**Version Summary**

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| **Version** | **Date** | **Author** | **Description** |
| 1.1 | April 2017 | L Scott | Initial document |
| 1.2 | March 2017 | L Scott | At end of database conversion, add final **step 6B**update ersversion set version\_id='11.0' |
| 1.3 | May 2, 2017 | L Scott | Added Step 7B: Update ERS DOS Codes for Off Quarter processing |
| 1.4 | July 21, 2017 | L Scott | Added Step 7C: Insert UCPATH normal/regular pay to ERSPayCat table(PPS uses alpha characters, UCPATH uses numeric characters) |
| 1.5 | August 14, 2017 | L Scott | Added Step 7D: Create index for I-129 duplicate earning testAdded Step 7E: Expand ERSEarning Paid\_Amount, Paid\_Hours, and Pay\_Rate columns |
| 1.6 | Sept 6, 2017 | L Scott | Added Step 7F: Create six digit UCPATH Department ID’s in ERS Scheduler.Added Step 7G: Add Non-Academic Appointment Indicators (3,B,C) .Added Appendix 2: Procedure to shrink UCLA database before sending to UCOP |
| 1.7 | Oct 12, 2017 | LScott | Added Jounal\_Line\_Ref to Step 6: new I-129 columns to ERSEARNINGS table. Added 7H: Update Journal\_Line\_Ref for I-129 records (set to “PAYROLL”)Appendix 2” Updated delete statementsAdd Step 7I: UCPATH ‘Leave’ (sick, sebatical,….) effort bearing to ERSPayCat table. |
| 1.8 | Oct 26, 2017 | LScott | Removed Step 6: Rebuild ERSEARNINGS uniqueness indexAdd Step 7J: Add ‘Over\_The\_Cap’ column to ERSEarnings |
| 1.9 | Jan 18, 2018 | LScott | Added Step 10 outlining the ERS archive migration from DTO to PDFThis step requires ERS 10.12 B010 |
| 1.10 | Feb 1, 2018 | LScott | Added steps 7K for ERSDOSCODE and ERSPAYCAT reindexing**Revisit this step and confirm the values in ERSTimeCode and ERSPayCat** |
| 1.11 | Feb 7, 2018 | LScott | Add step 7L - ‘Over The Cap’ and ‘Salary Cap’ to ERSEarnings table |
| 1.12 | Apr 16, 2018 | LScott | Fix SQL Syntax in Step 7F update of ERSSchDept table |
| 1.13 | June 19, 2018 | LScott | ERSDosCode table revisions in step 7B. |
| 1.14 | Sept 5, 2018 | LScott | Three SQL statements added in Appendix 4. These statements are corrections to ERS 11.0 migration script that UCLA should run ASAP. |

UCLA Enhancements from March 2017 UCLA QA database build highlighted in yellow

This document provides step-by-step instructions to upgrade a MS SQL Server ERS 10.12 B009 database to ERS 11.0 format. Due to dependencies, this document must be executed in the order presented. See related documents for IBM DB2 databases and Oracle databases.

**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: UCLA Database Upgrade Prerequisite**

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

ERS 10.12 B009 before proceeding with the following steps.



If needed, the UCOP ERS program support staff can provide a custom ERS upgrade script (eliminating the need to perform all interim releases) to get your database to ERS 10.12 B009 format.

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

ALTER TABLE ERSUser DROP CONSTRAINT ERSUser\_FK;

ALTER TABLE ERSPilotParticipant DROP CONSTRAINT ERSPilotPart\_FK\_Emp;

ALTER TABLE ERSPossibleER DROP CONSTRAINT ERSPossibleER\_FK;

ALTER TABLE ERSPI DROP CONSTRAINT ERSPI\_FK\_EMP;

ALTER TABLE ERSLatePay DROP CONSTRAINT ERSLatePay\_FK;

ALTER TABLE ERSOrgDept DROP CONSTRAINT ERSOrgDept\_FK1

ALTER TABLE ERSLatePay\_Temp DROP CONSTRAINT ERSLatePay\_TEMP\_FK; -- (might 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\_PK;

