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Assure QuickEDD

 $High \ Availability \ for \ IBM \ System \ i^{TM}$

Release notes

Version V23.10.17



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Getting technical support: Customers with a valid maintenance contract can get technical assistance via Support. There you will find product downloads and documentation for the products to which you are entitled, as well as an extensive knowledge base.

Engine and tools warnings

Attention, you must upgrade both the engine towards V18_0125 and the tools towards V17_1213.

The installation or upgrade of the tools requires to use the Graphical Quick-Installer.bat (windows) or Quick-Installer.sh (Linux), selecting all parts, and to be able to send emails through the tools, the IBM i must be at least in Java version 1.8.

About Journal Manager

If upgrading from release V16_0908 of the tools, or lower, the file containing the journal manager settings must be upgraded as follows:

- DLTF FILE(PMEDHUSR/EDH_JRNML1)
- RNMOBJ OBJ(PMEDHUSR/EDH_JRNMPF) OBJTYPE(*FILE) NEWOBJ(EDH_JRNMSV)
- CRTDUPOBJ OBJ(EDH_JRNMPF) FROMLIB(PMEDHTOOLS) OBJTYPE(*FILE) TOLIB(PMEDHUSR)
- CRTDUPOBJ OBJ(EDH_JRNML1) FROMLIB(PMEDHTOOLS) OBJTYPE(*FILE) TOLIB(PMEDHUSR)
- CPYF FROMFILE(PMEDHUSR/EDH_JRNMSV) TOFILE(PMEDHUSR/EDH_JRNMPF) MBROPT(*ADD) FMTOPT(*MAP *DROP)
- DLTF FILE(PMEDHUSR/EDH_JRNMSV)

About switchover scripts

If upgrading from release V15_1217 of the tools, or lower, the file containing your switchover scripts must be replaced as follows:

- DLTF PMEDHUSR/EDHSWIL1
- RNMOBJ PMEDHUSR/EDHSWIPF *FILE EDHSWIPFSV
- CRTDUPOBJ OBJ(EDHSWIPF) FROMLIB(PMEDHTOOLS) OBJTYPE(*FILE) TOLIB(PMEDHUSR) DATA(*YES)
- CRTDUPOBJ OBJ(EDHSWIL1) FROMLIB(PMEDHTOOLS) OBJTYPE(*FILE) TOLIB(PMEDHUSR)
- CPYF PMEDHUSR/EDHSWIPFSV PMEDHUSR/EDHSWIPF MBROPT(*REPLACE) FMTOPT(*MAP)
- DLTF PMEDHUSR/EDHSWIPFSV

About EDH_PERF

Format of the output file has changed. After the upgrade, delete the previous output file you were using, if any.

Support for switching an Assure Security environment

Assure QuickEDD now adds steps in the provided switch scenarios that allow users who have the Assure Security product installed on their systems to control switching the security environment to the backup system in the event of a planned or unplanned switch.

The process of installing or upgrading to Assure QuickEDD GUI version V19_1106 adds the following sequences to default scenarios:

360 : SECOPSHA/CHGQJACT ACTION(*SLEEP)
370 : SECOPS/CHGQJACT ACTION(*WAKEUP)

CHGQJACT command belonging to Assure Security product allows to:

- *SLEEP: deactivate Assure Security instance
- *WAKEUP: activate Assure Security instance

This command can be used to activate/deactivate Assure Security instance depending the server you are on.

The following actions are required:

- You must configure insertion rules to replicate the required objects from the Assure Security product. For a complete list of objects to be replicated and to explicitly exclude from replication, see the Assure Security Readme document for version 6.0.
- Customize the default switch scenarios to fit your switching requirements or add new sequences listed above to your current switch scenarios. For more information, see "EDD_HA_11_How_To_Switch" documentation.
- The user profile used for replication must be an allowed (*ALLOWED) user of the QIBM_DB_SECADM function on systems in the Assure QuickEDD installation that are running IBM i 7.2 or higher and Assure Security.

The number of Assure Security instances that are required varies. If the security environment normally runs only on the production node and you want it included in switch operations, the Assure Security product and appropriate license keys must be installed on both the production and backup systems. It is required to replicate a limited set of objects associated with the Assure Security product and to control switching, as explained above.

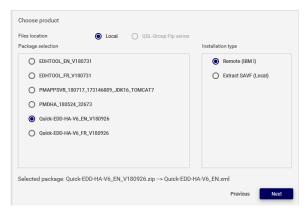
If your normal operating environment requires running Assure Security on both production and backup systems, you need a total of four instances of the security product. An active Assure Security production instance and a deactivated backup instance are required on the production

system, and a deactivated production instance and an active backup instance of Assure Security are required on the backup system.

Graphical Quick-Installer

Reminder: the upgrade procedure does not change, except that instead of restoring EDHTool_XX.savf, you must unzip the EDHTool_XX.zip file then use Quick-Installer.bat:

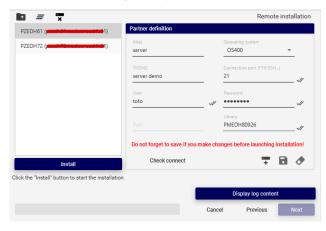
Then



Then



Then, define, add and save the systems on which you will install/upgrade the tools, customize the name of the library if requested:



Finally, install on the « Selected » or on « All systems »

ENGINE

Improves

 Improve DEVDs replication: new option added to create DEVDs automatically during the CTLD creation.

Fixes

• PMEDHINSG: Group is now correctly added even when using the parameter GRP(*LAST) and no group already exists.

TOOLS

- Journal Manager: A new message providing more information is sent in the joblog when SEQOPT(*RESET) is refused by the system with a CPF7018 message.
- EDHMONMSG: File FIC132 size is set to *NOMAX so EDHMONMSG do not stay in MSGW with a message CPA5305.

ENGINE

Fixes

- Manage of *SYMLNK improved:
 - Symbolic Link Owner is now replicated, verified, and synchronized correctly to target system.
 - Replacing a directory with a symbolic link is now correctly managed.
- Function usages are now correctly preserved for the profile on the target system when a CHGUSRPRF is done on the same user profile on the source system.
- When PGM Exit Program is defined in environment "General parameters", it is now correctly executed for exit point 24 during synchronization, journal processing and Verify processes.
- Verify is no longer returning a difference on procedures when the EXTERNAL_ACTION setting is NULL on source system and 'E' (default value same than NULL) on target system.
- Interface hanging in some cases when changing group configuration is now fixed.

