


Ready, Set, Drill!

Who wants to spend time they don't have searching through forms and reports trying to locate information they've been asked to provide "yesterday," that they need to carry into that last-minute meeting, or that they need in order to make a management decision? Applications built with the Barista® Application Framework already provide users with a powerful set of querying tools to help them find that data and then sort, search, filter, and even export the results; now, that functionality is dramatically enhanced.

In this modern age of "Have it your way!", who wouldn't like instant gratification with data magically appearing at your fingertips when and where you need it? Now, thanks to Barista enhancements for Drilldown and Query Definitions, you can create more powerful queries than ever before, and even link queries to other queries – cascading them – or link to your own custom program! This article gives an in-depth review of these powerful tools.

Review

Queries are an integral part of Barista applications. Click the binoculars or magnifying glass on any form, run Espresso or the Document Management tasks, and you are using Barista queries. With the new enhancements, you can expand the querying capabilities of your forms even further.

Drilldown Definitions have always been a handy way to launch a query from a field on a form, because a field with a drilldown has its own toolbutton  attached. But as single-table queries, they were somewhat limited in functionality compared to queries built with the Query Definition tool. The Query Definition tool, on the other hand, has a robust feature set, including table joins, calculated columns, column totaling, auto-refresh, etc., but it hasn't been as easy to associate a custom query with a particular field on a form. In either case, the end result has been a 'single tier' query – that is, aside from the automatic hyperlinks that Barista generates for foreign key fields, there hasn't been a way to drill deeper into data in the other columns.

Well, sharpen your drill bits, because all of that has changed!

What's New

Let's start with drilldowns. Two new fields in Barista's 'Drilldown Definitions' form take away the limitations of the past (**Figure 1**). You can still specify a simple single-table query, of course, but now you also have the option to specify the name of a custom query or inquiry program to run when the user clicks that drilldown! That



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Figure 1. Barista 'Drilldown Definitions' form with new 'Inquiry Program' and 'Query ID' fields

gives you the best of both worlds – you can harness all the extra features of a custom query, or even run a different form, report, or other program, and have the convenience of attaching the drilldown to a field so you can launch it via the drilldown arrow.

Custom queries have also been improved with the addition of a 'Drilldown Definition ID' field to the 'Query Column Definitions' form shown in **Figure 2**. This field lets you specify a drilldown definition for a query column, thereby creating your own hyperlink in the query grid. The potential here is huge, blowing away the 'single tier' query limitation. Think about it. You can run a form and click the drilldown arrow next to a field to launch a custom query, returning a new italicized hyperlink in that custom query that in turn refers to another drilldown definition, which may launch another custom query or custom program, and on and on.

Drilldowns in Action

Let's move from the abstract to some actual examples by examining some new drilldown functionality in AddonSoftware®. The 'Aging and Sales Summary' tab on the 'Customers' form has a drilldown on the 'Balance' field (**Figure 3**).

Balance Drilldown

Take a look at the improved 'Balance' drilldown in **Figure 4** and the columns labeled **A**, **B**, and **C**. We replaced the single-table drilldown of the past with a custom query that uses calculated fields for transactions against the invoice and the resulting balance, and sums those fields, as shown in column **A**. Barista automatically joins foreign key tables so we can see the Distribution Code and its description in column **B**. The invoice number column 'AR Inv No' noted in column **C** displays the new italicized link so from our 'Balance' query we can drill deeper and look at the transaction detail for the selected invoice (**Figure 5**).

