IBM WebSphere® Data Interchange V3.3

CICS Installation Considerations

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This is the WDI version 3.3 CICS Installation Considerations presentation.

Agenda

- **Aspects of the Install process**
- **Dataset and RDO changes**
- **XML Support install step, Java**
- **Error Notification install step, Java**
- **Utility Control Information block changes**
- **EDIW changes**
- **Summary**

The idea here is to go over those aspects of the WDI install that are new or different in 3.3. We will cover software and system requirements. We will talk about all the major installation changes: the RDO changes, XML Support and Error Notification install changes, CICS startup JCL changes, Utility Control block (or the FFUS block) changes, and changes that were made to the EDIW transaction.

Install Guide – Chapter 3

- **WebSphere Data Interchange Version 3.3 Installation Guide for z/OS**

- **Chapter 3 - Installing WebSphere Data Interchange for CICS Transaction Server for z/OS**
  - ▸ CICS install steps follow complete z/OS "batch" install

- **CICS Transaction Server for z/OS Version 2.3 (5697-E93) or later is required**

- **For XML translations and/or Error Notification, Java SDK 1.4 or later is required**

This presentation covers changed or new aspects of the CICS installation for WDI version 3.3. The CICS install steps are in Chapter 3 of the WDI Installation Guide. As before, the CICS install follows the complete z/OS batch install. Version 2.3 or higher of CICS Transaction Server is required. And if XML translations are to be performed, Java SDK (Software Development Kit) 1.4 or higher is required.

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Major CICS Install Changes

- **Improved step descriptions**

- **CSD file utility program used to define WDI resources**
  - ▸ The only macro definitions are for the PLT sample

- **WDI Facility removed from product**

- **Persistent Environment (Global Lookaside Buffer) removed from product**

- **No more FCT or file definitions**

- **Improved the XML Support install step**

- **Added the Error Notification (Email Alert) install step**

In a nutshell these are the major changes to the WDI CICS install. We tried to improve and simplify the install steps. Whereas before some of the WDI CICS resource definitions were provided as macro table definitions, they are all now provided as RDO definitions. Each job that defines a CICS resource uses the CSD (CICS System Definition) file utility program (DFHCSDUP). The WDI Facility (screen panels initiated with the EDIA transaction) has been removed from the product. Likewise, the Persistent Environment (also called the Global Lookaside Buffer) has been removed. WDI 3.3 is all-DB2 and there are no more VSAM file definitions. A lot of work was done to simplify the XML Support step. And the new Error Notification step follows the same design as the new XML Support step.

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LE and C++ Reference Materials

- **Enabling LE in CICS**
  - ▶ Section "Installing CICS support for Language Environment" in the *CICS Transaction Server for z/OS Installation Guide*

- **Enabling C++ in CICS**
  - ▶ Section "Language Environment support for C and C++" in the *CICS Transaction Server for z/OS Installation Guide*

- **CSD, DFHRPL, and I/O Stream considerations**
  - ▶ Section "Preparing CICS for Use with z/OS Language Environment" in the *z/OS C/C++ Programming Guide*

Although not different from WDI version 3.2, version 3.3 requires LE (Language Environment) and C++. The references provided here are helpful in getting the CICS region set up to run WDI.

CICS Installation Datasets

- **EDI.V3R3M0.SEDIDBR2** – DBRMs
  - ‣ The name of the CICS DB2 plan is **DIENU33C**

- **EDI.V3R3M0.SEDIHFS2** – HFS files

- **EDI.V3R3M0.SEDIINS2** – Install jobs

- **EDI.V3R3M0.SEDILMD2** – Load modules

- **EDI.V3R3M0.SEDISAM2** – Sample CICS resource definition jobs

These are some of the datasets used to install and run WDI. You can see the common high-level qualifiers. And you can see that each low-level qualifier ends with '2' to distinguish these datasets from their z/OS batch counterparts (which end with '1'). The name of the WDI CICS plan is DIENU33C.