TOOLS

- EDH_MIGKIT: Adding IFS entries using the tool now sets the "STMF" field to 1 by default.
- EDHCHGJA: tool now changes the setting correctly for parameter 'Duration for attachment'.
- EDHCHKOBJ: restart the 5250 session is no longer needed between two runs of the tool for different environments/parameters.
- EDH_MIGKIT: Environments created using the tool now have the correct value '24' In the "Detach receivers: And/or Duration limit" Journals parameter.

ENGINE

Fixes

- Opening/Listing an EDH environment is no longer ending when DATA replication mode is configured to '1' (DATA only).
- Changes made on spooled files located on source system do not result in spooled file deletion on target system anymore.

TOOLS

- Environment created by EDH_MIGKIT is now based on last environment level. No more issue is raised when opening general parameters at the first time.
- EDHCTL now use SSH for all commands when "Supervision parameters" is configured with option "Remote command via SSH" set to 1.

ENGINE

Improves

- Job information in the Assure QuickEDD messages are now displayed using the system format.
- English translations improved.

Fixes

- A full synchronization of Logical Files is executed in case of error during standard synchronization. This behavior is used to bypass error due to Logical Files having more than 32 DTAMBRS.
- Unnecessary trace generated on target when CHMOD action is done on source is no more generated.
- USREXPDATE profile attribute is now managed correctly: the value is replicated if date
 is in the future, value is not replicated if date is in the past. For dates in the past, profile
 is disabled and value of USREXPDATE is updated to *NONE on target.
- "Blocked obj." field when Displaying object now displays the correct value.
- Option 'O' on spooled file objects is fixed.

Web UI

Fixes

 Assure QuickEDD GUI - Target site password verification doesn't freeze the application in case of password are different.

Notes

Assure QuickEDD-Installer is now compatible with Java 11+. Prior to run Assure QuickEDD-Installer you need to ensure that minimum release of java installed on your computer is 11.

ENGINE

Fixes

- Journals parameters:
 - Journals configuration panel now displays correct receiver name.
- Spooled file moved from an OUTQ to another OUTQ are now correctly managed.
- Invalid text displayed in joblog after starting journaling on IFS had been removed.
- Option 'O' in the environment to access a pre-defined command line for current object is now working as expected.

TOOLS

- Nagios plugin now reports the correct number of replication errors.
- EDHCHKIFS3
 - Management of objects deleted on source has been improved.
 - *MOVE option now creates full path in destination path.
- EDHCTL The startup issue on target has been fixed.
- EDHSAVRMT Process is now starting on the target without error.

ENGINE

Fixes

- Journals parameters:
 - "Std management receiver" setting displaying impossible value is now fixed.
 - Display, edit, and delete option on a journal having a status: Dltsys or Cache, is now possible again.
- Libraries and IFS selection parameters can now be added in the migration kit menu without any error.
- PMEDHCOPXR and PMEDHCOPXX commands to copy and reorg an Assure QuickEDD Environment are now working normally.
- Command PMEDHINSG is now correctly adding objects in target group without error.
- iASP is now correctly retrieved when configured in the General Parameters screen.
- Manually positioning on a receiver sequence using screen parameter or PMEDHJRNPO command is working as expected.

Web UI

Improves

 Assure QuickEDD GUI now allows password length greater than 10 characters for environment configuration.

Fixes

 Anonymizer definitions are now retrieved correctly with the latest Assure QuickEDD GUI.

ENGINE

Fixes

- Needs for supplemental authorities to start/stop an environment are removed.
- PMEDHSWI command now works correctly for environment containing multiple user spaces.
- PMEDHMOD command not updating environment to *NOIO when executed on target system is fixed.
- Deletion of spool replicated in a release older than 21.11.23 is now working correctly.
- Verify now detects differences between source and target for external procedures.

TOOLS

Fixes

- Supervision tools issuing a hard error are now fixed (EDH_SPVLST, EDH_STATUS, EDHCHGENVS, EDH_ENVPRT, EDH_PERF, EDH_PERFS, EDH_STATS, EDHJRNRLS).
- MSGQ used by EDHCTL is no longer filled by EDH1922 message on every check.
- Journal Manager now accepts lowercase and special characters in library name and journal name.

Web UI

Fixes

 Parameter for "GUI library" in the web interface settings for an HA environment is removed since all needed objects are now delivered in the product library.

Notes

User profile replication from IBM i OS 7.5 to a lower release (7.4 or 7.3) needs some specific PTFs to be applied:

- IBM i OS 7.4: SI76821 must be applied.
- IBM i OS 7.3: SI76822 must be applied.

ENGINE

Improve

- Support new IBM i OS 7.5 features:
 - New Attribute MAXSIGN on *USRPRF.
 - New Attribute RESTRICT ON DROP on *FILE.

Fixes

- IFS File creation using the same name as a previously deleted folder now replicates correctly.
- QIPLDATTIM synchronization fixed when set to *NONE.
- No more T-PW audit journal entries generated on target when user profiles are disabled by settings.

TOOLS

Improve

 Journal Manager configuration can now be saved/restored using the EDHSAV* commands. New option "Journal Manager settings" is available in "Manage specific objects" needs to be updated with value "X" to save data during EDHSAV* commands.

Release V22_0614 ENGINE

Fixes

- Assure QuickEDD is now compatible with IBM i V7R5.
- Partitioned tables synchronization is now working fine for IBM i release V7R5.
- USRSPC synchronization now fix the size if bigger on target.
- "Generate objects" now works correctly with option "Selection by the journal".
- Assure QuickEDD now use API QSYCUPWD to compare Profile Password during verify to avoid reporting false differences during comparison.
- During a Verify the member expiration date (EXPDATE) is now checked and execute a synchronization if differences are found.
- File synchronization using the SAVOBJ option now deletes extra members on target.