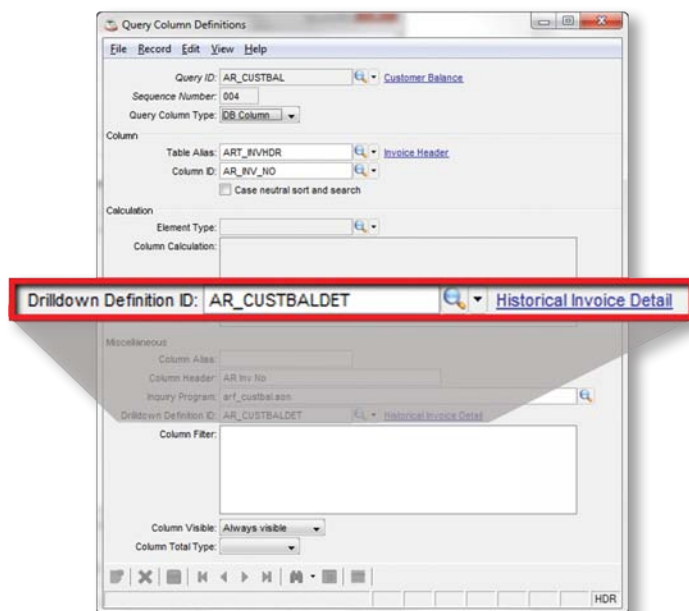


Figure 2. 'Drilldown Definition ID' field added to the 'Query Column Definitions' form

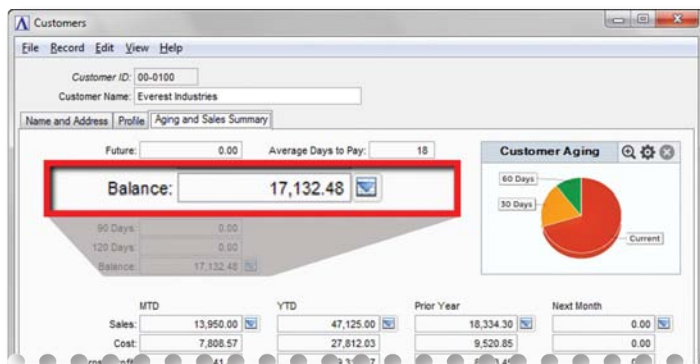