CICS Resource Definition Jobs

- **FXXODCT** – Destination definitions (TDQs)
  - ▸ EDI6 - Error notification intra-partition queue
  - ▸ EDIJ - XML translation intra-partition queue

- **FXXOPCT** – CICS transaction definitions
  - ▸ Removed EDIA - WDI Facility
  - ▸ Removed EDIM - DT translations run under the Utility transaction
  - ▸ EDIJ - XML parser transaction
  - ▸ EDI6 - Error notification transaction
  - ▸ EDI7 - Start XML parsers (EDIJs)
  - ▸ EDI8 - Stop XML parsers (EDIJs)
  - ▸ EDI9 - Monitor XML parsers (EDIJs)

The job used to define WDI transient data queues is FXXODCT. This is not a complete list. EDI6 is a new intra-partition TDQ used with Error Notification. And EDIJ is used with XML translations. The job used to define WDI CICS transaction IDs is FXXOPCT. This is not a complete list. EDIA and EDIM were removed from the product. DT (Data Transformation) translations now run under the same CICS transaction as the controlling WDI Utility. EDI6 is a new transaction used with Error Notification. And EDIJ, EDI7, EDI8, and EDI9 are used with XML translations.

CICS Resource Definition Jobs - continued

- **FXXOPPT** – Program definitions
  - ▸ Removed many programs (mostly Facility-related)
  - ▸ Approximately 120 WDI programs defined
  - ▸ Several Java programs (for XML translation and Error Notification)

- **FXXORCT** – DB2 resource definitions
  - ▸ EDICONN - WDI's DB2/CICS connection attributes
  - ▸ EDIENTR1 - Entry definition for 2 threads
    - ▪ For example: EDIE (the transaction that writes to the WDI Event Log)
  - ▸ EDIENTR2 - Entry definition for 5 threads
    - ▪ For example: EDIB (the WDI Utility transaction)
    - ▪ User-written transactions that EXEC CICS LINK to EDIFFUT (the WDI Utility program) should be defined with ENTRY(EDIENTR2) or similar

The job used to define WDI programs is FXXOPPT. Many programs were removed due to the removal of the WDI Facility. The list went from 199 in version 3.2 to 122 in version 3.3. The job used to define WDI DB2 resources is FXXORCT. EDICONN contains the attributes used when CICS connects with DB2. There are also two ENTRY definitions here. One specifying a two DB2 thread limit and the other a five DB2 thread limit. As with each of these CICS resource jobs, there may be comments imbedded in the job itself regarding changes a customer might want to make. As supplied, transaction EDIE has a 2-thread limit, and EDIB has a 5-thread limit. EDIE is the transaction that writes to the WDI Event Log, and EDIB is the WDI Utility transaction. Any user-written transaction that EXEC CICS LINKs to the WDI Utility program (EDIFFUT) should be defined similar to EDIB.

PLT (Program List Table) Considerations

- A PLT lists programs to be executed either at CICS initialization or at CICS termination (PLTs are optional)

- Improved install step and program descriptions

- Included program EDIJSTRT (the program that starts XML parsers) in the sample CICS initialization list

- Included program EDIJSTOP (the program that stops XML parsers) in the sample CICS termination list

- **FXXOXLT** – Conditional CSD resource update job

A PLT (Program List Table) is a CICS table containing a list of program names. There is a PLT that lists programs to be executed during CICS initialization. And there is a PLT that lists programs to be executed during CICS termination. These PLTs and any program listed within them are optional. We tried to improve the install step dealing with PLT entries by better describing each program and its purpose. The customer may choose to use WDI PLT entries or not. New with version 3.3, we included program EDIJSTRT in the sample CICS initialization list, and program EDIJSTOP in the sample CICS termination list. Depending upon what programs are included in the termination PLT, job FXXOXLT may have to be run. This is well described in the install step as well as in FXXOXLT itself.