TOOLS

Fixes

• EDHCHKIFS3 now allow *MOVE in QDLS without throwing security error. Complete configuration of the parameters to use is described in tool documentation.

ENGINE

Improve

- IBM i V6R1 OS release is not supported anymore The V22_0215 is the last release available for V6R1 IBM i OS release.
- Authorities on *NONE group for an object are now correctly replicated.
- For a new environment, default value for "RGZPFM => Synchro" (Library parameter) is now set to 4294967295 (max value).
- Objects that are being synchronized or pending synchronization are now checked by Verify and reported in output spool.
- Enterprise Monitor is not delivered anymore.

Fixes

- Triggers creation is now working as expected on OS V7R4.
- Multi-event triggers are now correctly replicated.

Graphical User Interface

Improve

- Assure QuickEDD GUI now uses TOMCAT10.
 - Remark: This installation of "new" Quick EDD GUI cannot be installed as un upgrade of existing Quick EDD GUI if QSD and CSi are already used. If you are in this case, you must install against new directory, use new connection port and configure again Partners, like a first installation.
 - Remark: Now only one package "PMAPPSVR_220419_JDK18_TOMCAT10" is delivered and contains DESKTOP + PMDHA
- Assure QUICKEDD GUI no longer uses Log4j.

TOOLS

Fixes

• EDHSAVSWI OPTION(*DIRE) now continue to proceed SMTP Data, User defined fields and Procuration data even if an error occurred during Directory entries replication.

Release V22_0215 ENGINE

Fixes

• Issue with IFS sub-directories being omitted during normal start when only extension omission is configured in Group configuration, is now fixed.

TOOLS

- EDHCTL: After Assure QuickEDD stops (scheduled or not), before restarting, EDHCTL now ends any remaining jobs in *IMMED mode on source and target.
- SNDMAILS: port configured to send email is now correctly used in all tools PGM.
- EDHENVREP: can now handle multiple users at the same time without issuing errors.

Release V21_1221 ENGINE

Fixes

- Modifications in SBS JOBQ entries are now detected and correctly synchronized on target.
- A SYS0403 message (severity 40) is now sent to PMEDHUSR/PMEDH MSGQ if license key is expired or about to expire in less than 3 days. This messages can be monitored as other messages having severity 40.
- SWITCH, PMEDHRUIDT and EDHSQLIDTF now works fine even if the library or file name contain a '.' (period).

TOOLS

Improvements

- TLS value *NONE has been added to force sending emails without use of TLS in case of configuration is not correctly detected by *AUTO value.
- EDHSQLIDTF command now correctly updates identity fields to last value even if they are created with *DEFAULT option.

Release V21_1123 ENGINE

Fixes

- Replication of spooled files now works correctly if the spooled file from a different system has the same name, number, job etc...
- Issue with spooled files wrongly tagged as deleted on source system or after a switch is now fixed.
- Automatic environment purge at startup is now disabled by default and can be reenabled by the "Purge deleted elements" parameter in the environment settings.

TOOLS

Improvements

• User/Password fields for EMAIL monitoring screen are now labeled more clearly.

Release V21_0615 ENGINE

Fixes

- System value QIPLDATTIM is now replicated properly.
- During IFS synchronization, object types are NOT checked anymore for objects that are already listed in the environment scope. This prevents problems when objects that were previously folders become files in the same folder and with the same name.

TOOLS

Improvements

• PMSNDMAILS: The TLS version can now be forced in the Monitoring Options of the EDH Menu in case *AUTO is not providing the correct version. Available values are TLSv1, TLSv1.2 or *AUTO (System will automatically choose the best version compatible between client/server).

Release V21_0420 ENGINE

- The Generation process for the IFS piece now handles correctly the omitted files and the extensions specified for an omitted directory.
 - When omission setup is "/DIRECTORY", all the objects within DIRECTORY and DIRECTORY itself are excluded from the replication scope, regardless of the omitted extensions.
 - When omission setup is "/DIRECTORY/*", the DIRECTORY object is not omitted, then all the objects matching the extension are omitted.

Release V21_0216 ENGINE

Fixes

• Simultaneous start of multiple environments using different ASPs or iASPs is now fixed.

TOOLS

Fixes

• EDHCHKIFS3 now manages "entry directory" defined in the EDH IFS parameters and IFS replacement path for selection in the groups.

Release V20_1215 ENGINE

Fixes

Improvements

• Improvement in Synchronization process to respect defined maximum target ASP usage by shutting down the environment if maximum size is reached for target ASP.

TOOLS

- Manage specific objects: when saving specific object TCP/IP data in EDH Tools, the
 use of IFS File /QIBM/USERDATA/OS400/TCPIP/QTOCHOSTS now allows to manage
 more than 4 host entries.
- EDH_ENVPRT can now display IFS path with 110 characters length instead of 80 characters.

ENGINE

Fixes

- New fix to avoid replication prog PMEDHWRPG going in MSGW.
- Synchronization now replicates authority changes correctly even if the authority was updated on the target system.
- Fix for IFS authorizations replication on systems not current on PTF levels.
 (For OS release under V7R2 or V7R2 without PTF SI55094)
 After fix installation, execute a Verify on IFS to solve potential issues.
- Authority lists (AUTL) now replicate correctly on a V7R4 system.
- For V7R4 OS Release: iASP description is no more validated with system values in Assure QuickEDD settings.
 Warning: No validation is done. Make sure to enter valid value for iASP description.

Improvements

- Assure QuickEDD GUI now supports Windows Server 2019
- Improvement of EDH engine to put an error message in EDH Queue when generation failed during startup.
- Improved the user profile's password comparison method.
- New option in library parameters to always force synchronization of files using IBM Save/Restore is now available.

TOOLS

- PXEDHEXIT sample compiled program delivered again in the Tools
- Sources for tools can be automatically installed on IBM i from Assure Quick-Installer.
- Fix in French Tools save files EDHTSRC_EN.savf and EDHTSRC_FR.savf source packages: QPGMSRC is now correctly delivered

ENGINE

Fixes

- Issue on synchronization of Profile Function usage now fixed.
- Improved the user profile's password comparison method to avoid synchronization loop.
- Installer is not hanging anymore on first installation of IFS part.

