can choose to share this with other users or keep it to yourself.

4. The first two criteria are already populated, these keep the query from pulling up unapproved or discontinued items. You can remove these if you want.

5. The Criteria we want to set are:
   a. AND - Category = Video Sources
   b. AND Subcategory = Blu-ray
   c. OR Subcategory = BluRay
   d. (Sidebar – notice the two different spellings…this calls attention to the importance of keeping your subcategory entries uniform.)
   e. OR Subcategory = DVD

6. Notice the use of OR on the last two criteria. If we set those to AND it would be looking for a product that had a subcategory entry equal to all three at once (impossible). There are other options to create more complex queries as well.

7. Click the Save button and Run the query.

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Exercise: Mass Update Tool

An effective method of maintaining and updating your database is using the mass update tool. The uses of the tool are boundless and there are so many ways of using it. Let us review a few that are most effective.

Updating Labor Hours on Products

We currently have the database filtered for DVD and Blu-Ray players using our saved query. The Mass Update tool is an excellent way to help keep your labor hours specifications uniform across the database for various product types.

1. From the Product Explorer, Select the Mass Update button and choose the "All" option. This will update all items currently filtered in the grid.
2. This brings up the Mass Update box, which displays a list of database fields. Not every field is available to be mass updated.
3. Select the field = Labor Hours under the Price heading. Click Next
4. Enter 0.5 hours and Click Save.
5. The window stays open in case you want to continue updating other database fields.

Updating Subcategory on Products

We currently have the database filtered for DVD and Blu-Ray players using our saved query. If you recall we had an inconsistency with the way the subcategory fields was entered for our Blu-ray players. We can fix that.

1. In the product grid, use the Ctrl + Left Click to select the Blu-ray players
2. From the Product Explorer, Select the Mass Update button and choose the "Selected" option. This will update only the items we have selected.
3. From the Mass update box, select the subcategory field under categorization.
4. Click Next
5. Select Category = Video Sources (brings up the appropriate subcategories)
6. Select Subcategory = Blu-ray
7. Click Save.

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Exercise: Mass Update Accessories

An effective method of managing your accessories on a large scale is using the mass update accessories tool. **This works extremely well if your company has opted to make use of an Accessory Framework**. It can be useful without it too, it is just much better if using a well thought out plan.

Now that the Query has been run we are shown all the data in our catalog which meets our specified criteria. In this case all the DVD and Blu-Ray players. We are now ready to run our Mass Update on the Accessories for these items.

1. From the Product Explorer, Select the Accessories button and choose the "All" option. This will update all items currently filtered in the grid.
2. This brings up the Mass Update Accessories box.
3. When performing a mass update on accessories we have two choices with how to deal with any existing accessories the items may have:
    a. **Append:** This will add these new accessories to any existing accessories
    b. **Overwrite:** This will remove all existing accessories in favor of the new ones.
4. Click Add Products
5. Search and Select DTI-HDMI-2M
6. Click Add & Close
7. Make the accessory a PROMPT accessory by deselecting the recommend checkbox
8. Choose the Append option
9. Click Save

You have now added the accessory to every item we had filtered! Sure beats adding them one by one! Now that you have gone through this process, can you see why having an accessory framework is so important? Your database could get out of control quickly.

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Exercise: Mass Update Using Price Rules

Price Rules provide us with the ability to create saved formulas with which we can use to update pricing on database items. This can be useful for updating a specific Mfr. pricing to reflect a specific markup over cost, or to create a selling price that is a markdown off of MSRP, or to update different price levels.

1. Click the Reset button on the toolbar to remove the filter.
2. From the Quick Filter button select the Manufacturer = Middle Atlantic.
3. From the Product Explorer, Select the Price Rules button and choose the "All" option. This will update all items currently filtered in the grid.
4. This brings up the Price Rules box.
5. Currently we do not have any price rules defined so we need to click the "+" button to add a new rule entry.
6. The Rule will name itself automatically based on the settings we create for the rule. For many this will be best as it is guaranteed to describe the result of the rule. Others may prefer to rename it themselves.
7. **Destination Field:** The first step I perform when creating a rule is to define which field is going to be updated. This is called the destination field.
   a. In this case choose "Unit Price"
   b. Select a corresponding Price Type to be updated
8. **Source Field:** The next step is to identify which field's data will be used to calculate the destination field's new value.
   a. In this case choose "Unit Cost"
   b. Select a corresponding Price Type to be updated
9. **Operation:** We now need to set the operation that will be used to calculate the destination.
   a. **Set:** Sets a specific value to the source field to equal the destination field.
   b. **Add:** Adds a specific value to the source field to equal the destination field.
   c. **Add Percentage:** Adds a percentage of the source field to the destination field.
   d. **Discount:** Subtracts a specified amount from the source field to equal the destination.
   e. **Discount Percentage:** Subtracts a percentage of the source field from the destination.
10. Choose "Add Percentage"
11. Set Value to 100% (this is equal to 50% Margin)
12. Click Save Rules, then Click Apply Rule.
13. Move to the Price Layout and verify the update has been made.

Notes

Exercise: Mass Update Alternates

The Mass Update toolset also provides the ability to add alternates to many items at once. This is another tool that needs to be preceded by a well thought out plan of action to avoid creating a mess in your database.

1. After you have identified a set of products which should all have the same alternate items applied, filter the catalog for those items
2. Select the items in the Product Explorer
3. Select Alternates from the Mass Update Menu on the Tools Tab and choose "Selected"
4. Add the products you wish to use as alternates and then choose from the two choices below on how to add them:
   a. Append: choose to add these to any existing alternate items
   b. Overwrite: Erase any existing alternates and replace with the new ones.
5. Click Save.