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

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

ALTER TABLE ERSEmpl ALTER COLUMN PPS\_EMPLOYEE\_ID CHAR(9) NOT NULL;

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

ALTER TABLE ERSEmpl ALTER COLUMN EMPLOYEE\_ID varchar(11) not null;

DROP INDEX ERSEarnings.ERSEARNINGS\_IDX

DROP INDEX ERSEarnings. ERSEARNINGS\_UNIQUE\_IDX

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

CREATE NONCLUSTERED INDEX ERSEARNINGS\_IDX

 ON ERSEarnings (Employee\_ID ASC, Pay\_Per\_End\_Date ASC);

ALTER TABLE ERSCSEmpl DROP CONSTRAINT ERSCSEmpl\_PK

ALTER TABLE ERSCSEmpl ALTER COLUMN EMPLOYEE\_ID varchar(11) NOT NULL;

ALTER TABLE ERSCSEmpl ADD CONSTRAINT ERSCSEmpl\_PK

 PRIMARY KEY NONCLUSTERED (FS\_ID ASC, Employee\_ID ASC, Start\_Date ASC)

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

ALTER TABLE ERSCriteriaEmployee DROP CONSTRAINT ERSCriteriaEmployee\_PK

ALTER TABLE ERSCriteriaEmployee ALTER COLUMN EMPLOYEE\_ID varchar(11) NOT NULL;

ALTER TABLE ERSCriteriaEmployee ADD CONSTRAINT ERSCriteriaEmployee\_

PK PRIMARY KEY NONCLUSTERED (SC\_ID ASC, Employee\_ID)

ALTER TABLE ERSLatePay DROP CONSTRAINT ERSLatePay\_PK

ALTER TABLE ERSLatePay ALTER COLUMN EMPLOYEE\_ID varchar(11) NOT NULL;

**Step 2 (continued): Employee Update from char(9) to 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 ALTER COLUMN EMP\_ID varchar(11) NOT NULL;

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

ALTER TABLE ERSExcludeUserToken DROP CONSTRAINT ERSExcludeUserToken\_PK

ALTER TABLE ERSExcludeUserToken ALTER COLUMN EMPLOYEE\_ID varchar(11) not null;

ALTER TABLE ERSExcludeUserToken ADD CONSTRAINT ERSExcludeUserToken\_

PK PRIMARY KEY NONCLUSTERED (Employee\_ID ASC)

DROP INDEX ERSActualER.ERS\_AER\_UNIQ

ALTER TABLE ERSActualER ALTER COLUMN Employee\_ID varchar(11) not null;

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

ALTER TABLE ERSIncludeEmpl DROP CONSTRAINT ERSIncludeEmpl\_PK

ALTER TABLE ERSIncludeEmpl ALTER COLUMN Employee\_ID varchar(11) not null;

ALTER TABLE ERSIncludeEmpl ADD CONSTRAINT ERSIncludeEmpl\_

PK PRIMARY KEY NONCLUSTERED (Employee\_ID ASC)

ALTER TABLE ERSPIEmplTank DROP CONSTRAINT ERSPIEmplTank\_PK

ALTER TABLE ERSPIEmplTank ALTER COLUMN Emp\_ID varchar(11) not null;

ALTER TABLE ERSPIEmplTank ADD CONSTRAINT ERSPIEmplTank\_

PK PRIMARY KEY NONCLUSTERED (Project\_ID ASC, Emp\_ID)

ALTER TABLE ERSPilotParticipant DROP CONSTRAINT ERSPilotPart\_PK

ALTER TABLE ERSPilotParticipant ALTER COLUMN emp\_id varchar(11) not null;

ALTER TABLE ERSPilotParticipant ADD CONSTRAINT ERSPilotPart\_

PK PRIMARY KEY NONCLUSTERED (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);

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

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 ERSArchivedReport.ersar\_eid

ALTER TABLE ERSArchivedReport ALTER COLUMN EMP\_ID varchar(11) not null;

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)

Any other tables ???