TOOLS

Fixes

• EDHSAVSWI - improvement of *DIRE permissions that now allow to rewrite ID on target without issue. If some issues occur during restoring *DIRE data, more information are now given in EDH messages (EDH → option 21) to help customer to solve issues before executing again the command.

ENGINE

Improvements

- PMEDHSBMJ now manages SCDDATE and SCDTIME parameters after a switch.
- Port number for TCP/IP communication greater than 32767 are now accepted.
- Assure Quick Installer now works with IPV6 network configuration.

Fixes

- Management of newly created *DTAARA objects improved.
- Journal replication is now working correctly when the MSGQ is located in a library with a name length equal to 10.

TOOLS

Fixes

• PMSNDMAILJ program included in the tool delivery again.

ENGINE

Improvements

- The limitation for the synchronization of partitioned tables (V19_1106) is no longer a limitation.
- Assure Quick Installer is now compatible with Japanese IBM i systems

Fixes

- User defined authorities on IFS are now correctly managed.
- IFS selection based on file type (Ext) is now working as expected.
- MSGQ, RCVSIZOPT and JRNOBJLMT journal attributes changes are now replicated.
- Management of libraries containing the maximum number of objects allowed in a library now works successfully (1 Million objects).

TOOLS

Fixes

• EDH_SPVLST - QEDD tool EDH_SPVLST is shipped again with the product.

Release V19_1217

ENGINE

Improvements

- PMEDHUSR/PMEDHTYPOB is now deleted and recreated during the upgrade processing
- New PMDHA Documentation (GUI)

TOOLS

Fixes

• EDHRTVINF - Issue raised when executing EDHRTVINF is now fixed and max length of generated file is now unlimited

Release V19_1106

ENGINE

Improvements

- Replication and synchronization of partitioned tables is now supported. For this release, synchronization on a partitioned table will clear the target file before synchronizing data
- Assure QuickEDD now replicates and manages production and backup instances of Assure Security product. Refer to Assure Security product readme to configure the replication: https://mysupport.syncsort.com/products/assure-security/6-0/downloads/
- Continuous improvements on product documentation
- CHGTRG is now supported for V7R4

Fixes

- Option "W" for automatic verify is now available in the GUI (PMDHA)
- Management of multiple values for the QPWDRULES system value now replicates correctly
- Large number of files with identity columns are now correctly managed during the switch

TOOLS

- EDHCTL EDHCTL command now correctly ends the replication job on the target system.
- Quick-Toolbox.zip (delivery package) Tools for SNMP monitoring now delivered in the Assure QuickEDD Tools package

Release V19_0820

ENGINE

Improvements

 Improved automatic VERIFY for the environment when enabled. Option with "W" has been added to avoid generation of a spool file

- IFS journaling will no longer be started if option is set to 0 even if the journal is defined
- Continuous synchronization for user profiles incorrectly initialized with password *NONE
 has been fixed
- IFS authorization list changes are now replicated correctly
- QDLS Folders deleted on the source system are now correctly removed on the target system.
- Keyed sequence access paths differences are now correctly detected and fixed.

ENGINE

Improvements

- Rebranding of "Quick EDD/HA" to "Assure QuickEDD"
- Release number has changed, a new change number is added to current version number. Example: "190618317" is for "190618" and change number is "317"
- Assure QuickEDD is now compatible with IBM i V7R4
- Files with more than 64 LOBs per record are now managed

Fixes

- Prevent the generation of 2 spools when a verify is completed
- Manage MCH1210 Errors on receiver "Receiver value too small to hold result" is now managed by Assure QuickEDD
- In case of failover PMEDHRCI is executed without considering I/O delay if that environment has been set to replicate the I/Os with delay for CDP purposes

TOOLS

Fixes

 EDHCHKIFS3 - Fix an issue that was reporting files as missing even if they are properly managed by environment.

ENGINE

Improvements

- Add EDH_EMSND command: send environment status to VSP Enterprise Monitor.
- GDPR: Default value for Encryption mode on environment creation is "1"

Fixes

• Fix an issue that generate an error when generating QDLS with many files

ENGINE

Improvements

• Hide STRJRN error messages

Fixes

• Fix issues in IFS: Error 01 that can occurs when files are not accessible

ENGINE

- Fix issues for User Profile Replication
- Improve IFS journal entries detection

TOOLS

Improvements

• EDH_UNINST: Uninstall QuickEDD and Tools - This command deals with all the following points for an environment:

```
Environment
                                                 Nam
                                   *YES
End Journaling for files
                                                  *YES. *NO
End Journaling for Objects
                                   *YES
                                                  *YES, *NO
End Journaling for IFS . . . .
                                   *YES
                                                 *YES, *NO
Delete Journals
                                   *YES
                                                 *YES, *NO
End Audit for Objects
                                   *NO
                                                  *YES, *NO
Delete AUDIT journal
                                   *NO
                                                  *YES,
DELETE library PMEDHUSR
                                   *NO
                                                 *YES. *NO
DELETE libraries PMEDH & Tools
                                    *NO
                                                  *YES.
                                                        *NO
```

The 3 last parameters cannot be used for now.

- For \$\$EDHJRN's journals
 - ENDJRNPF *ALL (All files)
 - ENDJRNOBJ *ALL (All objects *DTAARAs et *DTAQs)
 - ENDJRN *ALL (All IFS)
 - Delete journals
 - Delete receivers
- For objects
 - CHGOBJAUD *NONE (Stop Auditing)
- EDHSAVDTN Option 2: New parameter on the "Save STATUS of Triggers" input screen
- EDHSAVDTA Take into account the management of the triggers according to the parameterization
- Warning: The DSPFD used to retrieve information can be time consuming. Use this
 option ONLY if really necessary.
- EDHSAVSWI New option *TRGSTS in the list of possible values. Take into account
 the treatment of triggers. Run the EDH_TRGSTS command with the *ALL option (all
 libraries in the system)

• EDH_TRGSTS - New command to restore the state of triggers, for a library or *ALL libraries. The command ONLY changes the triggers that must be in *DISABLED state.

Fixes

 PMEDHSWI - Retrieve Triggers and Constraints status from source server and enable on target only those which were enabled on source after the switch.

