

IBM i Hidden Gems

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Integrated web services

- Project your Gen4 HLL running on IBMi as a web service!
- No programming!
- Free!!
- Why?
 - Integrate with modern service consumers
 - Enable modern UI development for browsers, mobile devices
- Easy
 - Create a web app server (IWS)
 - Add a service for the a IWS
 - A wizard steps you through the process

SQL nuggets...

- With subselect

with

nu as (select nuomwot from ol910.f9800022),

ot as (select drsy, drrt, strip(drky) as drky,drdl01 from prodctl.f0005 where drsy='H92' and drrt='OT'),

ac as (select drsy, drrt, strip(drky) as drky,drdl01 from prodctl.f0005 where drsy='H92' and drrt='AC'),

tr as (select tromwfps,tromwtps,tromwot,tromwac,tromwsrclloc,tromwtrgloc,tromwactflg from
sy910.f98225 where tromwactflg='1')

select tr.tromwfps,tr.tromwtps,tr.tromwot,ot.drld01 ,tr.tromwac,ac.drld01 ,tr.tromwsrclloc,tr.tromwtrgloc

from nu

join tr on nu.nuomwot=tr.tromwot

join ot on tr.tromwot=ot.drky

join ac on tr.tromwac=ac.drky

order by tr.tromwfps,tr.tromwtps,tr.tromwac

;

SQL nuggets...

- Merge

```
MERGE INTO DEPARTMENT USING
  (VALUES ('K22', 'BRANCH OFFICE K2', 'E01')) INSROW (DEPTNO, DEPTNAME, ADMRDEPT)
ON DEPARTMENT.DEPTNO = INSROW.DEPTNO
WHEN NOT MATCHED THEN
  INSERT VALUES(INSROW.DEPTNO, INSROW.DEPTNAME, INSROW.ADMRDEPT)
WHEN MATCHED THEN
  UPDATE SET DEPTNAME = INSROW.DEPTNAME, ADMRDEPT = INSROW.ASMRDEPT;
```

- Exception join

```
select a.*
from      qsys2.syscolumns a
  exception join qsys2.syscolumns b
on a.column_name=b.column_name
and a.table_name=b.table_name
and a.table_schema='TS920DTA'
and b.table_schema='TS910DTA' ;
```

SQL nuggets

- Concatenate strings to generate a script using the System Catalog

```
select 'cl:clrpfm LIBXXX/'||table_name||';'  
  from qsys2.systables  
  where table_schema='LIBXXX' and table_name like 'F95%';
```

SQL nuggets

- Masking columns

```
CREATE OR REPLACE MASK SSN_MASK ON EMPLOYEE FOR COLUMN SSN RETURN  
CASE  
    WHEN (VERIFY_GROUP_FOR_USER(SESSION_USER, 'PAYROLL') = 1)  
        THEN SSN  
    WHEN (VERIFY_GROUP_FOR_USER(SESSION_USER, 'MGR') = 1)  
        THEN 'XXX-XX-' CONCAT SUBSTR(SSN, 8, 4)  
    ELSE NULL  
END ENABLE;
```

Producing SQL commands - 1

IBM® Navigator for i

- Integrated Server Administration
- Security
- Users and Groups
- Database
 - Databases
 - Ijde1
 - Schemas
 - AMERICAN
 - CODV910
 - CODV920
 - MFLORA
 - All Objects
 - Aliases
 - Column Masks
 - Constraints
 - Functions
 - Global Variables
 - Indexes
 - Journal Receivers
 - Journals
 - Procedures
 - Row Permissions
 - Sequences
 - SQL Packages
 - Tables
 - Triggers