XML Support Install Step

- Improved/simplified install step

- Documented each HFS (Hierarchical File System) change and each ISPF Command screen command

- Showed the CICS SIT (System Initialization Table) change

- Described the XML parser properties file and how to alter it

- Suggested using the default JVM profile DFHJVMPR

- Suggested using /u/edi/cicshome33 as the WDI CICS home directory

This step is required only if the customer will be translating XML data in WDI. A lot of work was put into simplifying the XML Support install step. We tried to clearly describe and illustrate each command and file change. All commands to copy and alter files are initiated on the ISPF Command screen. We'll see an example of some of these in a later slide. The install step uses /u/edi/cicshome33 as the name of the CICS home directory, and uses the default JVM profile DFHJVMPR. Files from EDI.V3R3M0.SEDIHFS2 and EDI.V3R3M0.SEDISAM2 are copied to the WDI CICS home directory using the oput command from ISPF.

Error Notification Install Step

- New step for Error Notification (Email Alert) setup

- Documented each HFS (Hierarchical File System) change and each ISPF Command screen command

- If the WDI email notification sample is to be used, then some files need to be downloaded from Sun Microsystems

- If MQ is to be used, then some files from the IBM WebSphere MQ java directory need to be copied to the WDI CICS home directory

- Described the wdi.properties file and how to alter it

- Suggested DFHJVMPR and /u/edi/cicshome33

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This step is required only if the customer will be using the new Error Notification function in WDI (also called Common Event Handler or Email Plug-in). The install step here follows the same format as the new XML Support install step. All commands to copy and alter files are initiated on the ISPF Command screen, and are clearly described in the install step. The file that contains properties used by the Error Notification function is wdi.properties. As in the XML Support install step, DFHJVMPR is the JVM profile, and the WDI CICS home directory is /u/edi/cicshome33. Files from EDI.V3R3M0.SEDIHFS2 are copied to the home directory using the oput command from ISPF.

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HFS File Permissions

To give read permission to everybody, from the ISPF
Command screen enter 'omvs' and then the following:

chmod 777 /u/edi/cicshome33	Full permissions on cicshome33 directory
chmod 644 /u/edi/cicshome33/*	Read permissions on files in cicshome33
chmod 777 /u/edi/cicshome33/dtds	Full permissions on dtds directory
chmod 644 /u/edi/cicshome33/dtds/*	Read permissions on files in dtds
chmod 777 /u/edi/cicshome33/traces	Full permissions on traces directory

In general, the idea is to have read/write/execute permissions
on all directories, and to have read permission on the jar files,
dtds, and other files. The owner would have write permission
on all files.

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After the XML Support or Error Notification steps are complete, it is necessary that correct
permissions be assigned to the directories and files within those directories. This can be done
from the ISPF Command screen by entering 'omvs' and then the change mod (change access
mode) commands seen here. In general, the idea is to have full permissions on the directories
and read permission on the files within the directories.

ISPF Command Screen - omvs

- From the **ISPF Primary Option Menu** select **Command**
  - ▶ Often option 6

- On the command line enter: omvs

- Then any UNIX command can be entered. For example:
  - ▶ mkdir /u/edi/cicshome33
  - ▶ cd /u/edi/cicshome33
  - ▶ ls –la

- When finished with UNIX commands, enter **exit** to go back to ISPF

For those of you who may not be familiar with this, UNIX commands can be entered from the ISPF Command screen by entering omvs. Here are some examples. To go back to ISPF, just enter 'exit'.

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ISPF Command Screen – oedit and obrowse

- From the **ISPF Primary Option Menu** select **Command**
  - ▸ Often option 6

- On the command line enter: oedit
  - ▸ Directory ===> /u/edi/cicshome33
  - ▸ Filename ===> DFHJVMPR

- On the command line enter: obrowse
  - ▸ Directory ===> /u/edi/cicshome33
  - ▸ Filename ===> DFHJVMPR

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In addition to omvs, oedit and obrowse may be entered from the ISPF Command screen. Here you enter the directory and file name you want to edit or browse.

ISPF Command Screen - oput

- ISPF datasets can be copied to the UNIX System Services HFS (Hierarchical File System) using the **oput** command.

- From the **ISPF Primary Option Menu** select **Command**
  - ▶ Often option 6

- On the command line enter:

  oput 'edi.v3r3m0.sedisam2(fxxparse)'

  '/u/edi/cicshome33/EDIParser.properties' text

- This command copies FXXPARSE to the CICS home directory renaming it to EDIParser.properties

Once the CICS home directory has been created, you can copy dataset members from ISPF to the directory using the oput command from the ISPF Command screen. The example here shows how to copy member FXXPARSE from library EDI.V3R3M0.SEDISAM2 to the CICS home directory renaming it to EDIParser.properties.