Release V18_0726

ENGINE

- Fix issues for missing IFS files during replication
- Take into account alternative name attribute for PF during replication
- TIM Error 08 Different OUTQ during EDHIOAEXC is fixed
- Improve performances for Journal reading by removing call to API profile validation rights
- Fix visual display in Spool Group settings
- Fix authority's management to prevent extra-authorities added on target if no authorities present on source
- Synchronization is no more looping on objects having further triggers on target.
- Prevent PMEDH sub-system locking if EDHSTART is used for multiple environments

Warning: from this release of QuickEDD, in order to prepare for accelerated PF IO applying process, new Jobs are created: "Xnt"

n: is master job number.

t: is child job number.

ENGINE

- Temporal tables One error on DROP TEMPORAL TABLE has been fixed
- Erreur GRAVE 000B Erreur GRAVE 000B has been fixed
- OUTQ always sync One error about Synchronization of OUTQ has been fixed
- SQL Procedure One synchronization error for SQL Procedures has been fixed
- Spool not replicated One issue for spools replicated with the option of SAV/RST has been fixed

ENGINE

- Stored Procedures with external action Stored procedures management with empty external ACTION attribute is fixed
- QLOCALE system value QLOCALE system value management is fixed. In some cases the value was not updated on target system.
- Remote OUTQ Remote OUTQ management has been fixed. When a synchronization happened on an existing remote OUTQ, the link between the OUTQ and the device was removed.
- *DTAARA sequence
 - Sequences *DTAARA synchronization has been fixed
 - *JRNRCV saved on target
 - In some cases, a target journal receiver was not eligible for save on the target system. This has been fixed.
- Access path maintenance changed from *DLY to *IMMED When a group was defined
 to force *DLY for logical file access path maintenance, if a synchronization was
 triggered, the access path was set to *IMMED, this has been fixed

TOOLS

Improvements

- EDHCHKIFS3 These tool is dedicated to extract the list of the objects from IFS which
 are not part of the replication scope. It provides improved reports compare to
 EDHCHKIFS2 command. Analysis speed has been improved too. Report is generated
 in /home directory.
- EDHIFSANZ Generate a report IFSFILECOUNTER_DATE-TIME.txt which display number of objects per directories.

ENGINE

Improvements

- IBM i V5R4 OS release is no more supported The V17_1211 is the last release available for V5R4 IBM i OS release
- SYS0403: RCV env. available and not held
- Interactive option for SRS mode Unused interactive options D Differed MAJ (SRS) and I Immediate MAJ (SRS) have been removed.
- Prevent MCH3401 During environment start, message MCH3401 was previously generated in the SND environment joblog to check if a RCV environment exists on the source side:

MCH3401

Message : Cannot resolve to object XX_RCV. Type and Subtype X'0E0A' Authority X'0000'.

This message has been removed and replaced in the case where a RCV environment with same name exists on the source side.

Fixes

 Triggers management - When a forced synchronization occurred on a *FILE with triggers, the triggers were not automatically recreated. This has been fixed

TOOLS

Information about *DTAARA fed by EDH_STATUS command

- EDH CTL parameters
 - 5 6 Environment code
 - 7 16 User profile
 - 17 26 NOT USED Old password 10 characters
 - 30 51 Primary IP address Source
 - 52 73 Secondary IP address Source
 - 74 95 Primary IP address Target
 - 96 117 Secondary IP address Target
 - 118 127 Message queue
 - 128 137 Library of message queue
 - 138 147 Message queue
 - 148 157 Library of message queue
 - 168 177 Exit program Source
 - 178 187 Library of exit program
 - 189 198 Exit program Target
 - 199 208 Library of exit program
 - 1000 1000 Password is crypted (manage automatic conversion)
 - 1001 1020 Password (crypted)
- EDH STATUS information
 - 257 265 Delay (depending on unit)
 - 266 274 Synchro ERROR
 - 275 280 Retrieve information date
 - 281 286 Retrieve information time
 - 291 299 Synchro Waiting
 - 301 309 Synchro done OK
 - 311 319 Active synchro
 - 321 321 Mode *NOIO 1= Activated
 - 322 322 Mode *NOJRN 1= Activated
 - 323 323 Activity 1 = Environment is active
 - 401 409 READ Delay in seconds
 - 410 410 READ delay Unit (S/M/H/D)
 - 411 419 APPLY delay (depending on unit)
 - 420 420 Apply delay Unit (S/M/H/D)
 - 421 429 APPLY delay in seconds
 - 431 439 Entries pending

Improvements

• EDHJRNSTR - There is a new parameter in the command:

Use previous journal *NO *YES, *NO, *ONLY

*NO - All files will be journaled in the journal defined in the command

*YES - Journaling is started using the last journal definition if any, otherwise it uses the default journal

*ONLY - Journaling is started based on the previous journal definition only.

If no previous one, journaling is not started

- EDH_EXAM A problem used to exist when switching from Summer to Winter time, this has been fixed.
- EDHSAVSWI *DIRE This command now displays an "abnormal end error" in case any error occurred. You can either choose to check or ignore that, depending on the option used for that command in the switchover scripts.

ENGINE

Improvements

 Command PMEDHPRT - The command offers to print all parts of the environment in a spool file as follows:

```
PMEDH - Printing (PMEDHPRT)

Type choices, press Enter.

Source environment ... XX Nam

Type Snd or Rcv ... ... *SND *SND, *RCV

Print type ... ... *LIST *LIST, *READ, *EXEC, *SYNC...

Type or group of objects ... *PAROBJ *ALL, *JRN, *JOB, *OBJ...
```

The "Type parameter" proposes all options:

*ALL *JRN *JOB *OBJ *CFG *IFS	All parts are printed List of journals List of jobs List of replicated objects List of replicated system objects List of replicated IFS files			
*SPOOL	List of replicated spool files			
*SYSVAL	List of replicated system values			
*PAROBJ	List of Groups and selection lines for Objects			
*PARCFG	List of Groups and selection lines for system objects			
*PARIFS	List of Groups and selection lines for IFS			
*PARSPOOL List of Groups and selection lines for spool files				
*PARSYSVA	L List of Groups and selection lines for system values			

^{*}SQLUDT objects are now managed

- PMEDHPARUN This command now allows to change dynamically the number of jobs for Verify While Active physical files feature "Server accelerated PF verify"
- IOA/Verify while active If first process of VFA option returns a partial verification, a VFR (recovery for active PF) is launched once automatically for the same file

For user profiles, IOA/Verify checks and fixes all attributes, same as a synchronization.

