



APEX 19.2

Erfahrungen mit dem Upgrade

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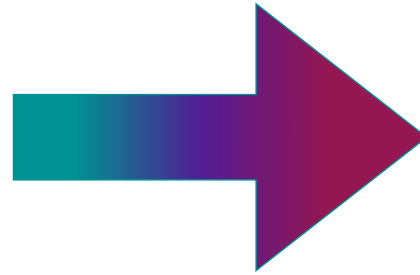
#ACEsAtHome

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Upgrade from 18.2 to 19.2

18.2



19.2

- ◆ Upgrade experiences

- ◆ Steps to do the update

- ◆ End user / developer experience while upgrading

- ◆ Application changes

- ◆ deployment

- ◆ things to watch out for



Documents

◆ *Installation Guide 19.2*

<https://docs.oracle.com/en/database/oracle/application-express/19.2/htmig/maximizing-uptime-during-an-application-express-upgrade.html#GUID-DE1EEE34-E79A-4937-8B5E-B405BE23F1B5>

◆ *Release Notes 19.2*

<https://docs.oracle.com/en/database/oracle/application-express/19.2/htmnrn/index.html#HTMRN-GUID-540B73CB-08A7-4422-B6BF-CC785EC47694>

◆ *Known Issues 19.2*

<https://www.oracle.com/technetwork/developer-tools/apex/downloads/apex-192-known-issues-5811831.html>

APEX 19.2 Upgrade



Preinstallation Checks

Requirements	Check	Resultat
Database	Oracle Application Express release 18.1 requires an Oracle Database release 11.2.0.4 or later, including Enterprise Edition and Express Edition (Oracle Database XE).	OK
	If you are upgrading an Oracle Database version 12.1 CDB, you must download from My Oracle Support the one off patch for bug 20618595. Search for 20618595 on the Patches tab.	OK Wir upgraden in einer PDB
Memory target	Oracle Application Express requires the system global area (SGA) and program global area (PGA) to be at least 300 MB. V\$MEMORY_DYNAMIC_COMPONENTS	OK
Browser	Oracle Application Express requires a JavaScript-enabled browser and supports the current and prior major release of Google Chrome, Mozilla Firefox, Apple Safari, Microsoft Internet Explorer, and Microsoft Edge.	OK
Web Listener	Oracle Application Express requires Oracle REST Data Services (ORDS) 19.1 or 19.2.	Not ok! 18.3.0.r2701456
Disk Space	Free space for Oracle Application Express software files on the file system: 705 MB if using full download (apex_18.1.zip).	OK
	Free space in Oracle Application Express tablespace: 220 MB	OK
	Free space in SYSTEM tablespace: 100 MB	OK
	Free space in Oracle Application Express tablespace for each additional language (other than English) installed: 60 MB	OK
XML DB	Oracle XML DB must be installed in the Oracle database that you want to use if you are installing a full development environment. Oracle XML DB is not required for runtime only installations. If you are using a preconfigured database created either during an installation or by Database Configuration Assistant (DBCA), Oracle XML DB is already installed and configured.	OK

APEX 19.2 Upgrade



Upgrade Steps

```
CREATE SMALLFILE TABLESPACE APEX_1902  
    DATAFILE SIZE 1G AUTOEXTEND ON NEXT 100M MAXSIZE UNLIMITED  
    ONLINE;
```

```
@apexins1.sql APEX_1902 APEX_FILES temp /i/  
@apexins2.sql APEX_1902 APEX_FILES temp /i/  
@apexins3.sql APEX_1902 APEX_FILES temp /i/  
@load_trans.sql GERMAN
```

```
cd ../patches/30392181  
@catpatch.sql
```

```
@apex_rest_config.sql  
java -jar ords.war validate
```

- ◆ prepare image folder
- ◆ Install APEX
 - ◆ Create Tablespace
 - ◆ run 3 install scripts
 - ◆ install GERMAN language
 - ◆ install patch 30392181
- ◆ ORDS static file sync

APEX 19.2 Upgrade



Minimize Offline Time

```
CREATE SMALLFILE TABLESPACE APEX_1902  
    DATAFILE SIZE 1G AUTOEXTEND ON NEXT 100M MAXSIZE UNLIMITED  
    ONLINE;
```

```
@apexins1.sql APEX_1902 APEX_FILES temp /i/
```

```
@apexins2.sql APEX_1902 APEX_FILES temp /i/
```

```
@apexins3.sql APEX_1902 APEX_FILES temp /i/
```

```
@load_trans.sql GERMAN
```

```
cd ../patches/30392181
```

```
@catpatch.sql
```

```
@apex_rest_config.sql
```

```
java -jar ords.war validate
```

Developer stop

ORDS shutdown
End user stop

ORDS restart
work continues

APEX SESSION context copied!

