**Version Summary**

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| **Version** | **Date** | **Author** | **Description** |
| 1.1 | April 2017 | L Scott | Initial document. Cloned from UCLA migration document and modified for Oracle. |
| 1.2 | June 2020 | L Scott  | Added PRE and POST ERS 11.0 Steps (page 2)  ERS 10.12 B002 to ERS 11.0 Boo6 AND ERS 11.0 B006 to ERS 11.0 B007 Executed this upgrade script at UCOP to verify script prior to execution at UCDStreamlined steps 7-10 |
| 1.3  | August 2020 | L Scott | Oracle (unlike DB2 and MS SQL Server) considered an empty character ‘’ to be the same as a NULL character. ERS Earnings.PRI\_GROSS\_CTL and ERSEmpl.PPS\_Employee\_ID can not be null and required a valueWhen migration is complete, perform these last steps1: ALTER TABLE ERSEarnings MODIFY PRI\_GROSS\_CTL DEFAULT ON NULL 'U';2: ALTER TABLE ERSEmpl MODIFY PPS\_EMPLOYEE\_ID CHAR(9) NULL; |
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**PRE and POST ERS 11.0 Update**

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**STEP1 – UPDATE to ERS 10.12 B010**

INSERT INTO ERSAppointment ( ID, CODE\_CONCAT, NAME )

    Values  ( 4, '13', '9/10' );

ALTER TABLE ERSARCHIVEDREPORT

      ADD archive\_date DATE         -- ORACLE

update ERSARCHIVEDREPORT set archive\_date = TO\_DATE('01/01/2014', 'MM/DD/YYYY');

update ERSVERSION set version\_id = 10.12

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**STEP2 – UPDATE ERS 10.12 B010 to ERS 11.0 B006**

Run the attached migration script – I recommend running each step individually to verify no errors.

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**STEP3 – UPDATE ERS 11.0 B006 to ERS 11.0 B007**

**--**This is DB2 syntax.  May need to tweak for Oracle

ALTER TABLE ERSOrganization ALTER COLUMN  org\_id SET DATA TYPE char(10);

ALTER TABLE ERSOrganization ALTER COLUMN  porg\_id SET DATA TYPE char(10);

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**STEP4 – Larry to migrate UCD archives from DTO (data) to PDF format and send resulting two tables to Arish**

This document provides step-by-step instructions to upgrade an Oracle ERS 10.12 B010 database to ERS 11.0 format. Due to dependencies, this document must be executed in the order presented. Step 1 thru Step 10 follow a common order across DB2, Oracle, and MS SQL versions of this documents.

**Recommendation:**  Execute these database SQL commands individually and verify that each statement completes successfully before proceeding to the next statement. This is a longer, but more thorough approach. If statements are executed in blocks, it is easy to miss an error which may have a cascading (bad) effect as more SQL statements are executed.

**Step 1: UCD Database Upgrade Prerequisite**

Before starting this database upgrade process, make sure your ERS instance is running at release level

ERS 10.12 B010 before proceeding with the following steps.



**Note: To find constraints on an Oracle table (substitute correct schema name)**

select \* from all\_constraints where r\_constraint\_name = 'ERSEMPL\_PK' and owner=’ ERSUCD11\_6’

**Step 2: Employee Update from char(9) to varchar(11)**

 **Drop constraints**

ALTER TABLE ERSUser DROP CONSTRAINT ERSUser\_FK;

ALTER TABLE ERSPilotParticipant DROP CONSTRAINT ERSPilotPart\_FK\_Emp;

ALTER TABLE ERSPossibleER DROP CONSTRAINT ERSPossibleER\_FK; -- does not exist

ALTER TABLE ERSPI DROP CONSTRAINT ERSPI\_FK\_EMP;

ALTER TABLE ERSLatePay DROP CONSTRAINT ERSLatePay\_FK; -- does not exist

ALTER TABLE ERSOrgDept DROP CONSTRAINT ERSOrgDept\_FK1;

ALTER TABLE ERSLatePay\_Temp DROP CONSTRAINT ERSLatePay\_TEMP\_FK; -- does not exist

ALTER TABLE ERSExcludeUserToken DROP CONSTRAINT ERSExcludeUserToken\_FK;

ALTER TABLE ERSEarnings DROP CONSTRAINT ERSEarnings\_FK;

ALTER TABLE ERSCSEmpl DROP CONSTRAINT ERSCSEmpl\_FK1;

ALTER TABLE ERSCriteriaEmployee DROP CONSTRAINT ERSCriteriaEmployee\_FK;