Welcome x MFLORA: Tables x

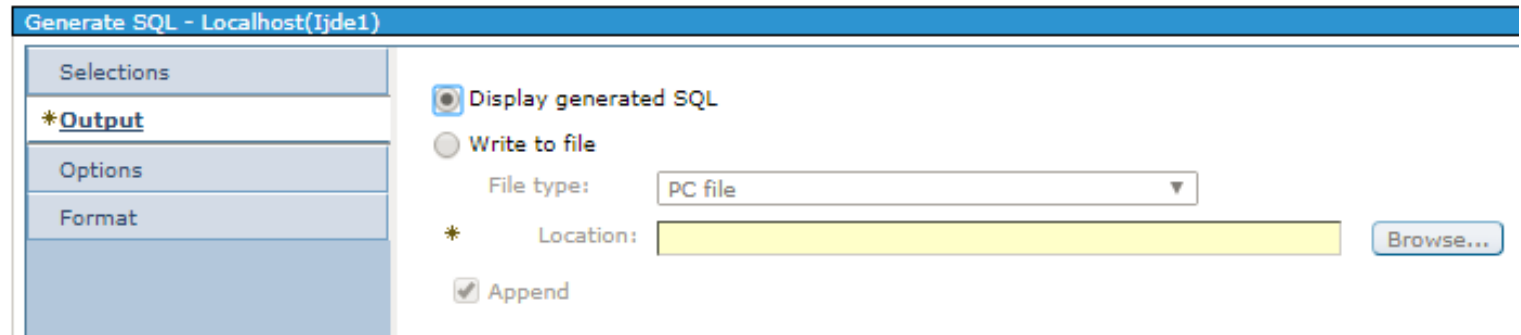
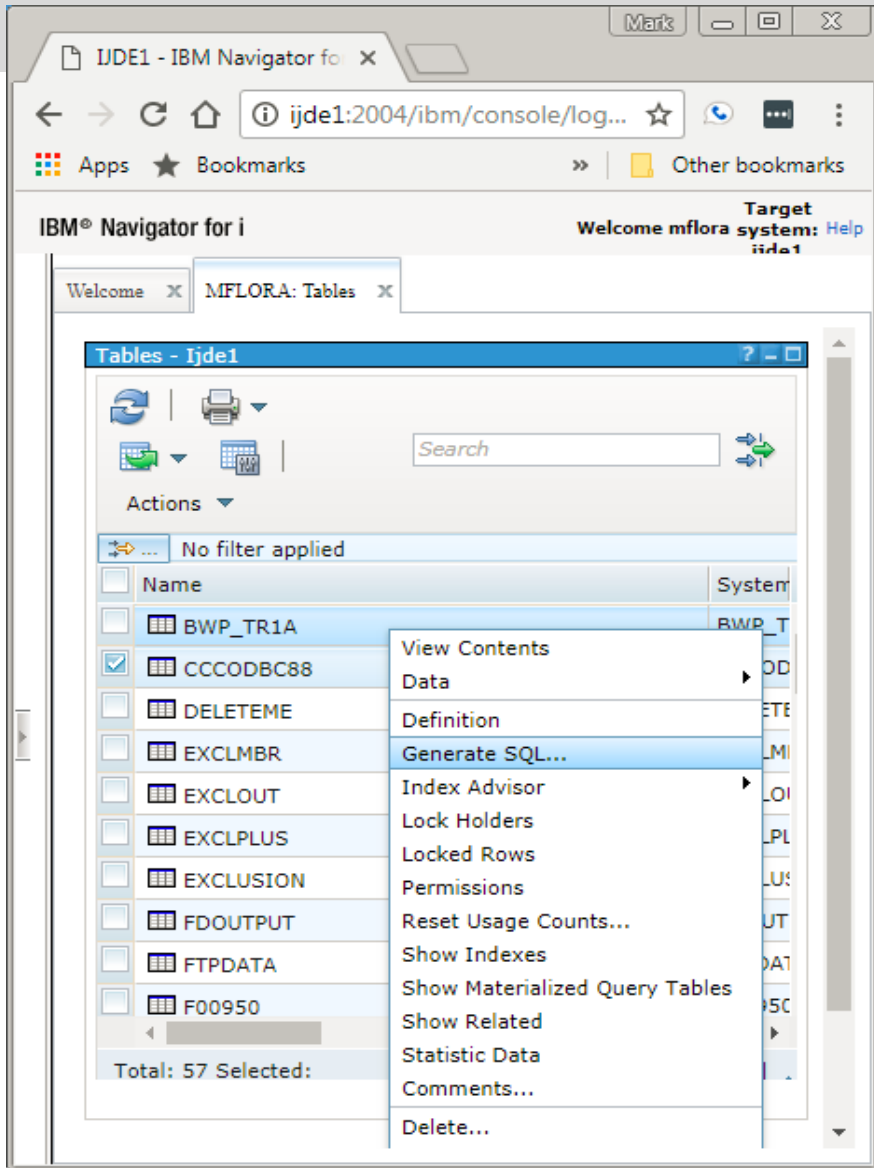
Tables - Ijde1