APEX 19.2 Upgrade



Rolling Patch

```
CREATE SMALLFILE TABLESPACE APEX_1902  
    DATAFILE SIZE 1G AUTOEXTEND ON NEXT 100M MAXSIZE UNLIMITED  
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```

```
@apexins1.sql APEX_1902 APEX_FILES temp /i/  
@apexins2.sql APEX_1902 APEX_FILES temp /i/  
@apexins3.sql APEX_1902 APEX_FILES temp /i/  
@load_trans.sql GERMAN
```

```
cd ../patches/30392181  
@catpatch.sql
```

```
@apex_rest_config.sql  
java -jar ords.war validate
```

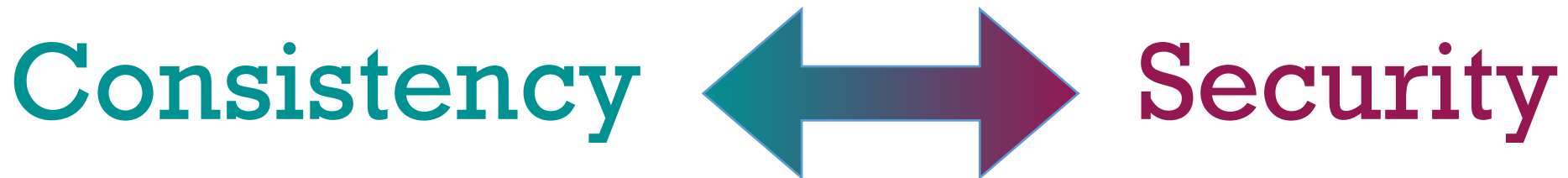
- ◆ new since 19.2
- ◆ only one Patch Set Bundle
- ◆ download from MOS
- ◆ update frequently to get newest bug fixes!
- ◆ most recent: 12-MAR-2020

```
APEX_INSTANCE_ADMIN.GET_PARAMETER('APEX_19_2_0_PATCH_30392181')
```

```
2019-12-17_09-52-42
```




Image Folder Considerations



- ◆ merge new (19.2) with previous (5.0-18.2) image folder
- ◆ no application change needed
- ◆ upgrade to new library version part of normal application upgrade, not of APEX upgrade

- ◆ remove outdated libraries
- ◆ example: XSS exploit in JQuery UI 1.10.4

https://www.cvedetails.com/vulnerability-list/vendor_id-6538/product_id-31126/year-2017/opxss-1/Jquery-Jquery-Ui.html

example application change

```
#IMAGE_PREFIX#libraries/codemirror/4.4/lib/codemirror.js
```

↓ change version

```
#IMAGE_PREFIX#libraries/codemirror/5.48.4/lib/codemirror.js
```

APEX 19.2 Upgrade



Not needed (anymore)

```
CREATE SMALLFILE TABLESPACE APEX_1902  
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```

```
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@apexins2.sql APEX_1902 APEX_FILES temp /i/  
@apexins3.sql APEX_1902 APEX_FILES temp /i/  
@load_trans.sql GERMAN
```

```
cd ../patches/30392181  
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```

```
@apex_rest_config.sql  
java -jar ords.war validate
```

◆ no ACL setup!

◆ no mail setup!



Additional grants

◆ check custom access to the APEX schema

```
select grantee, table_name, privilege, type, grantable
from dba_tab_privs
where grantee = 'MYSCHEMA'
and owner like 'APEX%'
group by grantee, table_name, privilege, type, grantable
having count(case when owner = 'APEX_180200' then 1 end) > 0
and count(case when owner = 'APEX_190200' then 1 end) = 0;
```

◆ generate missing grants