Figure 3. 'Balance' drilldown on the 'Customers' form

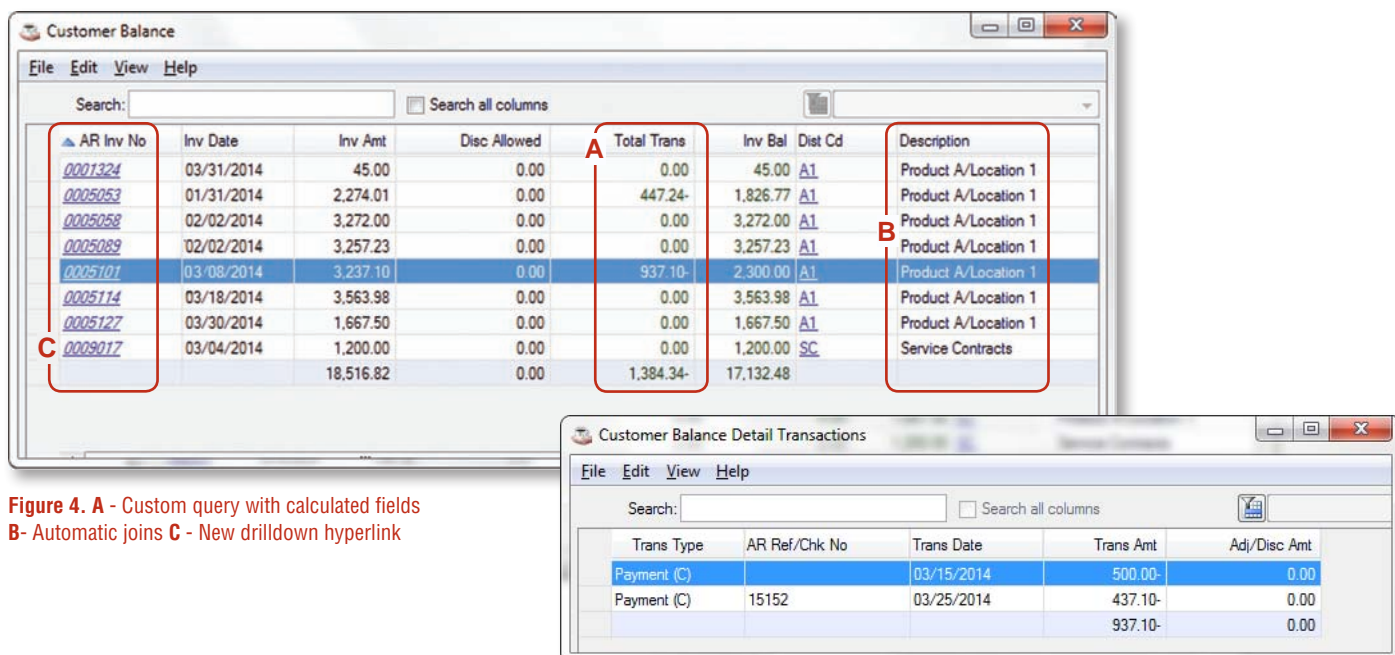
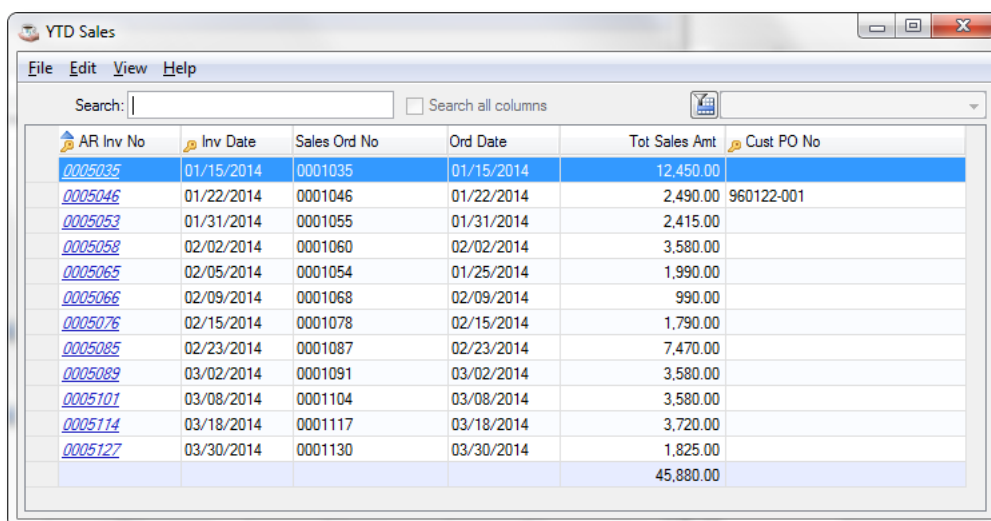