CICS Startup JCL

- **Removed the WDI Facility**
  - ▶ The following datasets are no longer used
    - SYS2.GDDMLOAD
    - EDI.V3R2M0.SCREENS
    - EDI.V3R2M0.HELPS

- **Removed the Persistent Environment**
  - ▶ The following datasets are no longer used
    - EDI.V3R2M0.GLBDUMP
    - EDI.V3R2M0.GLBFUNC
    - EDI.V3R2M0.GLBTRACE

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The CICS startup JCL customization instructions are similar to version 3.2, with a few exceptions. The datasets associated with the WDI Facility and with the Persistent Environment (also called the Global Lookaside Buffer of GLB) are no longer necessary.

CICS Startup JCL - Continued

- **Language Environment** libraries required in the STEPLIB and in the DFHRPL concatenation

- **DB2** libraries required in the STEPLIB and in the DFHRPL concatenation

- **MQ Series** libraries required in the STEPLIB and in the DFHRPL concatenation, if MQ is used

The "Customizing the CICS startup JCL" install step lists the LE and DB2 libraries that are required for WDI version 3.3. Likewise, if MQ Series is to be used, the MQ libraries are listed. There is no change here from version 3.2.

FFUS Control Block Changes

- User-written applications that invoke the WDI Utility include a copy of the WDI Utility control block (the FFUS block)

- It is not mandatory that these user-written applications be recompiled

- In order to override the default XML and ADF print file names and types, these user-written applications would have to be modified and recompiled with the new FFUS block

- The default in the Application Defaults profile is that XML and ADF print files are not created during WDI Utility invocations

From WDI version 3.2 to version 3.3 there is only one control block change. The change is in the Utility Control Information block (the FFUS block). This block is described in the CICS chapter of the WDI Programmer's Reference. The change deals with naming XML and ADF print files. When the WDI Utility executes, a print file is generated. Optionally, with version 3.3, an XML and/or ADF print file might also be generated. Whether or not an XML or ADF print file gets generated is controlled in the Application Defaults profile. The default is that they are not generated. The next slide has more information about this control block change.

FFUS Control Block Changes - continued

- For customers who run a lot of concurrent WDI translations and who want to use XML and/or ADF print files, eventually their applications would need to change
  - ▶ In order to avoid single threading through one resource name

- The FFUS block has been extended from 248 to 300 bytes

- At offset 211 (position 212) there is a new field that indicates whether the old or new block size is in effect
  - ▶ A value of 'X' indicates the new block size (300)

- Within the extended part of the FFUS block is where XML and ADF print file names and types can be overridden

If the customer indicates in the Application Defaults profile that an XML or ADF print file is to be generated, a default name and file type would be assigned. The FFUS control block change allows the CICS customer to override that default name and type. The default XML print file is a TSQ named XMLPRNT. The default ADF print file is a TSQ named ADFPRNT. It is not necessary for user-written CICS applications to be changed or recompiled with the new control block. However, for customers who run a lot of concurrent WDI translations and who want XML and/or ADF print files generated, eventually it would be desirable to change their applications in order to avoid single threading through the default name. The FFUS block has been extended from 248 bytes to 300 bytes. A new field at position 212 indicates whether the new size is in effect or not. A value of 'X' indicates the new size. Because current applications would not have an 'X' here, WDI assumes the old size is in effect. It is within the extended area of the FFUS block where XML and ADF print file names and types can be specified.

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FFUS Control Block Changes - continued

- COBOL copybook

```
01 FFUS-DATA.
   ▼
   03 FFUS-EXTEND    PIC X(1).    Pos 212. Extension field.
   ▼
   03 FFUS-XPRTNAME  PIC X(8).    Pos 249. XML print file name.
   03 FFUS-XPRTTYPE  PIC X(2).    Pos 257. XML print file type.
   03 FFUS-APRTNAME  PIC X(8).    Pos 259. ADF print file name.
   03 FFUS-APRTTYPE  PIC X(2).    Pos 267. ADF Print file type.
   03 FILLER         PIC X(32).   Total block length is 300.
```

Note: A value of 'X' in the extension field means that the new block size is
      in effect, otherwise the old block size (248) is assumed.