ALTER TABLE ERSEMPL DROP CONSTRAINT ERSEMPL\_FK;

ALTER TABLE ERSEMPL DROP CONSTRAINT ERSEMPL\_FK1; -- does not exist

ALTER TABLE ERSCRITERIAEMPLOYEE DROP CONSTRAINT ERSCRITERIAEMPLOYEE\_FK1;

ALTER TABLE ERSCSEMPL DROP CONSTRAINT ERSCSEMPL\_FK;

ALTER TABLE ERSEmpl DROP CONSTRAINT ERSEmpl\_PK;

**\*\* Now modify ERSEmpl table**

ALTER TABLE ERSEmpl ADD PPS\_EMPLOYEE\_ID CHAR(9);

UPDATE ERSEmpl set pps\_employee\_id = employee\_id;

--ALTER TABLE ERSEmpl MODIFY PPS\_EMPLOYEE\_ID CHAR(9) NOT NULL; -- Let UCD Oracle be NULL !!!

ALTER TABLE ERSEmpl MODIFY EMP\_NAME varchar(120);

ALTER TABLE ERSEmpl MODIFY EMPLOYEE\_ID varchar(11) ;

**\*\* ERSEarnings and related tables**

**\*\* do not run the following commented statements**

--select distinct table\_name, index\_name from dba\_ind\_columns where table\_owner='ERSUCD11\_6' and

-- table\_name='ERSEARNINGS'

-- ERSEARNINGS\_IDX

-- ERSEARNINGS\_UNIQUE\_IDX

-- ERSEARNINGS\_PK

DROP INDEX ERSEARNINGS\_IDX;

DROP INDEX ERSEARNINGS\_UNIQUE\_IDX;

--DROP INDEX ERSEARNINGS\_PK ; -- can not be dropped…. Skip statement

ALTER TABLE ERSEarnings MODIFY Employee\_ID varchar(11);

**-- Received error: ORA-54033: column to be modified is used in a virtual column expression**

**-- Virtual columns most commonly exist when**[**Extended Statistics**](https://blogs.oracle.com/optimizer/entry/extended_statistics) **has been enabled for your database**

**-- This query identifies the ‘hidden’ columns**

**select table\_name, column\_name, data\_default, hidden\_column**

**from user\_tab\_cols**

**where table\_name = 'ERSEARNINGS'**

**-- this query identifies the extension names (must run in SQLPLUS)**

**SELECT EXTENSION\_NAME, EXTENSION, OWNER**

 **FROM dba\_stat\_extensions**

 **WHERE table\_name='ERSEARNINGS';**

**-- These queries remove the extensions (must run in SQLPLUS)**

**exec DBMS\_STATS.DROP\_EXTENDED\_STATS (ownname=>'ERSUCD4', tabname=>'ERSEARNINGS', extension=>'("PAY\_CYCLE\_END\_DATE","EMPLOYEE\_ID")');**

**exec DBMS\_STATS.DROP\_EXTENDED\_STATS (ownname=>'ERSUCD4', tabname=>'ERSEARNINGS', extension=>'("PAY\_CYCLE\_END\_DATE","EMPLOYEE\_ID")');**

CREATE INDEX ERSEARNINGS\_IDX ON ERSEarnings (Employee\_ID ASC, Pay\_Per\_End\_Date ASC);

\*\* Do not recreate index ERSEARNINGS\_UNIQUE\_IDX here . It will be recreated later for PAR & I-129

ALTER TABLE ERSCSEmpl DROP CONSTRAINT ERSCSEmpl\_PK;

ALTER TABLE ERSCSEmpl MODIFY EMPLOYEE\_ID varchar(11) ;

ALTER TABLE ERSCSEmpl ADD CONSTRAINT ERSCSEmpl\_PK

 PRIMARY KEY (FS\_ID, Employee\_ID, Start\_Date);

ALTER TABLE ERSUser MODIFY EMPLOYEE\_ID varchar(11);

ALTER TABLE ERSCriteriaEmployee DROP CONSTRAINT ERSCriteriaEmployee\_PK;

ALTER TABLE ERSCriteriaEmployee MODIFY EMPLOYEE\_ID varchar(11);

ALTER TABLE ERSCriteriaEmployee ADD CONSTRAINT ERSCriteriaEmployee\_PK

PRIMARY KEY (SC\_ID, Employee\_ID);

ALTER TABLE ERSLatePay DROP CONSTRAINT ERSLatePay\_PK;