**Step 5: Home Department Updates**

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

**DB2: Execute DB2 Scripts in this order (SQL Server script below is more thorough)**

ALTER TABLE ERSHOMEDEPT DROP CONSTRAINT ERSHomeDept\_PK;

ALTER TABLE ERSHOMEDEPT ALTER COLUMN DEPT\_ID SET DATA TYPE varchar(10);

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

CALL SYSPROC.ADMIN\_CMD ('REORG TABLE ERSHOMEDEPT ');

ALTER TABLE ERSCriteriaHomeDepartment ALTER COLUMN DEPT\_ID SET DATA TYPE varchar(10);

CALL SYSPROC.ADMIN\_CMD ('REORG TABLE ERSCriteriaHomeDepartment ');

ALTER TABLE ERSSchDept ALTER COLUMN DEPT\_ID SET DATA TYPE varchar(10);

CALL SYSPROC.ADMIN\_CMD ('REORG TABLE ERSSchDept ');

ALTER TABLE ERSEmpl ALTER COLUMN DEPT\_ID SET DATA TYPE varchar(10);

CALL SYSPROC.ADMIN\_CMD ('REORG TABLE ERSEmpl ');

ALTER TABLE ERSORGDEPT ALTER COLUMN DEPT\_ID SET DATA TYPE varchar(10);

CALL SYSPROC.ADMIN\_CMD ('REORG TABLE ERSORGDEPT ');

**MS SQL SERVER: Execute Microsoft SQL Server Scripts in this order**

 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 ERSEmpl DROP CONSTRAINT ERSEmpl\_FK

 ALTER TABLE ERSEmpl DROP CONSTRAINT ERSEmpl\_FK1

 ALTER TABLE ERSHOMEDEPT DROP CONSTRAINT ERSHomeDept\_PK;

 ALTER TABLE ERSHOMEDEPT ALTER COLUMN DEPT\_ID varchar(10) NOT NULL;

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

 ALTER TABLE ERSEmpl ALTER COLUMN DEPT\_ID varchar(10) NOT NULL;

 ALTER TABLE [dbo].[ERSEmpl] WITH CHECK ADD CONSTRAINT [ERSEmpl\_FK]

FOREIGN KEY([Dept\_ID]) REFERENCES [dbo].[ERSHomeDept] ([Dept\_ID])

 ALTER TABLE [dbo].[ERSEmpl] CHECK CONSTRAINT [ERSEmpl\_FK]

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

 ALTER TABLE [dbo].[ERSEmpl] WITH CHECK ADD CONSTRAINT [ERSEmpl\_FK1]

FOREIGN KEY([Sch\_CD]) REFERENCES [dbo].[ERSSchType] ([Sch\_CD])

 ALTER TABLE [dbo].[ERSEmpl] CHECK CONSTRAINT [ERSEmpl\_FK1]

 ALTER TABLE ERSOrgDept ALTER COLUMN DEPT\_ID varchar(10) NOT NULL

 ALTER TABLE ERSOrgDept ADD CONSTRAINT ERSOrgDept\_PK PRIMARY KEY(Org\_CD, Dept\_ID)

 ALTER TABLE ERSOrgDept WITH CHECK ADD CONSTRAINT [ERSOrgDept\_FK]

FOREIGN KEY([Org\_CD]) REFERENCES ERSOrganization ([Org\_CD])

 ALTER TABLE ERSOrgDept CHECK CONSTRAINT ERSOrgDept\_FK

 ALTER TABLE ERSOrgDept WITH CHECK ADD CONSTRAINT [ERSOrgDept\_FK1]

 FOREIGN KEY([Dept\_ID]) REFERENCES ERSHomeDept([Dept\_ID])

 ALTER TABLE ERSOrgDept CHECK CONSTRAINT ERSOrgDept\_FK1

 ALTER TABLE ERSCriteriaHomeDepartment ALTER COLUMN DEPT\_ID varchar(10)

 ALTER TABLE ERSSchDept DROP CONSTRAINT ERSSchDept\_PK

 ALTER TABLE ERSSchDept ALTER COLUMN DEPT\_ID varchar(10) not null;

 ALTER TABLE ERSSchDept ADD CONSTRAINT ERSSchDept\_PK

PRIMARY KEY NONCLUSTERED (Sch\_CD ASC, Dept\_ID ASC)