This is a snippet the Utility Control Information COBOL copybook showing the new changes.
The block used to have a length of 248. You can see 52 new bytes were added. The extension
field indicates whether the old block size or the new block size is in effect. If the extension field
is an 'X', XML and ADF print file names and types can be entered in the appropriate fields.

EDIW Panel Changes

- CICS Transaction EDIW is used to enter ad hoc PERFORM commands

- On the main EDIW panel there is a field where you can indicate that you want to override XML and/or ADF print file names and types
  - XML/ADF Print Files (Y/N)

- A new "Additional Fields" panel allows entering:
  - XML Print File Name
  - XML Print File Type
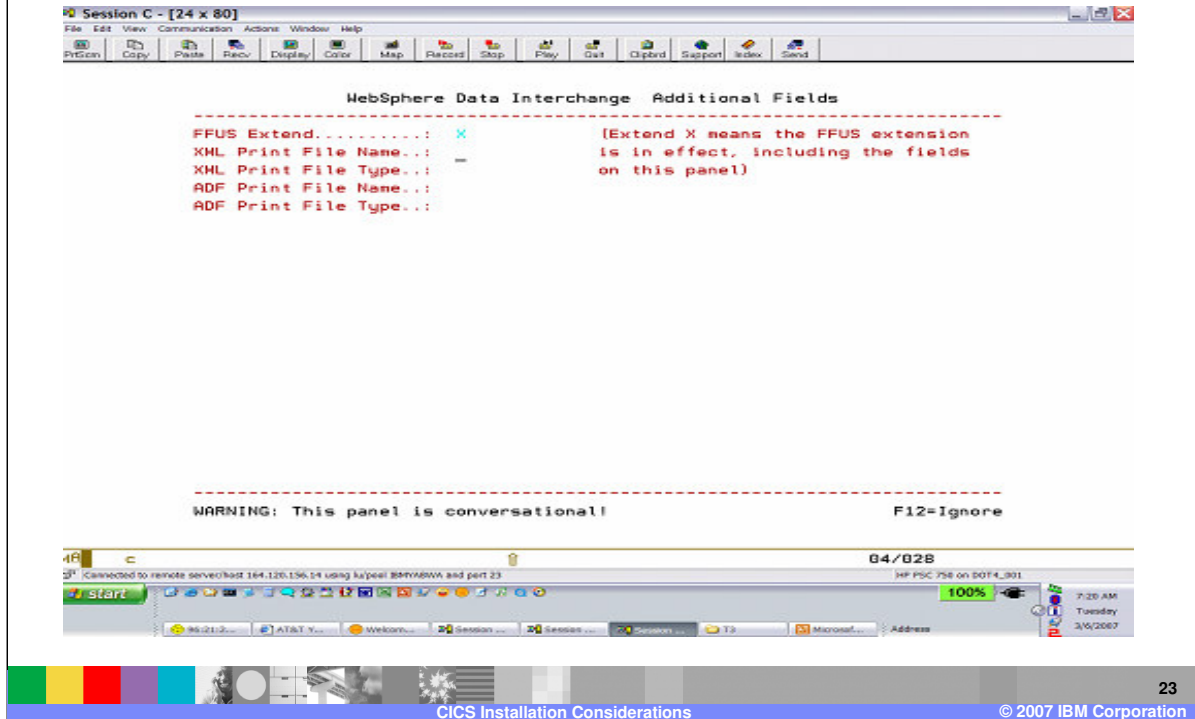 - ADF Print File Name
  - ADF Print File Type

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Finally, a change has been made to the EDIW panel to accommodate naming XML and ADF print files. EDIW is a CICS transaction that can be used to enter ad hoc PERFORM commands. Because the EDIW panel is quite full, an additional panel was created. If 'Y' is specified in the "XML/ADF Print File" field while keying in the PERFORM command and other information on the main EDIW panel, upon hitting the enter key an additional panel will be displayed that allows XML and ADF print file names and types to be entered.