ALTER TABLE ERSLatePay MODIFY EMPLOYEE\_ID varchar(11) ;

ALTER TABLE ERSLatePay ADD CONSTRAINT ERSLatePay\_PK

PRIMARY KEY(Employee\_ID,Period\_ID);

ALTER TABLE ERSPI DROP CONSTRAINT ERSPI\_PK;

ALTER TABLE ERSPI MODIFY EMP\_ID varchar(11);

ALTER TABLE ERSPI ADD CONSTRAINT ERSPI\_PK PRIMARY KEY (SP\_ID, Emp\_ID);

ALTER TABLE ERSExcludeUserToken DROP CONSTRAINT ERSExcludeUserToken\_PK;

ALTER TABLE ERSExcludeUserToken MODIFY EMPLOYEE\_ID varchar(11);

ALTER TABLE ERSExcludeUserToken ADD CONSTRAINT ERSExcludeUserToken\_PK

PRIMARY KEY (Employee\_ID);

DROP INDEX ERS\_AER\_UNIQ;

ALTER TABLE ERSActualER MODIFY Employee\_ID varchar(11);

CREATE UNIQUE INDEX ERS\_AER\_UNIQ ON ERSActualER( employee\_id, period\_id );

ALTER TABLE ERSIncludeEmpl DROP CONSTRAINT ERSIncludeEmpl\_PK

ALTER TABLE ERSIncludeEmpl MODIFY Employee\_ID varchar(11);

ALTER TABLE ERSIncludeEmpl ADD CONSTRAINT ERSIncludeEmpl\_PK

PRIMARY KEY (Employee\_ID);

ALTER TABLE ERSPIEmplTank DROP CONSTRAINT ERSPIEmplTank\_PK;

ALTER TABLE ERSPIEmplTank MODIFY Emp\_ID varchar(11);

ALTER TABLE ERSPIEmplTank ADD CONSTRAINT ERSPIEmplTank\_PK

PRIMARY KEY (Project\_ID, Emp\_ID);

ALTER TABLE ERSPilotParticipant DROP CONSTRAINT ERSPilotPart\_PK;

ALTER TABLE ERSPilotParticipant MODIFY emp\_id varchar(11);

ALTER TABLE ERSPilotParticipant ADD CONSTRAINT ERSPilotPart\_PK

PRIMARY KEY (period\_id, Emp\_ID);

ALTER TABLE ERSEmpl ADD CONSTRAINT ERSEmpl\_PK PRIMARY KEY(Employee\_ID);

ALTER TABLE ERSCSEmpl ADD CONSTRAINT ERSCSEmpl\_fk\_emp;

FOREIGN KEY (Employee\_ID) REFERENCES ERSEmpl (Employee\_ID);

ALTER TABLE ERSCriteriaEmployee ADD CONSTRAINT ERS\_CE\_FK\_EMP

FOREIGN KEY (Employee\_ID) REFERENCES ERSEmpl (Employee\_ID);

ALTER TABLE ERSLatePay ADD CONSTRAINT ERSLatePay\_FK

FOREIGN KEY (Employee\_ID) REFERENCES ERSEmpl (Employee\_ID);

ALTER TABLE ERSExcludeUserToken ADD CONSTRAINT ERS\_EUTOKEN\_FK\_EMP

FOREIGN KEY (EMPLOYEE\_ID) REFERENCES ERSEmpl (Employee\_ID);

ALTER TABLE ERSPilotParticipant ADD CONSTRAINT ERSPilotPart\_FK\_E

FOREIGN KEY (EMP\_ID) REFERENCES ERSEmpl (Employee\_ID);

ALTER TABLE ERSPI ADD CONSTRAINT ERSPI\_FK\_EMP FOREIGN KEY (EMP\_ID)

REFERENCES ERSEmpl (Employee\_ID);

ALTER TABLE ERSUser ADD CONSTRAINT ERSUser\_fk\_emp

FOREIGN KEY (Employee\_ID) REFERENCES ERSEmpl (Employee\_ID);

ALTER TABLE ERSEarnings ADD CONSTRAINT ERSEarn\_FK\_emp

 FOREIGN KEY (Employee\_ID) REFERENCES ERSEmpl (Employee\_ID);

**Step3: Supplemental Employee Updates**

DROP INDEX ersar\_eid;

ALTER TABLE ERSArchivedReport MODIFY EMP\_ID varchar(11);

ALTER TABLE ERSArchivedReport MODIFY EMP\_NAME varchar(120);