```
select 'grant '||listagg(privilege,',') within group (order by privilege)
||' on APEX_190200.'||table_name
||' to '||grantee|| case when grantable = 'YES' then 'WITH GRANT OPTION ' end||';'
from (
    select grantee, table_name, privilege, type, grantable
    from dba_tab_privs
    where grantee = 'MYSCHEMA'
    group by grantee, table_name, privilege, type, grantable
    having count(case when owner = 'APEX_180200' then 1 end) > 0
        and count(case when owner = 'APEX_190200' then 1 end) = 0
)
group by grantee, table_name, type, grantable;
```

[illegible]

APEX 19.2 Upgrade Quirks



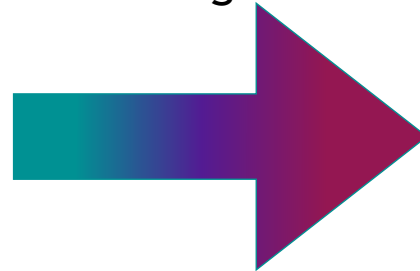
Default value bug

◆ changed behaviour for Defaults (and LOVs)

Item with a default using a non-existent page item

18.2

Default=NULL



19.2

Page Error

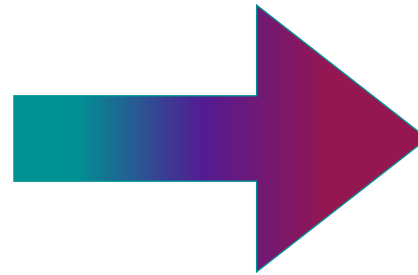
APEX 19.2 Application Changes



Icon changes

- ◆ Font Awesome desupported = it is gone!
- ◆ Icons automatically switched to Font APEX
- ◆ search custom css for the font-family

Font Awesome



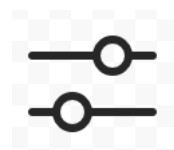
Font APEX

- ◆ Icons do look way more delicate
- ◆ Most icons look better, some worse
- ◆ Font APEX allows to use modifiers (fam-xxx)

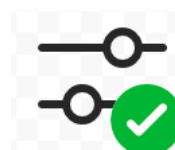
fa-sliders



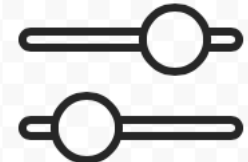
fa-sliders



fam-check fam-is-success



fa-lg



APEX 19.2 Application Changes



Icon changes

Font Awesome

33%

✓	✓	✓
✗	✓	✗
✗	✓	✗



fa-lg

Font APEX

32px

✗	✓	✓
✗	✓	✓
✓	✗	✓

◆ add some css for the fa-lg modifier

```
.fa.fa-lg.my-check-Y,.fa.fa-lg.my-check-Y::before {  
  font-size: 21px;  
  font-family: 'Font APEX Small' !important;  
}
```

✗	✓	✓
✗	✓	✓
✓	✗	✓

APEX 19.2 Application Changes



Check LOVs for errors

```
CREATE SMALLFILE TABLESPACE APEX_1902  
    DATAFILE SIZE 1G AUTOEXTEND ON NEXT 100M MAXSIZE UNLIMITED  
    ONLINE;
```

```
@apexins1.sql APEX_1902 APEX_FILES temp /i/  
@apexins2.sql APEX_1902 APEX_FILES temp /i/  
@apexins3.sql APEX_1902 APEX_FILES temp /i/  
@load_trans.sql GERMAN
```

```
cd ../patches/30392181  
@catpatch.sql
```

```
@apex_rest_config.sql  
java -jar ords.war validate
```

```
set serveroutput on  
@apex/utilities/check_lovs_for_errors.sql APP_ID APP_USER
```

- ◆ **changed LOV behaviour**
- ◆ **LOVs with errors causes page error**
- ◆ **identical return and display names are considered an error**
- ◆ **solution: switch to new shared component multicolumn LOVs**

◆ **Blog post:** https://svenweller.wordpress.com/2020/02/28/apex-19-2-upgrade-quick-tip-run-check_lovs_for_errors-sql

APEX 19.2 Application Changes



Check LOVs for errors

✓ Legacy SQL List of Values converted to SQL.Action processed.

List of Values: PEOPLE

Cancel Delete **Apply Changes**

Show All Data Name Local Database Subscription **Source** Column Mapping Additional Display Columns Comments

* Source Type ☐ Table ☒ **SQL Query** ☐ Function Returning SQL ?

* SQL Query ?