Figure 4. **A** - Custom query with calculated fields
B- Automatic joins **C** - New drilldown hyperlink

Figure 5. Custom query showing transactions against the invoice

Also appearing in **Figure 3** were four new drilldown arrows next to the sales figures. These drilldowns run custom queries as well, filtering the invoices as appropriate to show invoices from the Order Processing module that are included in the selected sales amount (**Figure 6**).

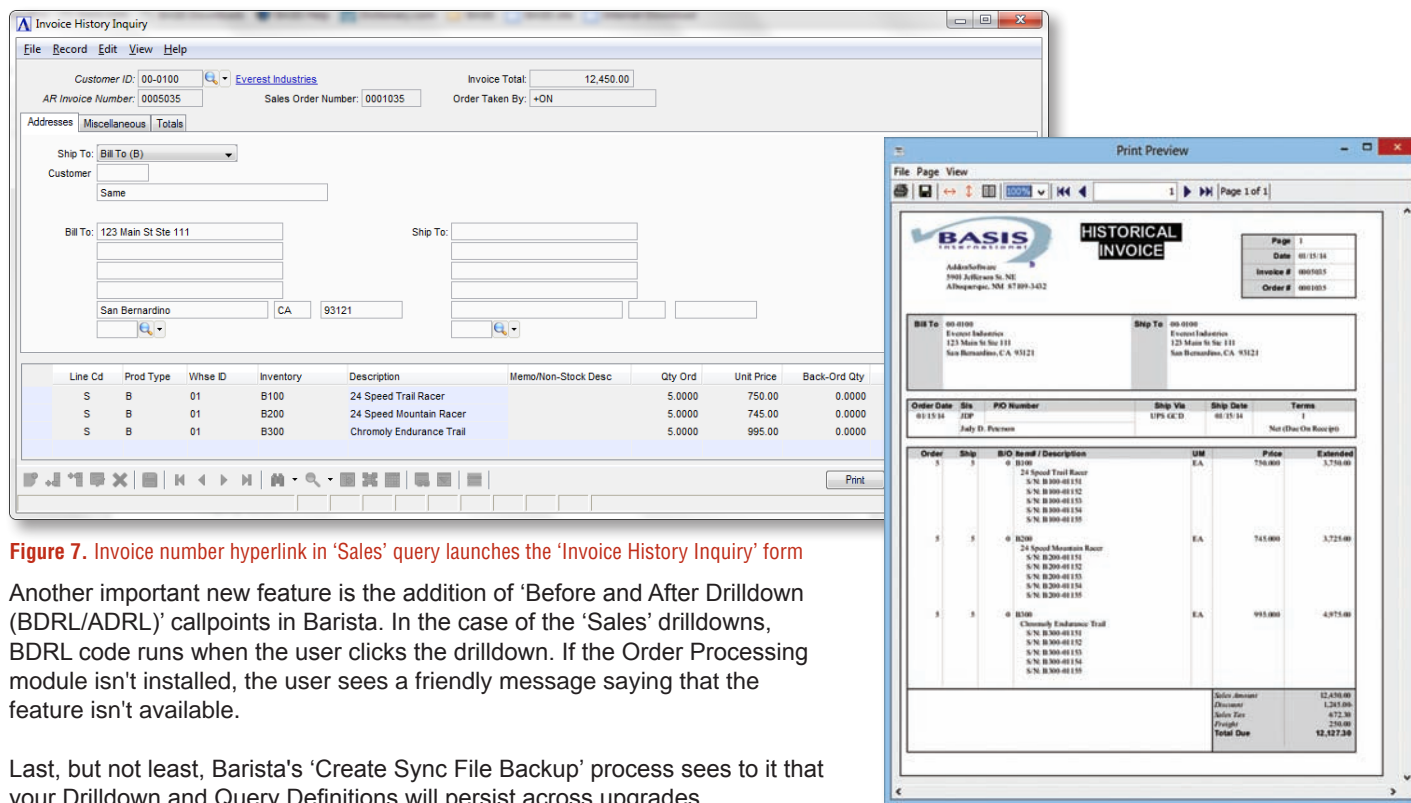


AR Inv No	Inv Date	Sales Ord No	Ord Date	Tot Sales Amt	Cust PO No
0005035	01/15/2014	0001035	01/15/2014	12,450.00	
0005046	01/22/2014	0001046	01/22/2014	2,490.00	960122-001
0005053	01/31/2014	0001055	01/31/2014	2,415.00	
0005058	02/02/2014	0001060	02/02/2014	3,580.00	
0005065	02/05/2014	0001054	01/25/2014	1,990.00	
0005066	02/09/2014	0001068	02/09/2014	990.00	
0005076	02/15/2014	0001078	02/15/2014	1,790.00	
0005085	02/23/2014	0001087	02/23/2014	7,470.00	
0005089	03/02/2014	0001091	03/02/2014	3,580.00	
0005101	03/08/2014	0001104	03/08/2014	3,580.00	
0005114	03/18/2014	0001117	03/18/2014	3,720.00	
0005127	03/30/2014	0001130	03/30/2014	1,825.00	
				45,880.00	

Figure 6. 'YTD Sales' drilldown pulls invoice information from the Order Processing module

Sales Drilldowns

As with the 'Balance' drilldown, the 'Sales' drilldowns use the new hyperlink capability on the 'AR Inv No' column. Rather than launching another query, this hyperlink runs a program that launches the 'Invoice History Inquiry' form shown in **Figure 7**, so that users can see all of the information about the invoice, print a historical invoice as shown in **Figure 8**, or even add additional comments.