CREATE INDEX ersar\_eid ON ERSArchivedReport( emp\_id );

**Step 4: Clean Employee IDs**

update ersempl set employee\_id=ltrim(employee\_id);

update ersempl set employee\_id=rtrim(employee\_id);

**Step 5: Home Department Updates**

Home Department Update char(6) to varchar(10)

 ALTER TABLE ERSCriteriaHomeDepartment DROP CONSTRAINT ERSCriteriaHomeDepartment\_PK;

 ALTER TABLE ERSCriteriaHomeDepartment DROP CONSTRAINT ERSCriteriaHomeDepartment\_FK;

 ALTER TABLE ERSCriteriaHomeDepartment DROP CONSTRAINT ERSCriteriaHomeDepartment\_FK1;

 ALTER TABLE ERSOrgDept DROP CONSTRAINT ERSOrgDept\_PK;

 ALTER TABLE ERSOrgDept DROP CONSTRAINT ERSOrgDept\_FK;

 ~~ALTER TABLE ERSOrgDept DROP CONSTRAINT ERSOrgDept\_FK1~~  -- Already removed in Step2

 ALTER TABLE ERSHOMEDEPT DROP CONSTRAINT ERSHomeDept\_PK;

 ALTER TABLE ERSHOMEDEPT MODIFY DEPT\_ID varchar(10);

 ALTER TABLE ERSHOMEDEPT ADD CONSTRAINT ERSHomeDept\_PK PRIMARY KEY(DEPT\_ID);

 ALTER TABLE ERSEmpl MODIFY DEPT\_ID varchar(10);

 ALTER TABLE ERSEmpl ADD CONSTRAINT ERSEmpl\_FK

FOREIGN KEY(Dept\_ID) REFERENCES ERSHomeDept (Dept\_ID);

 ALTER TABLE ERSEmpl ADD CONSTRAINT ERSEmpl\_FK1

FOREIGN KEY(Sch\_CD) REFERENCES ERSSchType (Sch\_CD);

 ALTER TABLE ERSOrgDept MODIFY DEPT\_ID varchar(10) ;

 ALTER TABLE ERSOrgDept ADD CONSTRAINT ERSOrgDept\_PK

PRIMARY KEY(Org\_CD, Dept\_ID);

 ALTER TABLE ERSOrgDept ADD CONSTRAINT ERSOrgDept\_FK

FOREIGN KEY(Org\_CD) REFERENCES ERSOrganization (Org\_CD);

 ALTER TABLE ERSOrgDept ADD CONSTRAINT ERSOrgDept\_FK1

 FOREIGN KEY(Dept\_ID) REFERENCES ERSHomeDept(Dept\_ID);

**Step 5 (continued): Home Department Updates**

 ALTER TABLE ERSCriteriaHomeDepartment MODIFY DEPT\_ID varchar(10);

 ALTER TABLE ERSSchDept DROP CONSTRAINT ERSSchDept\_PK ;

 ALTER TABLE ERSSchDept MODIFY DEPT\_ID varchar(10);

 ALTER TABLE ERSSchDept ADD CONSTRAINT ERSSchDept\_PK

PRIMARY KEY (Sch\_CD, Dept\_ID);

 ALTER TABLE ERSCriteriaHomeDepartment MODIFY DEPT\_ID varchar(10);

 ALTER TABLE ERSCriteriaHomeDepartment ADD CONSTRAINT ERSCriteriaHomeDepartment\_PK

 PRIMARY KEY (SC\_ID, Dept\_ID);

 ALTER TABLE ERSCriteriaHomeDepartment

ADD CONSTRAINT ERSCriteriaHomeDepartment\_FK FOREIGN KEY(Dept\_ID)

 REFERENCES ERSHomeDept (Dept\_ID);

 ALTER TABLE ERSCriteriaHomeDepartment ADD CONSTRAINT

 ERSCriteriaHomeDepartment\_FK1 FOREIGN KEY(SC\_ID)

 REFERENCES ERSCriteriaMaster (SC\_ID);

UPDATE ERSHOMEDEPT set DEPT\_ID=ltrim(DEPT\_ID);

UPDATE ERSHOMEDEPT set DEPT\_ID=rtrim(DEPT\_ID) ; -- statement failed, constraint violation, continue….