Update I/O

The I/O update tool is a method for opening multiple items up at the same time in the I/O studio. It does not provide a way to mass update the I/O on multiple items at once, but rather opens them up on individual tabs in the I/O studio. I/O can be copied and pasted from one item to another.

Notes

Importing CSV Files

This demonstrates the process of adding new products to the catalog by importing a CSV file created in Excel. The CSV Import is most commonly used to update the database, but it can also be used to add new items to the catalog. Only Products can be imported via CSV, labor and packages cannot be imported.

CSV File Import Template

To get a sample CSV file with all of the D-Tools fields on it, the easiest way is to export a single item of data to Excel. This will provide you with a formatted CSV sheet with all of the D-Tools fields you may want to import and will also give you an example of field specific formatting.

1. Navigate to the Product Explorer (Start → Catalog –Manage Products)
2. Select one or a few items in the grid.
3. Click Export → Selected. Choose specific fields or select all fields to export
4. Leave them all selected and click OK
5. Choose a location to save the file. Once the file opens you can use the exported item as an example for your excel data entry.

Tips for CSV File Data Entry

- **Phase Name** must match its entry in the database setup or it will be imported as unassigned!
- **Category:** The category is a required field in your CSV file to add a new product. The category name needs to match an existing category name.
    - i. NOTE: You will have an opportunity to either create a new category or map your misspelled category name to an existing category during the import.
- **Consistency** - It is really important that you are very consistent in this data entry method. It can be very easy to create a very sloppy database this way.
- **Required Fields** - Leaving any of these fields blank will create problems with your catalog:
    - i. Category, Manufacturer & Model
    - ii. Product Description
    - iii. Pricing
    - iv. Labor Hours
    - v. Phase

Notes

- **Deleting Columns in CSV:** If you delete a column from the CSV this will ignore that specific data field upon import and have no impact on the catalog data. HOWEVER…if you leave the column and remove the data in the cells, this will erase the data in the catalog upon import!

Exercise: Importing the CSV File

The CSV Import Process uses a wizard which makes the process very straight forward.

1. From the Product Explorer, Click Import
   a. Select your CSV file on the computer & Click OK
2. A four step wizard opens to guide you through the import process.
3. **Step 1: Map CSV Columns to appropriate database fields**
   a. Using the exported CSV file makes this step unnecessary unless you have modified any of the column names. All columns should be mapped to database fields.
   b. **Map Fields:** Click the Map button in order to manually map a column to a data field.
   c. **Preview:** You are shown a preview of your data on the right side of the screen.
   d. **CSV Dimensions:** By selecting the measurement units when importing, you are notifying D-Tools how to handle the imported data with respect to inches, cm or mm.
   e. **CSV Weight:** By selecting the weight units when importing, you are notifying D-Tools how to handle the imported data with respect to pounds, kilograms or ounces.
   f. Click Next to Proceed
4. **Step 2: Map Manufacturers**
   a. If any Manufacturers in the CSV file do not match a catalog Mfr, you will be asked to create a new Mfr. or map to an existing Mfr.
5. **Step 3: Map Categories**
   a. If you have any Categories in the CSV file that do not match a catalog Category you will be asked to either create a new Category or map to an existing Category.
   b. If there is nothing to map, this step is automatically skipped.
6. **Step 4: Verify CSV Mappings**
   a. **Products:** This step gives you a summary of the # products to be imported
   b. **Columns:** Identifies the # of mapped vs. unmapped columns
   c. **Manufacturer:** Identifies the # of mapped or new Manufacturers
   d. **Categories:** Identifies the # of mapped or new Categories
7. Click Finish to Open the Import Editor

Notes

Import Editor

The Import Editor is designed to help you manage your imported data prior to bringing it into the database. The import editor has all of the intelligence allowing you to effectively import your data to the database.

Item List

The item list consumes most of the screen and previews all of the items to be imported. This list can be filtered using various filtering tools on the screen.

Filter Tools

- **All:** Shows all items to be imported
- **New:** Shows items that will be imported as new products
- **Matched:** Shows items that exist in your database that will be updated upon importing.
- **Close Match:** Shows items that have a nearly identical model number that could be identical.
- **Duplicate:** Identifies items in the import CSV that are duplicates
- **Inadequate:** Identifies items not meeting minimum requirements for import
- **Error:** Identifies items with errors that will not be imported.

Prepping Data for Import

Once your data is in the Import editor, you may find you need to tweak some of the items so that they will be able to be imported. You have a couple of ways of doing this, and depending upon the severity of the errors, you will likely choose one or the other.

- **Mass Update:** You can use the Mass Update Utility to update specific data fields in order to correct issues with the import.
- **Export:** Export allows you to export an updated csv file (with corrections made via the wizard) to further manipulate the data sop it will import correctly. EX: The model number cannot be changed using mass update so exporting to csv is the only way to fix this issue.
- **Delete:** If all else fails you can delete certain items from the import such as duplicates.
- **Pick One From Duplicates:** If data has duplicates, you can select one of them for import.
- **Map Column:** If columns were improperly mapped during the wizard you can fix them here.
- **Map Manufacturer:** If Mfr. were improperly mapped during the wizard you can fix them.
- **Map Category** If Categories were improperly mapped during the wizard you can fix them.

Notes

Importing Your Data

Now that your data is all verified we are ready for import!

1. Import → New: Import only the new items
2. Import → Mapped: Import only the mapped items (items for update in the catalog)
3. Import → New & Mapped: Imports both new and mapped
4. Import → Selected: Import only the items selected in the preview window.
5. Once you select one of the above you are prompted with a final confirmation window allowing you to make a few more decisions on what gets imported
   i. Choose whether to add imported and matched items
   ii. Mark items as approved
   iii. Ignore blank values
   iv. Select specific fields to import/exclude.
6. Click OK

Notes