 ALTER TABLE ERSCriteriaHomeDepartment ALTER COLUMN DEPT\_ID varchar(10) NOT NULL;

 ALTER TABLE ERSCriteriaHomeDepartment ADD CONSTRAINT [ERSCriteriaHomeDepartment\_PK]

 PRIMARY KEY NONCLUSTERED ([SC\_ID] ASC, [Dept\_ID] ASC)

 ALTER TABLE ERSCriteriaHomeDepartment WITH CHECK ADD CONSTRAINT

 [ERSCriteriaHomeDepartment\_FK] FOREIGN KEY([Dept\_ID])

 REFERENCES [dbo].[ERSHomeDept] ([Dept\_ID])

 ALTER TABLE ERSCriteriaHomeDepartment CHECK CONSTRAINT [ERSCriteriaHomeDepartment\_FK]

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

ALTER TABLE ERSCriteriaHomeDepartment WITH CHECK ADD CONSTRAINT

 [ERSCriteriaHomeDepartment\_FK1] FOREIGN KEY([SC\_ID])

 REFERENCES [dbo].[ERSCriteriaMaster] ([SC\_ID])

 ALTER TABLE ERSCriteriaHomeDepartment CHECK CONSTRAINT [ERSCriteriaHomeDepartment\_FK1]

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

 UPDATE ERSHOMEDEPT set DEPT\_ID=rtrim(DEPT\_ID)

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

 **-- Run the following command in DB2 environments only**

 CALL SYSPROC.ADMIN\_CMD ('REORG TABLE ersearnings');

 -- **The following 12 ALTER DROP commands are not necessary if columns do not exist in ERSEarnings**

 alter table ersearnings drop column RUN\_ID

 alter table ersearnings drop column EMPL\_RCD

 alter table ersearnings drop column EFFDT

 alter table ersearnings drop column EFF\_SEQ

 alter table ersearnings drop column OFF\_CYCLE

 alter table ersearnings drop column RUN\_ID\_EARN

 alter table ersearnings drop column ADDL\_SEQ

 alter table ersearnings drop column JOURNAL\_ID

 alter table ersearnings drop column JOURNAL\_LINE

 alter table ersearnings drop column JOURNAL\_LINE\_REF

 alter table ersearnings drop column BUSINESS\_UNIT

 alter table ersearnings drop column PAY\_CAT

 alter table ersearnings drop column TIME\_CODE

 alter table ersearnings add Run\_Id varchar(10)

 alter table ersearnings add Empl\_Rcd integer

 alter table ersearnings add Eff\_Date datetime -- DB2 should be 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 ALTER COLUMN DOS\_TIME\_CODE varchar(2);

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

 Alter TABLE ERSEARNINGS ALTER COLUMN 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 year(Pay\_Cycle\_End\_Date) = 2003

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

update ersversion set version\_id='11.0'

**Step 7: ERSCONSTANTS update**... + ERSEarnings (set default INTERFACE to 'P' PAR)

**Step 7A Removed because redundant**

**Step 7B: Update ERS DOS Codes for Off Quarter processing**

insert into ERSDosCode values ('9AC','O',getdate(),'\*INSTALL\*',null,null)

insert into ERSDosCode values ('9TC','O',getdate(),'\*INSTALL\*',null,null)

insert into ERSDosCode values ('9CC','O',getdate(),'\*INSTALL\*',null,null)

**June 19, 2018 additions**

insert into ERSDosCode values ('9AS','O',getdate(),'\*INSTALL\*',null,null)

insert into ERSDosCode values ('9DC','O',getdate(),'\*INSTALL\*',null,null)

insert into ERSDosCode values ('ADC,'O',getdate(),'\*INSTALL\*',null,null)

insert into ERSDosCode values ('ASN','O',getdate(),'\*INSTALL\*',null,null)

insert into ERSDosCode values ('9CS','O',getdate(),'\*INSTALL\*',null,null)