No filter applied

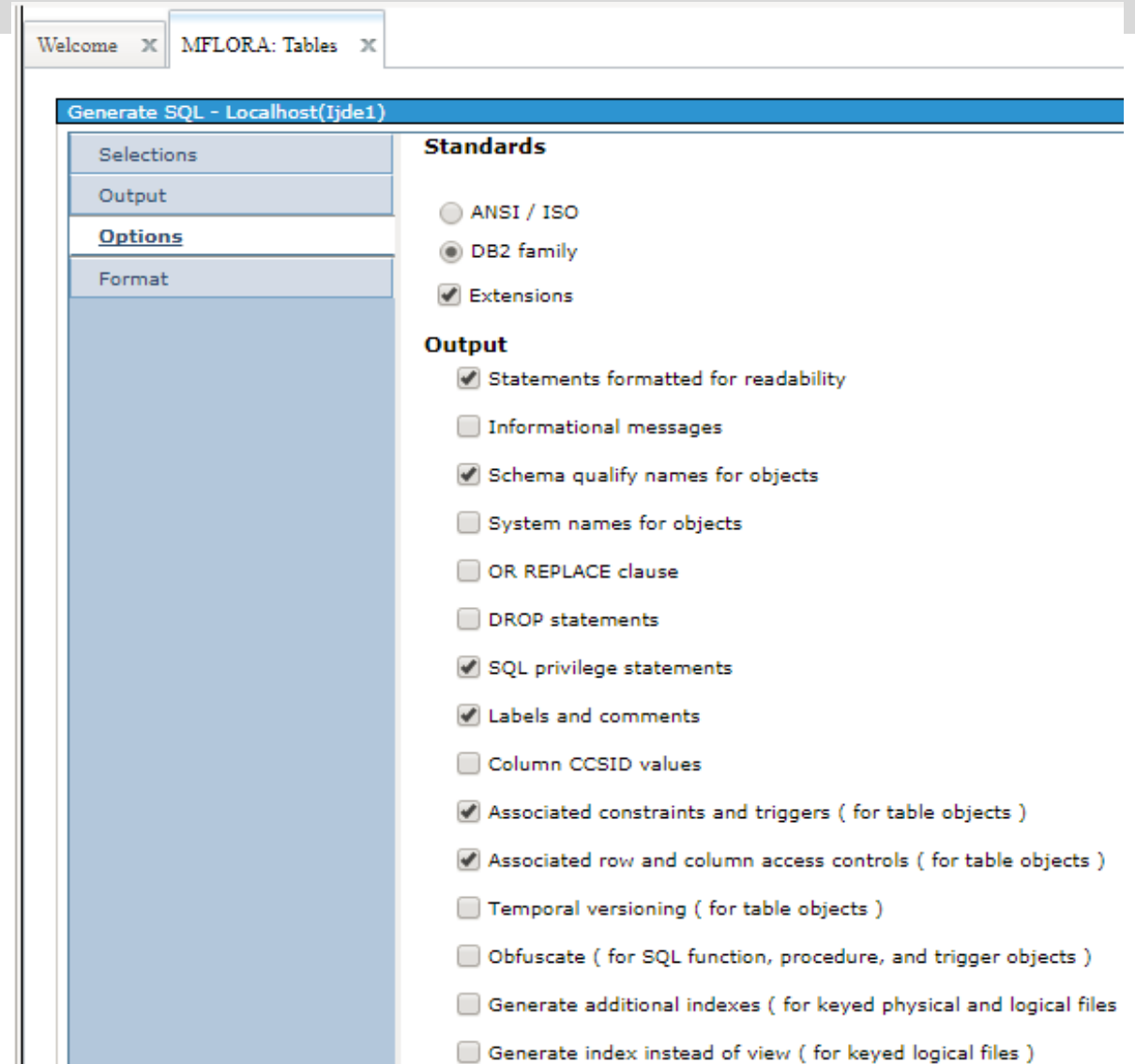
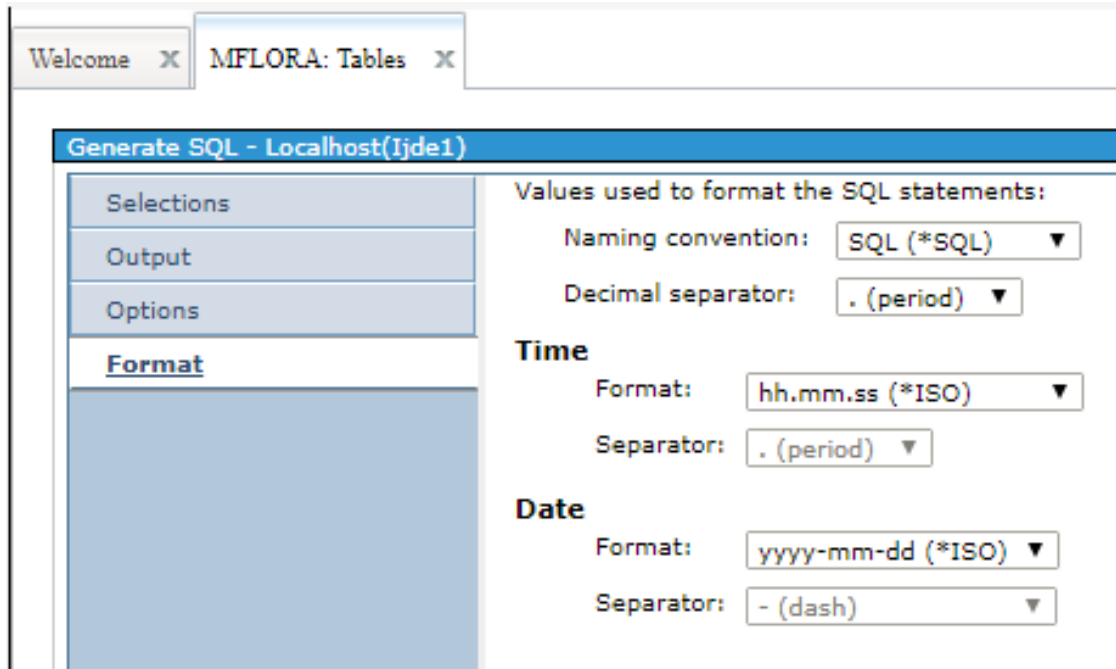
Name	Owner	Last Altered	Text
BWP_TR1A	MFLORA	4/19/12 4:08:55 PM	Document extended information from BW trans
CCCODBC88	MFLORA	4/19/12 4:08:55 PM	Output of PRSODBINP command
DELETEME	MFLORA	4/19/12 4:08:55 PM	
EXCLMBR	MFLORA	4/27/17 1:33:54 PM	Output file for DSPFD TYPE(*MBRLIST)
EXCLOUT	MFLORA	5/4/17 1:23:52 PM	
EXCLPLUS	MFLORA	4/27/17 2:14:56 PM	
EXCLUSION	MFLORA	4/19/12 4:08:55 PM	
FDOUTPUT	MFLORA	8/29/16 4:06:04 PM	Output file for DSPFD TYPE(*ATR) FILEATR(*PF
FTPDATA	MFLORA	11/21/14 3:26:31 PM	
F00950	MFLORA	4/19/12 4:08:59 PM	
F0101	MFLORA	4/19/12 4:08:59 PM	
F0111	MFLORA	4/19/12 4:08:59 PM	
F0911	MFLORA	4/19/12 4:09:00 PM	
F0911_1	MFLORA	4/19/12 4:09:00 PM	
HSTTEMP	MFLORA	4/19/12 4:09:00 PM	
IMPEXP	MFLORA	4/19/12 4:09:00 PM	Temp src file for import/export
JOBTEST	MFLORA	4/19/12 4:09:01 PM	
JOBTEST2	MFLORA	4/19/12 4:09:01 PM	
KEYOUT	MFLORA	4/19/12 4:09:01 PM	Output file for DSPFFD
KEYOUT2	MFLORA	4/19/12 4:09:01 PM	Output file for DSPFD TYPE(*ACCPH)