Invoice History Inquiry

Customer ID: 00-0100 [Everest Industries](#) Invoice Total: 12,450.00
 AR Invoice Number: 0005035 Sales Order Number: 0001035 Order Taken By: +ON

Addresses: Miscellaneous Totals

Ship To: Bill To (B)
 Customer: Same
 Bill To: 123 Main St Ste 111 San Bernardino CA 91211
 Ship To:

Line Cd	Prod Type	Whse ID	Inventory	Description	Memo/Non-Stock Desc	Qty Ord	Unit Price	Back-Ord Qty
S	B	01	B100	24 Speed Trail Racer		5.0000	750.00	0.0000
S	B	01	B200	24 Speed Mountain Racer		5.0000	745.00	0.0000
S	B	01	B300	Chromoly Endurance Trail		5.0000	995.00	0.0000

Print Preview

BASIS INTERNATIONAL HISTORICAL INVOICE

Address: 3901 Alhambra St. NE Albuquerque, NM 87109-3402

Bill To: 00-0100 Everest Industries 123 Main St Ste 111 San Bernardino, CA 91211
 Ship To: 00-0100 Everest Industries 123 Main St Ste 111 San Bernardino, CA 91211

Order Date	Site	PO Number	Ship Via	Ship Date	Terms
01/15/14	JEP		UPS GC/D	01/15/14	1

July 01: Previous Not (Due On Receipt)

Order	Ship	B/O Item / Description	UM	Price	Extended
5	3	B100 24 Speed Trail Racer	E.A.	750.000	3,750.00
		S/N: B100-00151			
		S/N: B100-00152			
		S/N: B100-00153			
		S/N: B100-00154			
		S/N: B100-00155			
5	3	B200 24 Speed Mountain Racer	E.A.	745.000	3,725.00
		S/N: B200-00151			
		S/N: B200-00152			
		S/N: B200-00153			
		S/N: B200-00154			
		S/N: B200-00155			
5	3	B300 Chromoly Endurance Trail	E.A.	995.000	4,975.00
		S/N: B300-00151			
		S/N: B300-00152			
		S/N: B300-00153			
		S/N: B300-00154			
		S/N: B300-00155			

Sales Amount: 12,450.00
 Discount: 1,267.00
 Sales Tax: 672.30
 Freight: 250.00
Total Due: 12,122.30

Figure 8. Historical invoice preview form

How it's Done

By now your mind is probably racing with all of the places in your Barista app that you'd like to use the new drilldowns. Let's review the technical details so you can get started.

Balance Drilldown

- Custom query AR_CUSTBAL queries the 'AR Invoice Header' table. The 'AR_INV_NO' column in this query carries the name of a filtering/inquiry program that is called as each header record is fetched (arf_custba1.aon in **Figure 2**). The filter program loops through the invoice detail for the current header record and accumulates transactions against the invoice. The accumulated transaction amount and resulting balance are placed in the query's calculated fields. The filtering program also instructs Barista to bypass any zero balance invoices.
- Drilldown definition AR_CUSTBAL (**Figure 1**) contained the Query ID AR_CUSTBAL, so this drilldown will run the custom query rather than perform a simple single-table query.
- In the Form Designer, the 'Balance' field is linked to the AR_CUSTBAL drilldown as shown in **Figure 9**.
- The AR_CUSTBAL query's 'AR_INV_NO' column also contained its own 'Drilldown Definition ID' (AR_CUSTBALDET, also shown in **Figure 2**). As a result, the invoice number column in the query grid will appear as an italicized hyperlink.
- The AR_CUSTBALDET drilldown, in turn, runs a custom query by the same name, and will show the detail transactions for the selected invoice (**Figure 10**).