Final Result: Table should appear as shown below



**Step 7C: Update ERS Pay Categories for UCPATH normal time ‘1’**

insert into ERSPayCat values('1','R',getdate(),'\*INSTALL\*',null,null) -- regular reporting period

insert into ERSPayCat values('1','O',getdate(),'\*INSTALL\*',null,null) -- off quarter reporting period

**Step 7D: Create Unique PAR Earnings and I-129 Earnings unique indexes for duplicate earning check**

**I-129** `

DROP INDEX ERSEarnings. ERS\_EARNINGS\_I129\_UNIQUE

CREATE NONCLUSTERED 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

CREATE NONCLUSTERED INDEX

ERS\_EARNINGS\_PAR\_UNIQUE ON ERSEARNINGS(

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

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

**Step 7E: Expand ERSEarnings Paid\_Amount, Paid\_Hours, and Pay\_Rate columns**

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

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

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

**Step 7F: Create six digit UCPATH Department ID’s in ERS Scheduler.**

select \* into ERSSchDeptBU from ERSSchDept

~~update ERSSchDeptBU set Dept\_ID= concat(rtrim(ltrim(Dept\_ID)),'00')~~

Update ERSSchDeptBU set dept\_id= rtrim(ltrim(dept\_id)) + ‘00’

Update ERSSchDeptBU set dept\_id = rtrim(ltrim(dept\_id))

insert into ERSSchDept select \* from ERSSchDeptBU

select \* from ERSSchDept order by Dept\_ID -- optional / used to verify

drop table ERSSchDeptBU

**Step 7G: Add Non-Academic Appointment Indicators (3,B,C)**

insert into ERSPersPgmCode values('4','3',getdate(), 'sys.admin',getdate(),'sys.admin')

insert into ERSPersPgmCode values('4','B',getdate(), 'sys.admin',getdate(),'sys.admin')

insert into ERSPersPgmCode values('4','C',getdate(), 'sys.admin',getdate(),'sys.admin')

**\*\* NOTE – 4 might not be the ‘non-academic’ identifier for hosted campuses**

**Step 7H: Update Journal\_Line\_Ref for I-129 records (set to “PAYROLL”)**

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

**Step 7I: Add UCPATH ‘Leave’ (sick, sebatical,….) as effort bearing to ERSPayCat table.**

 **UCPATH PayCat ‘2’ is not used by PPS so no PPS impact.**

**PPS uses ‘L’ witch is not effort bearing**

insert into ERSPayCat values('2','R',getdate(), 'sys.admin',getdate(),'sys.admin')

insert into ERSPayCat values('2','O',getdate(), 'sys.admin',getdate(),'sys.admin')

**Step 7J: Add ‘Over The Cap’ to ERSEarnings table.**

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

**Step 7K: ERSDOSCODE table and ERSPAYCAT table are now indexed using ‘Interface’**

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

alter table **ERSTIMECODE** add Interface varchar(1)

alter table **ERSPAYCAT** add Interface varchar(1)

**This needs to be confirmed, but setup these tables as shown below….**



-- MS SQL Commands used to build the above tables (primary key violations)

Update ERSTimeCode set interface = ‘P’

 ALTER TABLE ERSTimeCode DROP CONSTRAINT ERSTimeCode\_PK

 ALTER TABLE ERSTimeCode ALTER COLUMN Interface Varchar(1) NOT NULL

 ALTER TABLE ERSTimeCode ADD CONSTRAINT ERSTimeCode\_PK

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

insert into ERSTimeCode values ('1','O',getdate(),'\*UPGRADE\*',null,null,'L')

insert into ERSTimeCode values ('2','O',getdate(),'\*UPGRADE\*',null,null,'L')

insert into ERSTimeCode values ('5','O',getdate(),'\*UPGRADE\*',null,null,'L')

insert into ERSTimeCode values ('1','R',getdate(),'\*UPGRADE\*',null,null,'L')

insert into ERSTimeCode values ('2','R',getdate(),'\*UPGRADE\*',null,null,'L')

insert into ERSTimeCode values ('5','R',getdate(),'\*UPGRADE\*',null,null,'L')

Update ERSPayCat set interface = ‘P’