**Step 6: Add new Labor Ledger columns to ERSEARNINGS table**.

 alter table ersearnings add Run\_Id varchar(10) ;

 alter table ersearnings add Empl\_Rcd integer;

 alter table ersearnings add Eff\_Date timestamp ;

 alter table ersearnings add Eff\_Seq integer;

 alter table ersearnings add Off\_Cycle varchar(1);

 alter table ersearnings add Run\_Id\_Earn varchar(10) ;

 alter table ersearnings add Addl\_Seq varchar(10);

 alter table ersearnings add Journal\_Id varchar(10);

 alter table ersearnings add Journal\_Line varchar(10);

 alter table ersearnings add Journal\_Line\_Ref varchar(10);

 alter table ersearnings add Business\_Unit varchar(5);

 alter table ersearnings add Pay\_Cat varchar(2);

 alter table ersearnings add Time\_Code varchar(2);

 alter table ersearnings add Restatement varchar(1);

 alter table ersearnings add Interface varchar(1);

 Alter TABLE ERSEARNINGS MODIFY DOS\_TIME\_CODE varchar(2);

 Alter TABLE ERSEARNINGS MODIFY DOS\_PAY\_CATEGORY varchar(2);

 Alter TABLE ERSEARNINGS MODIFY TITLE\_CODE varchar(6)

**Step 6 (continued): Add new Labor Ledger (I-129) columns to ERSEARNINGS table**.

-- Initialize restatement and interface columns

-- perform the following update one year at a time (otherwise transaction log will fill and query will fail)

update ersearnings set restatement='N', interface='P' where extract(year from Pay\_Cycle\_End\_Date) = 2003;

update ersearnings set restatement='N', interface='P' where extract(year from Pay\_Cycle\_End\_Date) = 2004;

update ersearnings set restatement='N', interface='P' where extract(year from Pay\_Cycle\_End\_Date) = 2005;

update ersearnings set restatement='N', interface='P' where extract(year from Pay\_Cycle\_End\_Date) = 2006;

update ersearnings set restatement='N', interface='P' where extract(year from Pay\_Cycle\_End\_Date) = 2007;

update ersearnings set restatement='N', interface='P' where extract(year from Pay\_Cycle\_End\_Date) = 2008;

update ersearnings set restatement='N', interface='P' where extract(year from Pay\_Cycle\_End\_Date) = 2009;

update ersearnings set restatement='N', interface='P' where extract(year from Pay\_Cycle\_End\_Date) = 2010;

update ersearnings set restatement='N', interface='P' where extract(year from Pay\_Cycle\_End\_Date) = 2011;

update ersearnings set restatement='N', interface='P' where extract(year from Pay\_Cycle\_End\_Date) = 2012;

update ersearnings set restatement='N', interface='P' where extract(year from Pay\_Cycle\_End\_Date) = 2013;

update ersearnings set restatement='N', interface='P' where extract(year from Pay\_Cycle\_End\_Date) = 2014;

update ersearnings set restatement='N', interface='P' where extract(year from Pay\_Cycle\_End\_Date) = 2015;

update ersearnings set restatement='N', interface='P' where extract(year from Pay\_Cycle\_End\_Date) = 2016;

update ersearnings set restatement='N', interface='P' where extract(year from Pay\_Cycle\_End\_Date) = 2017;

update ersearnings set restatement='N', interface='P' where extract(year from Pay\_Cycle\_End\_Date) > 2018;

update ersearnings set restatement='N', interface='P' where extract(year from Pay\_Cycle\_End\_Date) > 2019;

update ersearnings set restatement='N', interface='P' where extract(year from Pay\_Cycle\_End\_Date) > 2020;

update ersearnings set restatement='N', interface='P' where interface is null;

**update** ersearnings **set** restatement**=**'N', interface**=**'P' **where** interface **is** **null**;

**update** ersearnings **set** restatement**=**'N', interface**=**'P' **where** interface **<>**'P'

**Step 6B: Set database version to 11.0**

update ersversion set version\_id='11.0';

**Step 7A: UCD does not use OFF QTR reporting and ERSDosCode table is empty.**

**Skip this step**

**Step 7B: Build ERSEarnings duplicate earning check for both PAR and I-129 earnings**

**Create Unique PAR Earnings and I-129 Earnings unique indexes for duplicate earning check**

**I-129** `

DROP INDEX ERSEarnings. ERS\_EARNINGS\_I129\_UNIQUE; -- **ignore if not exists**

CREATE INDEX

ERS\_EARNINGS\_I129\_UNIQUE ON ERSEARNINGS(

Interface, Empl\_Rcd, Eff\_date, Eff\_Seq, Run\_Id, Run\_Id\_Earn, Business\_Unit,