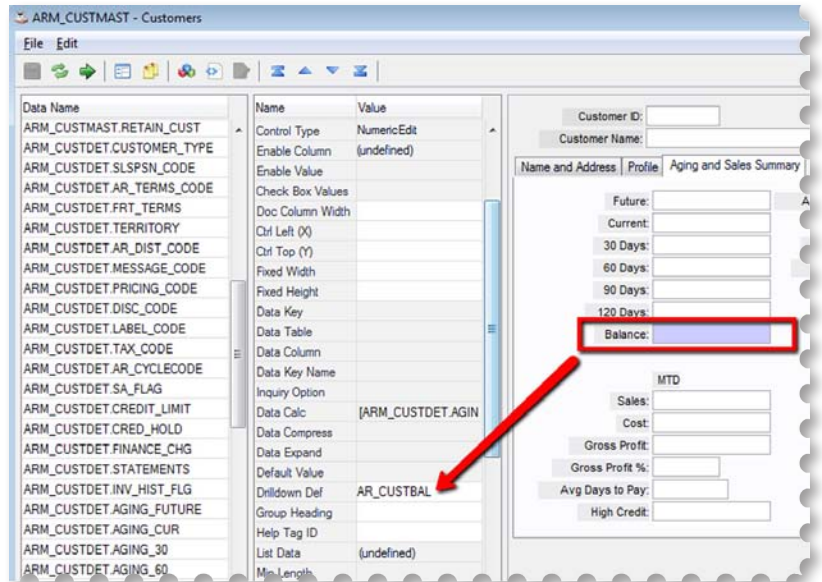


Figure 9. Use the Form Designer to link a field to a Drilldown Definition

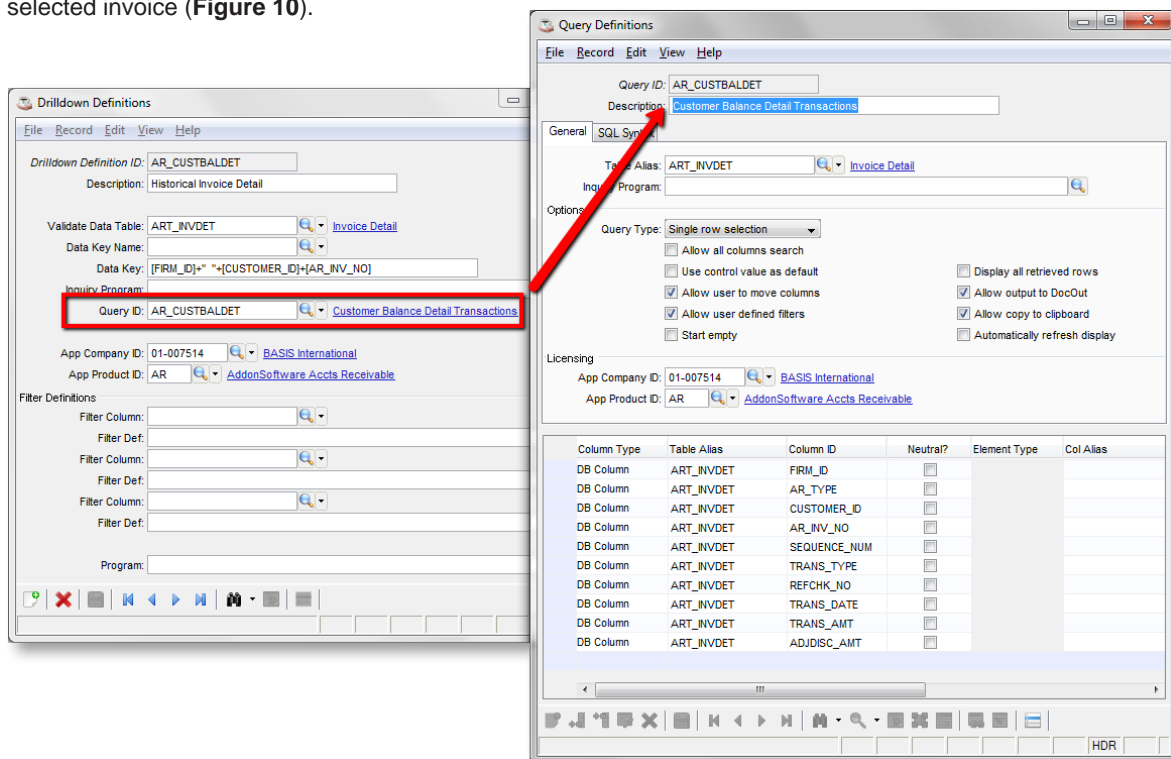


Figure 10. AR_CUSTBALDET drilldown definition and corresponding query definition

Sales Drilldowns

- The mechanics of the 'Sales' drilldowns are much the same as the 'Balance' drilldown. Each 'Sales' drilldown definition refers to a custom query, and the custom queries use additional filtering programs to select invoices appropriate to the time frame (MTD, YTD, etc.).
- Like the 'Balance' drilldown, the queries run from the 'Sales' drilldowns have a drilldown defined on the invoice number column, so it appears as an italicized hyperlink. Unlike the 'Balance' drilldown, however, this OP_HISTINV Drilldown Definition ID runs a custom program rather than another query (**Figure 11**).
- The custom program in this case (code shown in **Figure 12**) is very small, and uses Barista's `bam_run_prog.bbj` to launch the 'Invoice History Inquiry' form. Note that since Barista calls the custom program, the enter statement must always be the same as shown in the example.
- The 'Before Drilldown (BDRL)' callpoint code shown in **Figure 13** sees to it that the user is presented with a friendly message when they click one of the 'Sales' drilldowns if the Order Processing module isn't installed.

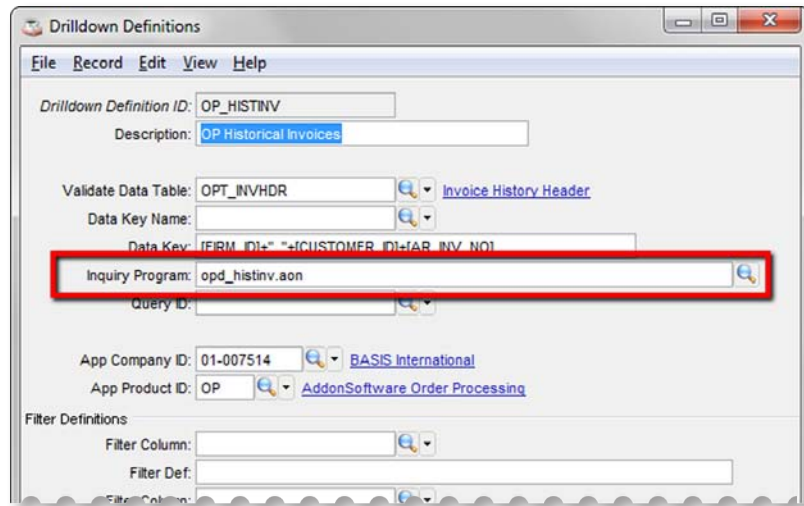


Figure 11. Drilldown Definition for the OP Sales query invoice column runs a custom program

```
rem --- arq_histInvoices.aon