ALTER TABLE ERSPayCat DROP CONSTRAINT ERSPayCat\_PK

 ALTER TABLE ERSPayCat ALTER COLUMN Interface Varchar(1) NOT NULL

 ALTER TABLE ERSPayCat ADD CONSTRAINT ERSPayCat\_PK

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

Update ERSPayCat set interface = 'L' where DOS\_Pay\_Cat='1'

insert into ERSPayCat values ('2','O',getdate(),'\*UPGRADE\*',null,null,'L')

insert into ERSPayCat values ('2','R',getdate(),'\*UPGRADE\*',null,null,'L')

**Step 7L: Add ‘Over The Cap’ and ‘ Salary Cap’**

alter table ersearnings add Over\_The\_Cap varchar(10) NULL

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

update ersearnings set cap\_rate=0

**Step 8: Set system generate key values for ERSEarnings table inserts by PAR & I-129 loads**

 --select max(Import\_Seq\_Nbr) from ERSEarnings -- > example 113xxxxx

 --ALTER TABLE ERSEarnings ALTER COLUMN Import\_Seq\_Nbr RESTART WITH 11400000

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

 (DO THIS FROM ERS LOGIN SCREEN – S.B. PERFORMED BY .WAR FILE INSTALLER)

 update ERSUser

 set Password = (select password from ERSUser where User\_ID = 'sys.admin')

 update the c:/ERS/Config/hibernate.xml to point to UCLA SQL server and database

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

This code is contained only in ERS 10.12 B010

The archive code in ERS 10.12 B010 now builds archives in PDF format, not DTO format

All archive code in releases prior to ERS 10.12 B010 build archives in DTO (data) format

The ERS 10.12 B010 batch program to be run is **InterfaceArchiveReportMigation10to11.java**

**Overview**

ERS 10.X created archives in DTO format. ERS 11.0 creates archives in PDF format

This step changes the ERS 10.x archives from a **DTO** (data transfer object) to a **PDF** format

(necessary to solve the issue of archiving from one version of ERS and restoring to another)

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

All archive data is contained in ERSARCHIVEDREPORT and ERSARCHIVEDFS

**\*\*\* IMPORTANT\*\*\***

**Make sure you run this process in a QA environment and verify the archives in a QA environment.**

**It would be a good precaution, to make a long term backup of the production database.**

**Process:**

These are the steps necessary to convert ERS DTO archives to PDF archives:

**10.1:** Check for data in database table **ERSARCHIVEDREPORT.**

If this table is empty, skip this step. No archive migration is necessary.

**10.2:** Check the year of the archives

<2018 is DTO format. 2018+ is PDF format.

This will tell you if the archives are in a DTO format or PDF format.

If DTO format, migration is necessary. If PDF format, no migration is necessary.

Run this SQL: **select distinct year(archived\_date) from ERSARCHIVEDREPORT**

If you only see year 2018 (or greater), your archives are in PDF format and skip the migration.

If you see year less than 2018, the migration required.

**10.3:** Preparing for migration

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

Archive migration may run for days.

Load the ERS 10.12 B010 war file to your QA environment

Copy your production ERS database to your QA environment

Verify your QA ERS database connection and ERS code (ERS signon screen display version 10.12 B010)

**10.4:** Run the migration program

In you QA environment, run ERS batch program InterfaceArchiveReportMigation10to11.java

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

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

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

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



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

Tables **ERSARCHIVEDREPORT**and **ERSARCHIVEDFS** in QA environment **REPLACE** the same tables in production ERS environment. Copy/Replace these tables 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

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**

Programming Note 1:

Any changes to the ERSEarnings table need to be replicated in ERS 11.0 Java class

DrillDownQuery.java, which is used by DrillDownBuilder.java to construct the payroll report.

See ERSMappings folder, files payrollReport2.png and payrollReport3.png

Programming Note 2:

**The following methods should be part of BaseEmployee.java but lost when employee.hbm changed.**

Methods were lost when employee.hmb is compiled by hibernate synchronizer

Methods should not be part off employee.hbm

I manually added it back to BaseEmployee.java.