EDIW Panel – main panel
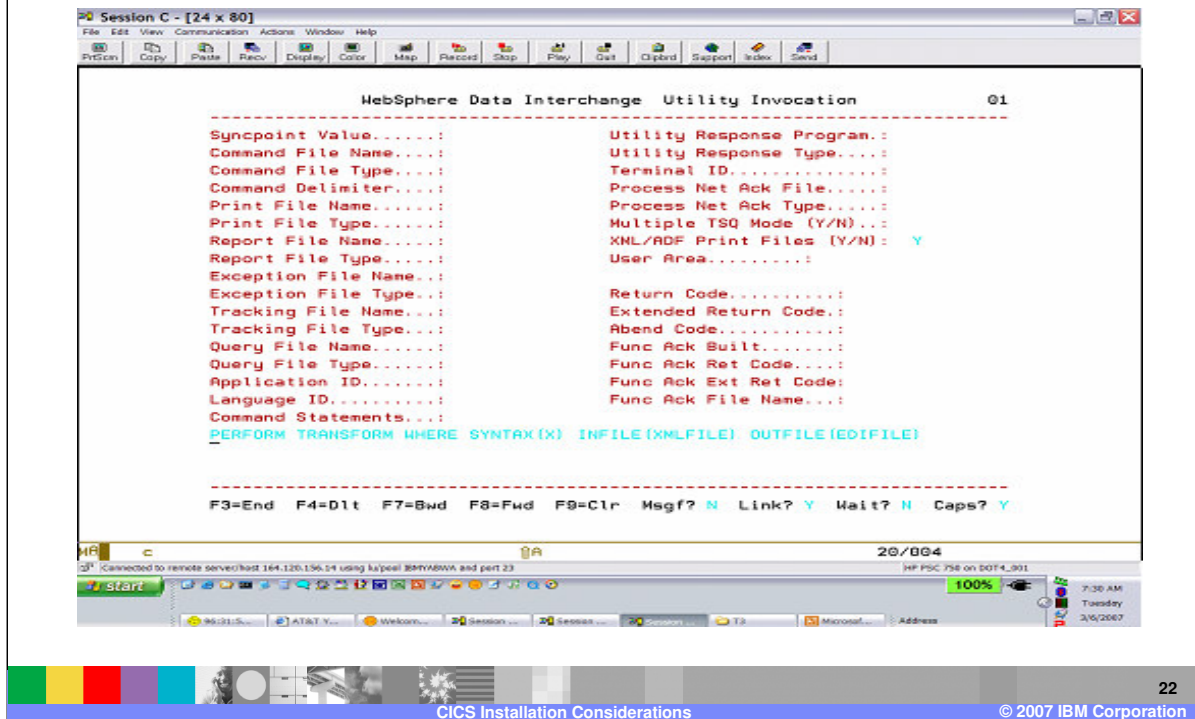
This screen shot of the main EDIW panel may be hard to see. However, it show a 'Y' entered in the "XML/ADF Print Files" field. Upon hitting enter a subsequent panel will be displayed.

EDIW Panel – additional fields

Again, this may be hard to see. It shows the "Additional Fields" EDIW panel. Here XML and/or ADF print file names and types can be entered. Upon hitting enter here the PERFORM command would get executed and control would eventually return back to the main EDIW panel.

Summary

- CICS install step changes
  - ▸ RDO now exclusively used to define CICS resources

- Error Notification step has Java install implications

- CICS startup JCL changes
  - ▸ VSAM datasets now totally removed – all DB2
  - ▸ WDI Facility no longer used – all in WDI Client
  - ▸ Persistent Environment no longer used

- Utility Control Information block changes (FFUS block)

- EDIW has been changed to accommodate XML and ADF print file names and types

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In summary, we talked about the CICS install step and RDO changes. We talked about the Error Notification and XML Support install steps. We talked about the CICS startup JCL changes. And finally we talked about the change to the Utility Control Information block and how the change might effect some customers. Thank you.

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