Off\_Cycle, Dist\_Dos, Journal\_Id, Journal\_Line, Journal\_Line\_Ref, Addl\_Seq);

\*\* note that the UNIQUE keyword has been purposely omitted to eliminate potential problems with historical earning uniqueness

**PAR**

DROP INDEX ERSEarnings. ERS\_EARNINGS\_PAR\_UNIQUE -- **ignore if not exists**

CREATE INDEX

ERS\_EARNINGS\_PAR\_UNIQUE ON ERSEARNINGS(

Interface, Pay\_Cycle\_End\_Date, Pay\_Cycle\_Code, Record\_Type, Pri\_Gross\_Ctl, Entry\_Seq\_No);

**\*\* Note:** The UNIQUE keyword purposely omitted to eliminate potential problems with historical earning uniqueness

**Larry testing – ran out of tablespace….**

SELECT \* From DBA\_DATA\_FILES;

Alter tablespace USERS add datafile ‘D:\APP\ORACLE\ORADATA\ORAERS\UCD\_Tablespace4.DBF’ size 2000M autoextend on;

**Step 8A : Expand ERSEarnings Paid\_Amount, Paid\_Hours, and Pay\_Rate columns**

ALTER TABLE ERSEarnings MODIFY Paid\_Hours decimal(6,2) NOT NULL;

ALTER TABLE ERSEarnings MODIFY Paid\_Amount decimal(12,2) NOT NULL;

ALTER TABLE ERSEarnings MODIFY Pay\_Rate decimal(14,4) NOT NULL;

**Step 8B: Create six digit UCPATH Department ID’s in ERS Scheduler.**

 **Skip this step. Does not apply to UCD.**

**Step 8C: Add Non-Academic Appointment Indicators (3,B,C)**

insert into ERSPersPgmCode values('3',’2’, sysdate, 'sys.admin', sysdate , 'sys.admin') ;

insert into ERSPersPgmCode values('B', '2', sysdate, 'sys.admin', sysdate , 'sys.admin') ;

insert into ERSPersPgmCode values('C', '2', sysdate , 'sys.admin', sysdate , 'sys.admin');

**\*\* Notice column1 & colum2 are flipped from UCD and UCLA**

**Step 8D: Update Journal\_Line\_Ref for I-129 records (set to “PAYROLL”)**

update ERSEarnings set Journal\_Line\_Ref ='PAYROLL' where interface='L';

**Step 8E: Add ‘Over The Cap’ to ERSEarnings table.**

alter table ERSEarnings add Over\_The\_Cap varchar(10);

alter table ersearnings add Cap\_Rate Decimal (14, 4) NULL;

**update** ersearnings **set** cap\_rate**=**0 **where** cap\_rate **is** **NULL** ;

**Step 8F: ERSDOSCODE table and ERSPAYCAT table are now indexed using ‘Interface’**

**(same codes in PPS and I-129 are used, but identify ‘Effort’ differently)**

There appears to be an INDEX and PRIMARY KEY called ERSTIMECODE\_PK.

An Oracle ‘catch 22’ would not allow deleting either the index or primary key, citing existence of the other.

The easiest solution is dropping the table and recreating it ….

**ERSTimeCode before dropping table.**



DROP TABLE ERSTimeCode

CREATE TABLE ERSTIMECODE

(

 DOS\_TIME\_CODE CHAR(1 BYTE) NOT NULL,

 PERIOD\_TYPE CHAR(1 BYTE) NOT NULL,

 ADD\_DATE DATE NOT NULL,

 ADD\_USER VARCHAR2(60 BYTE) NOT NULL,

 CHG\_DATE DATE,

 CHG\_USER VARCHAR2(60 BYTE)

)

INSERT INTO ERSTimeCode(DOS\_Time\_Code, Period\_Type, Add\_Date, Add\_User) VALUES('1', 'R', sysdate, '\*INSTALL\*');

INSERT INTO ERSTimeCode(DOS\_Time\_Code, Period\_Type, Add\_Date, Add\_User) VALUES('2', 'R', sysdate, '\*INSTALL\*');

INSERT INTO ERSTimeCode(DOS\_Time\_Code, Period\_Type, Add\_Date, Add\_User) VALUES('5', 'R', sysdate, '\*INSTALL\*');

INSERT INTO ERSTimeCode(DOS\_Time\_Code, Period\_Type, Add\_Date, Add\_User) VALUES('1', 'O', sysdate, '\*INSTALL\*');

INSERT INTO ERSTimeCode(DOS\_Time\_Code, Period\_Type, Add\_Date, Add\_User) VALUES('2', 'O', sysdate, '\*INSTALL\*');