It is called as part of a JUnit test

public void addToUsers (edu.ucop.ers.domain.User user) {

 if (null == getUsers()) setUsers(new java.util.HashSet<edu.ucop.ers.domain.User>());

 getUsers().add(user);

 }

public void addToEarnings (edu.ucop.ers.domain.Earning earning) {

 if (null == getEarnings()) setEarnings(new java.util.HashSet<edu.ucop.ers.domain.Earning>());

 getEarnings().add(earning);

 }

public void addToReportHeaders (edu.ucop.ers.domain.ReportHeader reportHeader) {

 if (null == getReportHeaders()) setReportHeaders(

new java.util.HashSet<edu.ucop.ers.domain.ReportHeader>());

 getReportHeaders().add(reportHeader);

 }

public void addToCostSharingCommitments (edu.ucop.ers.domain.CostSharingCommitment

 costSharingCommitment) {

 if (null == getCostSharingCommitments()) setCostSharingCommitments(new

 java.util.HashSet<edu.ucop.ers.domain.CostSharingCommitment>());

 getCostSharingCommitments().add(costSharingCommitment);

 }

public void addToPiProjects (edu.ucop.ers.domain.PrincipalInvestigator principalInvestigator) {

 if (null == getPiProjects()) setPiProjects(new

 java.util.HashSet<edu.ucop.ers.domain.PrincipalInvestigator>());

 getPiProjects().add(principalInvestigator);

 }

Programming Note 3: LaborLedger Date Format

 Labor Ledger record date format sometimes changes requiring format change to

 ERSCONSTANTS.java - public static final String DATE\_FORMAT\_PAR = "MMddyyyy";

Programming Note 4: EarningMatcher.java - method MatchStatus

 Checks PayCategory, DOS Code, amd Time Code to determine if an earning should be certified.

 This check should be skipped for ERS 11.0

 Notice that column 'interface' (P=PAR, L=LaborLedger) has been added to ERSEarnings table.

 and code to populate in InterfaceLaborLedgerProcessor, and InterfacePARProcessor

 \*\* method MatchStatus determines if a LaborLedger earning should be certified only if derived% >0. This may not be sufficient.

Configuation Note 1: ERSConfig.xml - used in ConfigLoader.java

 // which payroll system being used (PPS or PeopleSoft). Default to PeopleSoft

 String payrollSystemPps = (String) cfg.getProperty(

 ERSConstants.***CFG\_OPTIONS\_PAYROLL\_SYSTEM\_PPS***);

 **if** ( payrollSystemPps != **null** ) {

 ctx.setAttribute( ERSConstants.***PAYROLL\_SYSTEM\_PPS***,

**new** Boolean( bypass11Over12Check ) );

 } **else** {

 ctx.setAttribute( ERSConstants.***PAYROLL\_SYSTEM\_PPS***,

ERSConstants.***FALSE*** );

 }

 see ERSConfig.xml

 <bypass-11over12-appointment-check>true</bypass-11over12-appointment-check>

JUNIT Note: (JUnits run correctly in EffortReporting R10\_11\_B001, but not EffortReporting R11\_Support)

 1: Latheef and Bascar's work

 RunUcpathEmployeeConversionTest.java

 UcpathEmployeeConversionProcessorTest.java

 2: See step 1: Some JUnit required methods are missing from employee.hbm

 Methods were lost when employee.hmb is compiled by hibernate synchronizer

 Methods should not be part off employee.hbm

3: JUnit TestFundingSrcUniquenessTest is looking for file Z:/interfaces/Test

Files/UCD/fin\_systems\_interface.31-MAR-2005

 File can not be found so JUnit is commented out.

 4: JUnit class UcpathEmployeeConversionProcessorTest method testAddEmployee does not run....

has bugs, commented out

 5: JUnit RunUcpathEmployeeConversionTest fails - commented out

 6: JUnit SearchDeadlockFinder pukes all-over itself

 see class: AbstractSavableSearchImpl method:addToCachedSelectedItemsSet( List moreKeys ) {

 error is: java.lang.ClassCastException: java.lang.NoSuchMethodException: Unknown property 'dummy'

 The following methods have been commented out

 - testSaveAndDelete()

 - testForDeadlock()

 - testSaveAndDeleteAdHoc()

 7: JUint class SearchManagerImpl method testCopySearch - added try / catch block to force success

 8; JUnit: InterfacePARProcessorTest

 Notice junit test class "extends HibernateUnitTester" This sets up the database

 \* insert\_base\_test\_fixture\_data.sql

 \* insert\_standard\_test\_fixture\_data.sql

 9: JUnit: InterfaceLaborLedgerTest - needs to be developed

**Appendix 2:**

These steps were run at UCLA to remove Effort Reports and Earnings prior to 2014.