```
1 SELECT person_name d, person_id r
2 FROM EBA_IT_people
3 ORDER BY 1
4
```

Optimizer Hint

▶ Example: Dynamic Lists of Values on SQL Queries

Column Mapping

→ * Return R ?

→ Display D ?

Default Sort Use Order By from Query ?

Icon - Not Defined - ?

Oracle Text Column - Not Defined - ?

◆ **Blog post:**

https://svenweller.wordpress.com/2020/02/28/apex-19-2-upgrade-quick-tip-run-check_lovs_for_errors-sql

APEX 19.2 Deployment



APEXExport

✦ Java tool APEXExportSplitter deprecated

✦ use APEXExport -split instead

<https://apex.oracle.com/pls/apex/germancommunities/apexcommunity/tipp/2301/index.html>

```
#!/bin/sh
```

```
# Code für Oracle11g
```

```
ORACLE_HOME=/opt/oracle/product/11.2.0/dbhome_1
```

```
APEX_HOME=$ORACLE_HOME/apex
```

```
CLASSPATH=$ORACLE_HOME/jdbc/lib/ojdbc5.jar
```

```
CLASSPATH=$CLASSPATH:$APEX_HOME/utilities
```

```
export APEX_HOME ORACLE_HOME PATH CLASSPATH
```

```
$ORACLE_HOME/jdk/bin/java oracle.apex.APEXExport -db $1 -user $2 -password $3 -applicationid $4
```

```
$ORACLE_HOME/jdk/bin/java oracle.apex.APEXExportSplitter f$4.sql
```

... 19.2

```
$ORACLE_HOME/jdk/bin/java oracle.apex.APEXExport -db $1 -user $2 -password $3 -applicationid $4
```

```
$ORACLE_HOME/jdk/bin/java oracle.apex.APEXExport -db $1 -user $2 -password $3 -applicationid $4 -split
```

APEX 19.2 Deployment



Application Settings

✗ WWV_FLOW_API.set_logo_image ✗

◆ *new way (18.1) to store KEY-VALUE pairs*

◆ *useful for application configuration*

◆ *blog post from Marko Gorički*

<http://apexbyg.blogspot.com/2018/06/apex-181-no-need-for-configuration.html>

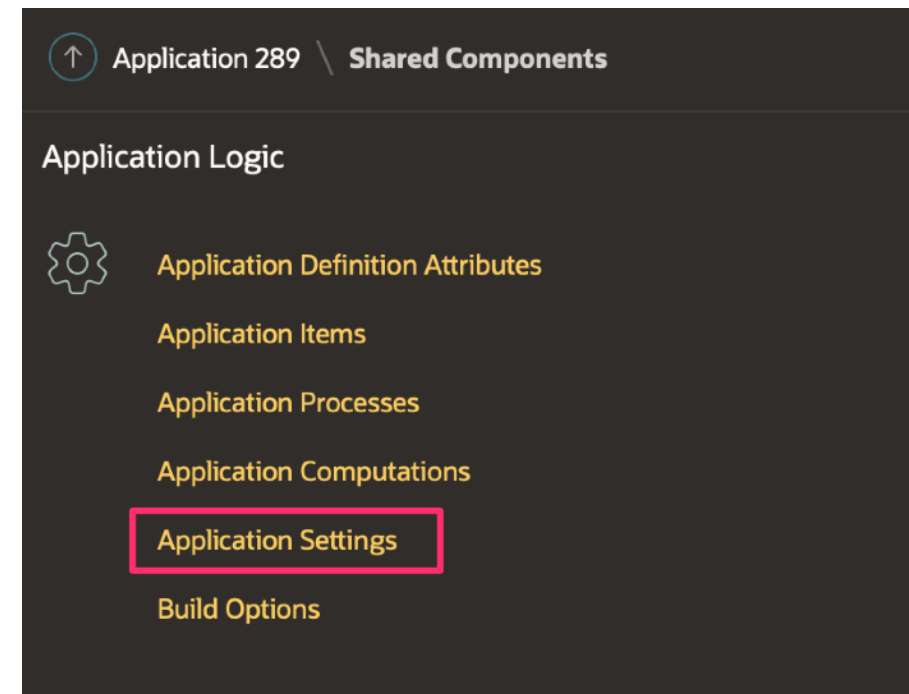


◆ *define possible values*

◆ *during deployment set_value*

◆ *at runtime get_value into application items*

```
APEX_APP_SETTING.SET_VALUE (  
    p_name          IN VARCHAR2,  
    p_value         IN VARCHAR2 );
```





Conclusion

- ◆ *Less work than previous upgrades*
- ◆ *Enduser can continue to work after short break!*
- ◆ *some surprising issues (page render errors) even in compatibility mode 18.2*



Thanks for listening!