User profile QCPMGTDIR is now part of the 'QSYS owner' in the group settings

- Modification on User profile QM for query manager can now be followed
- IFS files

2 options have been added to manage specific cases

Ignore code page: to avoid the IOA/Verify to check on source and target CCSIDs when it is a regular situation that they're different

Ignore archiv system: to avoid the IOA/Verify to check the fact that the IFS file is saved on target but not on source, when backups occur only on target system

- Spool files in iASP can now be replicated
- PMEDHSWI For V7Rx OS releases, default behavior is not to check referential constraints files when activating constraints on one file; this to get a faster switchover.

- Analysis of target modifications On file member initialization (INZ), clear (CLR), or rename (RNM) made on target system, the job PMEDH_RCJ detects the change.
- QDLS files Management of QDLS files produced on source system: a file created and locked by the system produces a CPE3029 error, allowing the synchronization process to wait until the file is available. There used to be an issue synchronizing read-only QDLS files, this has been fixed.
- IFS generation In rare conditions, some files were not listed in the environment, this has been fixed.
- QSTRUPPGM It is held by default at first generation, but if you release it, it will remain released.
- Option P to print environment information This option adapts to the view currently used in the environment
- PMEDHSWI An error EDH1602 was displayed after a constraint was successfully activated, this has been fixed.
- PMEDHRCO If no open commit cycles are present, no message is displayed

- PMEDHWAT If monitoring job EDH_XX_SWA is stopped, the environment is not displayed in red even there is a condition matching the red display, such as delay
- IFS If an error is detected, the full path of the file is displayed.
- EDH_LFMNT Fix the problem of LOCK between different servers

News

• <u>Verify While Active (VWA)</u>

The Verify is now coming with a new feature, dedicated for almost always active database.

This feature will allow all customers to run a full Verify of DATA, even if the database is permanently active.

How it works:

- The Verify can be ran any time. It handles the database, and control all records, even if there is activity on the files
- Verify can be launched when the application is running
- Verify can be executed at any time No matter the replication would have some latency or in case of *NOIO mode
- The Verify runs in parallel multiple process, allowing to control different parts of the database files
- The Verify controls as many records as possible
- The Verify would stop in case of "conflict" with the core business Application (change pending, new records not already applied, ...)
 - Position will be memorized, allowing to restart the process to complete the operation (manual or scheduled)
- At the end of the Verify, a report shows how much records have been controlled (log message, display and reporting)
- This control will be always submitted for the whole records of the database files
- It will allow to be used multiple times, until 99% of the records will be effectively controlled (the missing 1% are the current activity changes, and controlled at the next run)
- An option allows to initialize status, forcing to restart completely the Verify (from record 1). From 2 to 24 parallel jobs can be defined for the IOA process. These jobs will start and stop automatically depending on the IOA needs. Note: These jobs will be activated under conditions:
 - Full data check (Mb compared by IOA set to maximum, in general parameters and when using interactive V)

o Files bigger than 128 MB

1. VERIFY SERVERS

We added the possibility to get multiple processes for the Verify.

Some additional servers should be used for the Verify of huge files.

The additional servers are defined PER synchro server. It means that each synchro server EDH_xx_Snn will have its own Verify servers.

The maximum number of servers is 24 PER synchro server.

In F20 WRKACTJOB, Multiple IOA jobs name: EDH_XX£Snn

You will see and be able to search for new messages EDH175*

CAUTION: It would multiply the number of active jobs, and can affect CPU consumption.

CAUTION: It would multiply the number of active jobs, and can affect CPU consumption.

General parameters:

Accelerated PF Verify 6

2. VERIFY OPTIONS *VFA / *VFR

The Verify now has 4 options:

- *VFY The Verify as it used to work
- *VFN The Verify of UNVERIFIED objects as it used to work
- *VFA The Verify FOR ACTIVE DATABASE the new feature
- *VFR Retry option for ACTIVE VERIFY. It would continue the Verification of files which have not been completely processed during the *VFA operation Documentation QuickEDD 6

This option is available from the main screen; when you run option V, the following window is displayed:

```
Option
             Verify Objects
             Check unverified
           A Check with active
           R Recovery with active PF
           1
             Check only this object
Ιf
   NOK
        0
           0
             Synchronize
           1
             No synchronization
              Synchronization if
                                  not
   compared by IOA
                                 0
```

Of course, the option is also available from the EDHIOAEXC, to be scheduled.

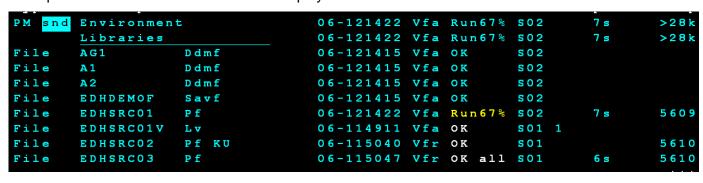
You'll find them also in general parameters:



From the environment, when you display the list of objects you can get information about the status of the Synchro and/or Verify.

Select the list of objects (8 in front of the library or option "+")

Then press F11 twice - the information is displayed as follows:



File	EDHSRC02	Pf KU	06-121426 Vfa	Ign:2% S	0 2	3257
File	EDHSRC03	Ρf	06-121436 Vfa	Ignall S	02 10s	6514

This is a test environment

Column EVENT shows the operation which has been done

*VFA for almost all objects

It could be SYN - a synchronization

• The second column shows the status of the operation. OK means that the operation is finished and object is OK.

Ign - Means Ignored. The *VFA has been done partially. It shows percentage of records processed

Ignall: nothing has been checked

→ In this case, if you run option *VFR, only these files will be processed again, and it will continue from the current position

3. VERIFY PRINTOUT - ENVIRONMENT and TOOLS

In each group settings, you can ask for:

Print Vfy objects OK ... O

This allows to see all ok objects, whereas the standard behavior is to see only what was different and has been fixed or synced.