rem --- launches the Historical Invoice form from AR_INVOICES custom query

enter rd_gui_dev,rdWindow!,rd_field_tvar$,rd_ddm_drill_def$,rd_drill_pfx$,rd_table_chans${all}

dim dflt_data${2,1}

call stbl("+DIR_SYP")+ "bam_run_prog.bbj",
:
:      "OPT_INVHDR",
:      stbl("+USER_ID"),
:      "",
:      rd_drill_pfx$,
:      rd_table_chans${all},
:      "",
:      dflt_data${all}
```

Figure 12. Inquiry Program used by OPT_HISTINV drilldown to launch 'Invoice History Inquiry' form

```
rem =====
check_op:rem --- this drilldown can only run if OP is installed
rem =====

if user_tpl.op_installed$ <> "Y"
  msg_id$="AD_NO_OP"
  dim msg_tokens${1}
  msg_opt$=""
  gosub disp_message
  callpoint!.setStatus("ABORT")
endif
return
```

Figure 13. Before Drilldown callpoint code in the Customer form shows message and disallows drilldown if Order Processing isn't installed

Summary

Barista queries are a powerful and ubiquitous component of the framework. Developers can extend that power by creating Drilldown and Query Definitions that provide additional access to application data in a contextual fashion, beyond where the default Barista queries can go. With these latest enhancements – Drilldowns that allow you to call a Query Definition or a custom program, and Query Definitions that let you link individual columns to a Drilldown Definition – the Barista query system has replaced the developer's hand drill with a turbocharged power drill, so you can drill down as deep as you like! ■



- Download and run the [code samples](#)