Advanced Query & View Concepts Session

In this session we will be discussing Data Views and how they can be used for Queries and Reports based on your Step1 Data. This session assumes you know how to use the Step1 Query Module, and at least have an idea what SQL (Structured Query Language) is.

- Data Views vs Data Tables
    - Data Tables hold the actual data. Designed to optimize Transaction Processing.
    - A Data View is a specific 'view' into your data.
    - Views are sometimes called 'virtual tables'.
    - A View is a 'layer' between you and your data that hides the complexity of the data table structure (which was NOT designed for easy human querying and reporting).
- Advantages of using Views
    - Views can be easily modified to adapt to different user's data needs (the Data Tables cannot be easily changed without breaking the programs that access the data).
    - If Views are used for queries and reports, then the potential impact of Step1 version updates (and related data table changes) will be minimized. When queries and reports are based on the actual data tables, changes to the data table structures could easily break your queries and reports.
    - Primary advantage is that Views can hide the complexity of the SQL required to query data (ie Joins, Aliases, Function Calls, etc), making it much easier to do queries and reports.

Example: Suppose you wanted to query invoice detail for the items for a specified Supplier Acct that were sold to a specified Customer Acct for a specified invoice date range.

If you wrote your query using the actual Step1 data tables, you would have to join 5 tables to get at the data, using the following SQL:

```
SELECT hed.InvoiceNum, hed.InvoiceDate, itm.ItemCode, det.NumShipped, det.Price
FROM ARInvDet det
Left Outer Join ARInvHed hed On det.ARInvcID = hed.ARInvcID
Left Outer Join ICItems itm On det.ItemID = itm.ItemID
Left Outer Join APVendor sup On det.VendorID = sup.VendorID
Left Outer Join ARCusts cus On hed.CustID = cus.CustID
WHERE hed.InvoiceDate between '2011-1-1' and '2011-12-31'
        and cus.CustAcct = 'abbot'
        and sup.VendorAcct = 'baywest'
```

But if you wrote your query using the standard Step1 View called vCustomerInvoiceDetail View, NO Joins or Aliases are even needed! Here is the same SQL query using the view:

```
SELECT InvoiceNum, InvoiceDate, ItemCode, NumShipped, Price
FROM vCustomerInvoiceDetail
WHERE InvoiceDate between '2011-1-1' and '2011-12-31'
and CustAcct = 'aBBot'
and SupplierAcct = 'Baywest'
```

- Using the new View-based Query module in v7.34+
    - Standard Step1 views vs. User views
    - Step1 View Auto-Updates (via DBQ/DBComm 'Check for Report and View Updates')
    - View & Field Level Rights to restrict access to sensitive data
    - SQL Tab (User option)
    - Use the 'Order By' clause to make sure queries & reports are sorted properly
    - Migrating your Saved SQL Queries & Reports to Views (if/when you run into errors)

- Query Administrator options (User flag)
    - Setup new User Views (usually will use Step1 View as base SQL)
    - Modify existing User Views (New fields are immediately available for queries)
    - Deleting User Views (Careful, this may break existing Saved Queries and Reports!)
    - Renaming / Deleting saved queries

- Building Reports using Views
    - The hardest part of building reports is usually the initial data issues (setting up a data view in report builder).
    - If you use standard Step1 Views (or User views that are properly setup ahead of time using the Query module), report building is pretty basic.
    - If necessary, Step1 Support can help you create the User Views for your reports (if standard Step1 views are not sufficient) 6. Step1 SQL Functions in Views
    - SQL Functions are another example of how Views can mask SQL complexity
    - To the user doing a query using a View, they would just be selecting a field as usual, when the View is actually calling a complicated function behind the scenes.
    - A good example is the Step1 CPM Pricing Function...

- User-Defined Tables (UDTs):
    - User-Defined Tables can be used to extend your Step1 Data
    - UDT data can easily be included in your User Views
    - UDT Data must be manually maintained (modified via DMain menu option)
    - Links: Very Important to setup the link field(s) properly (ie Use CustID NOT Acct#)
    - Step1 Support can help you create the UDT, and add fields later as needed.

- SNAP Links
    - Easily attach a query to a SNAP note.

- Summary

- Q&A/General Discussion