We also created an additional list, showing the global status of the Verify.

The Verify still produces a report as before, but it provides a global view of the Verify status.

*..+..1..+..2..+..3..+..4..+..5..+..6..+..7..+..8..+..9..+..0..+..1..+..2..+...3

New command EDH_VFYLST allows to print the status of objects. Here is the produced spool file:

EDHToolsSTATUS_of_VERIFY_	OBJECT Page : 1
ENVIRONMENT PM Environment Library EDHDEMO_EN *LIB AP	
Obj. EDHDEMO_EN/BCSTSYNC52 *PGM Grp: AP Opt: *VFA - OK % 2017/ Obj. EDHDEMO_EN/EDHTEST1 *PGM Grp: AP Opt: *VFA - OK Obj. EDHDEMO_EN/EDHTEST2 *PGM Grp: AP Opt: *VFA - OK Obj. EDHDEMO_EN/A1 *FILE Grp: AP Opt: *VFA - OK Obj. EDHDEMO_EN/A2 *FILE Grp: AP Opt: *VFA - OK Obj. EDHDEMO_EN/EDHDEMOF *FILE Grp: AP Opt: *VFA - OK Obj. EDHDEMO_EN/EDHSRC01 *FILE Grp: AP Opt: *VFA - Ignored Obj. EDHDEMO_EN/EDHSRC02 *FILE Grp: AP Opt: *VFA - Ignored Obj. EDHDEMO_EN/EDHSRC03 *FILE Grp: AP Opt: *VFA - Ignored Obj. EDHDEMO_EN/EDHSRC04 *FILE Grp: AP Opt: *VFA - Ignored Obj. EDHDEMO_EN/EDHSRC05 *FILE Grp: AP Opt: *VFA - Ignored Obj. EDHDEMO_EN/EDHSRC06 *FILE Grp: AP Opt: *VFA - Ignored Obj. EDHDEMO_EN/EDHSRC06 *FILE Grp: AP Opt: *VFA - OK	
Obj. EDHDEMO_EN/EDHSRC99 *FILE Grp: AP Opt: *VFA - OK	

The command allows some selections:

- Environment code (requested)
- ist ALL objects or only *FILE

- List ALL objects or only the objects which are currently *IGNORED
- All objects from a specific group or ALL groups

With the former release V16_1013, EDH stops verify if the file is opened.

And it just says "File Ignored - Current journal entry"

With this new feature, it continues to do the Verify as much as it can.

It would stop in case of difference, which would correspond with some records which are currently updated on source, and not already applied on target.

Here are some examples:

Case N°1 - File is used by the application inserting some records

- Application is adding records
- *VFA is starting there are 1.000 records in the file on source 999 on target one journal entry on the fly
- The Verify will check the 1.000 records it knows from the start
- Because the application only add records, there is no conflict
- *VFA will finish with File OK-Update 100%.

Additional messages:

- File updated during *VFA
- File contains 1.050 rcds on source / 1.048 on target

Case N°2 - File is used by the application doing updates

- Application is updating records
- *VFA is starting there are 1.000 records in the file on source 1.000 on target The Verify detects a difference for record number 500 because application is doing an update on it
- *VFA will stop with File Ignored 50%.
- → If you run a *VFR, the Verify will restart for this file at record Number 500

```
100 % 2017/05/06 12:14:20
Obj.
             EDHDEMO EN/EDHSRC01
                                     *FILE
                                               Grp: AP
                                                          Opt: *VFA - Ok-Update
Obj.
             EDHDEMO EN/EDHSRC01V
                                               Grp: AP
                                                          Opt: *VFA - OK
                                                                                   % 2017/05/06 12:14:26
                                     *FILE
                                                                                   2 % 2017/05/06 12:14:26
Obj.
             EDHDEMO EN/EDHSRC02
                                     *FILE
                                               Grp: AP
                                                          Opt: *VFA - Ignored
                                               Grp: AP
                                                                                  100 % 2017/05/06 12:14:36
Obj.
             EDHDEMO EN/EDHSRC03
                                     *FILE
                                                          Opt: *VFA - Ignored
                                               Grp: AP
Obj.
             EDHDEMO EN/EDHSRC04
                                     *FILE
                                                          Opt: *VFA - Ignored
                                                                                   3 % 2017/05/06 12:14:36
             EDHDEMO_EN/EDHSRC05
                                     *FILE
                                                                                 100 % 2017/05/06 12:14:47
                                               Grp: AP
                                                          Opt: *VFA - Ignored
Obj.
```

```
Obj.
              EDHDEMO EN/EDHSRC01
                                                             Opt: *VFA - Ok-Update
                                                                                      100
                                       *FILE
                                                  Grp: AP
Obj.
              EDHDEMO EN/EDHSRC01V
                                       *FILE
                                                 Grp: AP
                                                             Opt: *VFA - OK
Obj.
              EDHDEMO EN/EDHSRC02
                                       *FILE
                                                 Grp: AP
                                                             Opt: *VFR - OK
              EDHDEMO EN/EDHSRC03
Obj.
                                       *FILE
                                                 Grp: AP
                                                             Opt: *VFR - OK
                                                                                      100
              EDHDEMO EN/EDHSRC04
Obj.
                                       *FILE
                                                 Grp: AP
                                                             Opt: *VFR - OK
              EDHDEMO EN/EDHSRC05
Obj.
                                       *FILE
                                                  Grp: AP
                                                             Opt: *VFR - OK
                                                                                      100
```

More details: VFA takes into account the surface/volume to be checked

VFY starts from the end of the file, VFA starts from the beginning

If you indicate 0 as surface, VFA processed the WHOLE file, VFY processed only external attributes, not the data.

For VFA, when you select a surface, it finished with an OK status, and if the file has not been entirely checked, you will see the processed percentage, for example VFA - OK 50%

If the VFA has been interrupted by an update (Ignored), you can use option VFR to check the rest.

If not, VFR will not be usable.

Process algorithm

VFA reads records by blocks of 8 MB.