INSERT INTO ERSTimeCode(DOS\_Time\_Code, Period\_Type, Add\_Date, Add\_User) VALUES('5', 'O', sysdate, '\*INSTALL\*');

**Step 8F (cont):**

**\*\* Now that ERSTIMECODE table is recreated, perform ERS 11.0 enhancements**

ALTER TABLE ERSTIMECODE add Interface varchar(1);

UPDATE ERSTimeCode set interface = 'P';

 ALTER TABLE ERSTimeCode ADD CONSTRAINT ERSTimeCode\_PK

 PRIMARY KEY (DOS\_Time\_Code, Period\_Type, Interface);

insert into ERSTimeCode values ('1','O',sysdate,'\*R11\*',null,null,'L');

insert into ERSTimeCode values ('2','O',sysdate,'\*R11\*',null,null,'L');

insert into ERSTimeCode values ('5','O',sysdate,'\*R11\*',null,null,'L');

insert into ERSTimeCode values ('1','R',sysdate,'\*R11\*',null,null,'L');

insert into ERSTimeCode values ('2','R',sysdate,'\*R11\*',null,null,'L');

insert into ERSTimeCode values ('5','R',sysdate,'\*R11\*',null,null,'L');

**Step 8GI:**

**Now perform same enhancement to ERSPayCat, (drop table and recreate table).**

ERSPayCat before enhancement



DROP TABLE ERSPaycat

CREATE TABLE ERSPAYCAT

(

 DOS\_PAY\_CAT CHAR(1 BYTE) NOT NULL,

 PERIOD\_TYPE CHAR(1 BYTE) NOT NULL,

 ADD\_DATE DATE NOT NULL,

 ADD\_USER VARCHAR2(60 BYTE) NOT NULL,

 CHG\_DATE DATE,

 CHG\_USER VARCHAR2(60 BYTE)

)

 INSERT INTO ERSPayCat(DOS\_Pay\_Cat, Period\_Type, Add\_Date, Add\_User) VALUES('N', 'R', sysdate, '\*INSTALL\*');

 INSERT INTO ERSPayCat(DOS\_Pay\_Cat, Period\_Type, Add\_Date, Add\_User) VALUES('N', 'O', sysdate, '\*INSTALL\*');

**Step 8G (cont):**

**\*\* Now that ERSPAYCAT table is recreated, perform ERS 11.0 enhancements**

ALTER TABLE ERSPAYCATadd Interface varchar(1);

Update ERSPayCat set interface = 'P';

ALTER TABLE ERSPayCat MODIFY Interface Varchar(1) NOT NULL;

ALTER TABLE ERSPayCat ADD CONSTRAINT ERSPayCat\_PK

 PRIMARY KEY (DOS\_Pay\_Cat, Period\_Type, Interface);

insert into ERSPayCat values ('1','R',sysdate,'\*R11\*',null,null,'L');

insert into ERSPayCat values ('1','O',sysdate,'\*R11\*',null,null,'L');

insert into ERSPayCat values ('2','R',sysdate,'\*R11\*',null,null,'L');

insert into ERSPayCat values ('2','O',sysdate,'\*R11\*',null,null,'L');

**Step 9: Set ERS sys.admin password allowing user to login to ERS**

**SKIP THIS STEP AT UCD (database sys.admin profile is already set properly at UCD)**

update ERSUser set email\_addr='lscott@ucop.edu' where user\_id = 'sys.admin'

Go to ERS Login screen and select ‘password reset’ hyperlink

**Step 10: WAR file deployment - Set ERS hibernate config file to point to UCD ERS 11.0 database**

**This is only a reminder….**

**\* Larry will do this for you at UCOP**

**Step 10: Archive Migration from DTO format to PDF format**

This code is can be found in ERS 10.12 B010

ERS 10.12 B010 Archive PDF format eliminates archived data compatibility issues with java classes.

The ERS 10.12 Bxxx archives are not compatible with ERS 11.0.

ERS 10.12 Bxxx stores archive information in a DTO (data) format

ERS 11.0 now stores archive information in a PDF format

The ERS 10.12 B010 archive migration program is **RunArchiveReportMigation10to11.java**

The ERS Archive tables are **ERSARCHIVEDREPORT** and **ERSARCHIVEDFS**.

All archive data is contained in ERSARCHIVEDREPORT and ERSARCHIVEDFS

**Prerequisite**

ERS 10.12 B010 added column ‘archive\_date’ to table ERSArchivedReport .