Total: 57 Selected: 0

Producing SQL commands - 2



Producing SQL commands - 3



Producing SQL commands – 4 – The Result

```
-- Generate SQL
-- Version:                V7R3M0 160422
-- Generated on:           01/25/18 11:16:48
-- Relational Database:    IJDE1
-- Standards Option:       DB2 for i

CREATE TABLE MFLORA.CCCODBC88 (
  JOISTP CHAR(26) NOT NULL DEFAULT '' ,
  JOJOB CHAR(10) NOT NULL DEFAULT '' ,
  JOUSER CHAR(10) NOT NULL DEFAULT '' ,
  JONBR CHAR(6) NOT NULL DEFAULT '' ,
  JOSYNM CHAR(8) NOT NULL DEFAULT '' ,
  CCUSER CHAR(10) NOT NULL DEFAULT '' ,
  CCFUNC CHAR(4) NOT NULL DEFAULT '' ,
  CCOPEP CHAR(10) NOT NULL DEFAULT '' ,
  CCTBLE CHAR(10) NOT NULL DEFAULT '' ,
  CCLIB CHAR(10) NOT NULL DEFAULT '' ,
  CCSTMT CHAR(3000) NOT NULL DEFAULT '' )

  RCDFMT ODBMON      ;

LABEL ON TABLE MFLORA.CCCODBC88
  IS 'Output of PRSODBINF command' ;

LABEL ON COLUMN MFLORA.CCCODBC88
( JOISTP IS 'Time Stamp' ,
  JOJOB IS 'Job Name' ,
  JOUSER IS 'Job User' ,
  JONBR IS 'Job Number' ,
  JOSYNM IS 'System Name' ,
  CCUSER IS 'User' ,
  CCFUNC IS 'Function' ,
  CCOPEP IS 'Operator' ,
  CCTBLE IS 'Table Name' ,
  CCLIB IS 'Table Lib' ,
  CCSTMT IS 'Statement' ) ;

GRANT ALTER , DELETE , INDEX , INSERT , REFERENCES , SELECT , UPDATE
ON MFLORA.CCCODBC88 TO MFLORA WITH GRANT OPTION ;

GRANT DELETE , INSERT , SELECT , UPDATE
ON MFLORA.CCCODBC88 TO PUBLIC ;

;

2/1/2018
```

SQL Index Advisor

- [-] Database
 - [+] Databases
 - [-] All Tasks
 - [+] Objects
 - [-] Actions
 - Definition
 - Export Data
 - Import Data
 - Preferences
 - Select Schemas to Display
 - Table Indexes
 - Table Partitions
 - [-] Health and Performance
 - Health Center
 - Import SQL Performance Monitor
 - Import SQL Plan Cache Event Monitor
 - Import SQL Plan Cache Snapshot
 - Index Advisor**
 - New SQL Performance Monitor
 - New SQL Plan Cache Event Monitor
 - New SQL Plan Cache Snapshot
 - SQL Performance Monitors
 - SQL Plan Cache Event Monitors
 - SQL Plan Cache Properties
 - SQL Plan Cache Snapshots
 - SQL Plan Cache Statements
 - SQL Plan Cache

Table for Which Index was Advised	Schema	Keys Advised	Last Advised for Query Use	Times Advised for Query Use	Estimated Index Creation Time
QASZRAIRD	QUSRSYS	COMPID, FULLPATH	12/28/17 4:21:41 PM	577	00:00:11
QASZRAIRC	QUSRSYS	VENDOR, VERSION, COMPNAME, PRODNAME, FEATNA	12/28/17 4:21:41 PM	181	00:00:01
QINAVMNTCMD	QUSRSYS	RECEIVER, RESULT	1/12/18 5:58:40 PM	120	00:00:01
QATOVDC1	QUSRSYS	ORDER_NUMBER	1/12/18 6:45:35 PM	87	00:00:01
QATOVDRGRP	QUSRSYS	ORDER_NUMBER	1/12/18 6:45:33 PM	51	00:00:01
QINAVMNTRG	QUSRSYS	OBSOLETE	1/12/18 5:58:54 PM	43	00:00:01
QATOVDUCP	QUSRSYS	CONN_DEF_NAME	11/29/17 4:08:06 PM	24	00:00:01
QINAVMNTSVR	QUSRSYS	SERVICE_NAME	1/12/18 6:02:15 PM	15	00:00:01
QAUGDBPMD2	QUSRSYS	"Free Storage Method", "Memory Handle"	1/24/18 2:11:00 PM	8	00:00:01
QAPMCCCNAT	QUSRSYS	CCLIB	1/23/18 1:31:13 PM	6	00:00:01
QAPMCCCNTB	QUSRSYS	CCLIB	1/23/18 1:31:13 PM	6	00:00:01
QAUGDBPMD2	QUSRSYS	"Memory Handle", "Free Storage Method", "Name"	1/12/18 7:33:00 PM	6	00:00:01
QAEZDISK	QUSRSYS	DIOBTP	8/9/17 3:06:31 PM	5	00:00:27
QAEZDISK	QUSRSYS	DIOBTP, DIOBNM	8/9/17 3:04:53 PM	3	00:00:43
QINAVMNTSPEC	QUSRSYS	TYPE, STATUS	1/12/18 5:58:19 PM	3	00:00:01
QAEZDISK	QUSRSYS	DIOBLI, DIOBNM	1/24/18 8:47:02 AM	2	00:00:06

Go Back to Work!

- Thanks for coming!