Comparison key is made 10 blocks by 10 blocks, therefore 80 MB by check key

If there are multiple jobs for Verify, this value is multiplied by the number of jobs:

8 MB x 10 blocks x 10 jobs = 800 MB per key comparison/exchange

Put and Manage *DLY option for the maintenance of logical files on the target system

In special conditions, it can be interesting to deactivate some access paths of logical files on the target system, improving the performance.

It concerns very active files, with large number of records, and linked with a lot of access paths.

In the settings of Groups for objects, a new parameter allows to deactivate dynamically the access paths for logical files which do not have unique keys.

```
If PF ... LF maint(*DLY) 1
```

However, it is also important to keep the access path near "real time", avoiding a bad RTO in case of switchover (the application would have to rebuild access path).

A new set of tools is delivered in the last release, with 3 commands:

▶ EDH_LFMNG - Generate the list of LF files

This command extracts the list of LF files using attribute MAINT(*DLY)

▶ EDH_LFMNTC - Supervision of managed LF files

This command displays the list of managed LF files, and gives information about the last rebuild operation

▶ EDH_LFMNT - Process Rebuild access path, to be launched on target system; and to be active all the time

This command submits the jobs dedicated for the maintenance of access paths

To start the jobs, you would have to indicate the number of server jobs, and the periodicity of the operation

TOOLS

News

- SSH usage for EDHCTL can replace RUNRMTCMD
- Step 1, make sure SSH is configured

On production box, signon on the 5250 session as user XXXX (which must have been configured by the client previously for SSH)

QSH, enter

ssh -T XXXX@<the name of the target box>

Then, you're logged in to SSH

Enter hostname

There the name of the target box should appear

Enter exit then F12 to go outside QSH

Step 2, configure EDHCTL to use SSH:

EDH menu, option 3, change the settings for each environment using this new area: Remote command via SSH: 1

Then, a second screen opens to fill in the SSH information:

User: XXXX

System name: <equal to hostname displayed by the commands above>

SSH key file: /home/XXXX/.ssh/id_rsa (this is an example)

- EDHCTL Password becomes unreadable in EDH_XX *DTAARA
- EDH_STATUS, EDH_PERF used on target system

Get information about delay on the target system.

EDH_STATUS - Retrieve delay of the APPLY server

New *DTAARA positions:

411 - 419 - Delay for Apply servers

420 - 420 - Delay unit (s/m/h/d)

421 - 429 - Delay of Apply servers in seconds

431 - 439 - Number of entries pending on target system

EDH_PERF - Retrieve delay of the APPLY servers - 2 new fields:

EXPOSA - Delay for Apply servers

EXENTPD - Number of entries pending on target system

- → Old files must be deleted before using the command
- EDHCTLLIB, option "R", allowing to run directly EDHOBJREP on the selected library
 Thanks to this new feature, you can directly request to sync the library from EDHCTLLIB results screen.
- Emails: Port can now be specified



EDHMONMSG / EDHSTART

EDHMONMSG command now has a new option *JOBD for the parameter USER.

If you select it, then both EDHMONMSG and EDHSTART are using the user specified in PMEDHUSR/PMEDH *JOBD

• Journal Manager can deal with iASPs

Open the Journal Manager from menu (option 31).

If necessary, update the definition, adding the iASP information.

Note: Option F9 = "Multiple update" also supports iASP definition.

Then you can run Journal Manager again.

• EDHSAVSWI and EDHSAVSWR will now stop is any error is encountered, in order to stop the switchover process and check the log immediately

Fixes

EDHSAVSWI

A fix for IP addresses has been made.

News

- Replication: SQL features RCAC (from V7R2) and Temporal Tables (from V7R3) are fully supported
- Synchronization: Multi-thread process

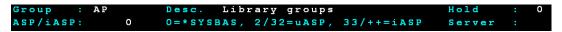
QuickEDD now uses a multi-thread read process if the size of a file is above 32 MB: synchronization compare process starts by using multiple jobs. As soon as a difference is found, synchro gets back to its usual process using one job only. This is to speed up the overall process for huge files.

QSYS2/QSQJRN receiver management

In a brand new environment, when QuickEDD inserts automatically QSYS2/QSQJRN, this one in included with Management of receivers set to 0, standard, instead of 2, "No"

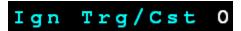
• Settings – All groups - Performances

At all group level, a Xnn server can be specified to allow the application handled by the group to be managed by one single apply job



• Settings – Objects groups - Ign Trg/Cst

In very specific cases, to avoid "normal" errors due to dependencies, you can Ignore all errors about triggers and constraints

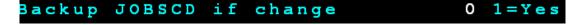


 Settings – Objects groups – Real-time management of JOBSCDE (requires to remove it from specific objects management)

Saves the object every time it is changed.

To activate this function it needs two steps:

Change the setting in the Objects parameters, activating the function



Turn on audit option *CHANGE on the object

CHGOBJAUD OBJ(QUSRSYS/QDFTJOBSCD) OBJTYPE(*JOBSCD) OBJAUD(*CHANGE) Modifications of the object are then detected through the audit journal. The object is saved in PMEDHUSR/EDH_JOBSCD (not changeable).

Settings - *USRPRF group

New setting "do not update attributes except password"

Status *USRPRF on target 0 (1=*Disabled 2=*NoChange) (4=*NoChg all parameters)

• Settings – IFS selections

Possibility to include or exclude by extension (case sensitive) Example:

O <mark>/*</mark>

Ext *.txt *tmp *.jar *abc*zz.pdf

→ Omits all files which names finish by .txt or .tmp or .jar

Therefore, the selection path length is reduced from 256 to 192XXXXX

IOA/Verify for *USRPRF

Verify for *USRPRF checks/fixes all attributes

System value QSTRUPPGM is held by default in new environment

Fixes

Replication – Jobs Follow-Up

Some fixes have been made around start/end date and time information

Spools replicated through SAV/RST

A fix has been made to delete any existing equal target spool file

Spools replication

In some cases, the replication was slow, this has been fixed

Switchover

In case a Journal is in Dltsys (management of receivers deletion made by the system), a MCH3402 does not pop-up anymore in the PMEDHSWI log when the old receiver gets deleted right after the PMEDHSWI has created a new one.