If this column does not exist in your table, run the following sql

ALTER TABLE ERSARCHIVEDREPORT add archive\_date date default null;

UPDATE ERSARCHIVEDREPORT SET archive\_date = TO\_DATE('12/31/2013', 'MM/DD/YYYY');

**Please make long term backup of ERSARCHIVEDREPORT and ERSARCHIVEDFS before starting this process**

**If there are any migration issues, these backups may be needed to recover.**

**Suggested Process:**

Migration may be performed in a non-production environment to minimize ERS production downtime.

Archive migration may run for many hours

**10.1:** Load the ERS 10.12 Bxxx war file to your QA environment

**10.2:** Copy your production ERS database to your QA environment

**10.3:** Verify your QA ERS database connection and ERS code (ERS signon screen display version 10.12 Bxxx)

**10.4:** Run the migration program

In the QA environment, run ERS batch program **RunArchiveReportMigation10to11.java**

It is necessary to set your ERS config directory in the classpath (shown in screenshot below)

**Do not run the migration in Spring debug mode. Migration will crash with out of memory issues.**

It is also necessary to pass three parameters to the archive migration process.

1: The path to the ERS Jasper report objects (red underline) . Explode your ers.war file to a temp directory

2: The path to your ExternalizedString.xml file (blue underline)

3: The batch size to process = number of archives rows to process in batch run (not database commit size)

**Notes**

The ‘batch size’ parameter keeps the archive process from consuming too much memory and crashing.

A good starting point is 10000. For 100K archives, run the archive migration process 10 times.

The database commit size is 50 rows. After processing 50 rows, the rows are committed to the database.



**10.5: Replace production DTO archives with QA PDF Archives**

Copy / replace the QA **ERSARCHIVEDREPORT**and **ERSARCHIVEDFS** tables to production.

Use copy / replace to keep the production indexes intact.

Required order:

1: delete contents of production ERSARCHIVEDFS

2: delete contents of production ERSARCHIVEDREPORT

3: copy ERSARCHIVEDREPORT from QA to PROD

4: copy ERSARCHIVEDFS from QA to PROD

**Archive migration program execution comments**

The migration program can easily consume all memory on your server causing the process to crash.

To prevent ‘out-of-memory errors’, the migration program processes 100,000 archived effort reports at a time and then stops to releases memory. The migration process commits updates in 5000 archive increments.

As the archive migration run, the DTO pdf is read from table ERSAarchivedReport and converted to PDF (using the JasperReport objects and the campuses customizations in ErternalizedStrings.xml). Once the PDF is built, the DTO in ERSArchivedReports is overlaid with the PDF . The same process is used for the archive payroll report. The process continues until all ERSArchivedReport rows are processed or 100,000 rows are processed.

Larger campuses may have millions of rows in the ERSArchivedReport table, making it necessary to run the migration process 10+ times. Each iteration of the migration process will likely take a few days.

Run this SQL:

**select year(archived\_date) , count(\*) from ERSARCHIVEDREPORT group by year(archived\_date)**

If you see any archive dates < 2018, run the process again (assumes migration run in 2018)

Once all archive dates < 2018 are cleared, the ERS Archive Migration is complete.

**Performance:**

When this process was run for UCSB in QA (Jan 2018), it took 15 hours to migrate 100,000 archived effort reports.

**Step 11:** **Closing comments**

It is highly recommended that you long term archive a copy of the ERS 10.12 production database

If any issues arise after the UCPATH implementation, it may be necessary to load the ERS 10.12 system in a QA environment to retrieve or repair ERS data.

**Done with ERS 11.0 Upgrade !**

**Appendix 1:**

**Handy Oracle commands**

**To find table keys, constraints, and indexes (notice table names are case sensitive)**

select \* from user\_constraints where table\_name='ERSEMPL'

|  |
| --- |
| select distinct constraint\_type from user\_constraints where table\_name ='ERSEMPL'; |

R = Referential Constraint/Foreign Key constraint

C = Check Constraint

P = Primary Key

U = Unique Key

select table\_name, index\_name from dba\_ind\_columns where table\_owner='ERSUCD1' order by Table\_Name

select \* from user\_constraints where table\_name ='ERSTIMECODE' -- and OWNER='ERSUCD1'

-- There might be more than one object with the same name making drop statement say ‘object does not exist’

select \* from dba\_objects where object\_name = 'ERS\_AER\_UNIQ'

**\*\* REMEMBER THAT PARAMETERS MAY BE UPPER CASE**