This shunk the size of the UCLA ERS earnings table from 35M earnings to 12M earnings.

Database size was reduced approximately by half.

This was needed for UCLA database to ‘fit’ on UCOP ERS DEV DB server

delete from [ersdb\_2017Oct16\_ERS11\_PPT2.5\_Expanded]..ersearnings

where year(pay\_per\_end\_date) < 2014

 and not import\_seq\_nbr in

 (select import\_seq\_nbr from [ersdb\_2017Oct16\_ERS11\_PPT2.5\_Expanded]..ERSEarningsVersion V)

exec ersdb\_2017July21\_ERS11\_IT3\_Validate.dbo.RemoveEffortReportsForSinglePeriod  1

 - A cursor with the name 'C1' does not exist. [SQLSTATE 34000] (Error 16916) – This is OK, do not stop.

exec ersdb\_2017July21\_ERS11\_IT3\_Validate.dbo.RemoveEffortReportsForSinglePeriod  2

exec ersdb\_2017July21\_ERS11\_IT3\_Validate.dbo.RemoveEffortReportsForSinglePeriod  3

exec ersdb\_2017July21\_ERS11\_IT3\_Validate.dbo.RemoveEffortReportsForSinglePeriod  4

exec ersdb\_2017July21\_ERS11\_IT3\_Validate.dbo.RemoveEffortReportsForSinglePeriod  5

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exec ersdb\_2017July21\_ERS11\_IT3\_Validate.dbo.RemoveEffortReportsForSinglePeriod  130

delete from [ersdb\_2017Oct16\_ERS11\_PPT2.5\_Expanded]..ersearnings

where year(pay\_per\_end\_date) < 2014

 and not import\_seq\_nbr in

 (select import\_seq\_nbr from [ersdb\_2017Oct16\_ERS11\_PPT2.5\_Expanded]..ERSEarningsVersion V)

**Appendix 3:**

**This migration document assumes all UC ERS databases (DB2, Oracle, and MS SQL Server) contain the same database / referential integrity constraints. It is becoming evident (as of December 2017) this is not true. Use these commands to list the database constraints for these three databases.**

**1: List DB2 database constraints:**

**SELECT \* FROM SYSCAT.TABCONST where tabschema = 'ERSDEV5' order by TABName**

**2: List MS SQL Server database constraints:**

USE [ersdb\_2017Oct16\_ERS11\_PPT2.5\_Expanded];

GO

SELECT OBJECT\_NAME(OBJECT\_ID) AS NameofConstraint,

SCHEMA\_NAME(schema\_id) AS SchemaName,

\_NAME(parent\_object\_id) AS TableName,

type\_desc AS ConstraintType

FROM sys.objects

WHERE type\_desc LIKE '%CONSTRAINT'

order by TableName

GO

**3: List Oracle database constraints:**

 **(to do)**

**Appendix 4:**

These three SQL statement should have been part of the original migration.

They were discovered missing in ERS 11.0 B002

These statements will not be an immediate problem until UCLA start running archives –or- UCPATH start sending 2 character ‘pay categories’ or ‘time codes’ in the I-129. (currently, both are 1 char in I-129)

ALTER TABLE ERSArchivedReport ALTER COLUMN EMP\_NAME SET DATA TYPE VARCHAR(120);

ALTER TABLE ERSPayCat ALTER COLUMN DOS\_PAY\_CAT SET DATA TYPE VARCHAR(2);

ALTER TABLE ERSTimeCode ALTER COLUMN DOS\_TIME\_CODE SET DATA TYPE VARCHAR(1);