What’s new/changed in GDPS V4.4?

On March 31, 2021, IBM® has made available Version 4 Release 4 of GDPS® Metro, GDPS Metro HyperSwap® Manager, GDPS Global - GM, GDPS Metro Global - GM, GDPS Global – XRC, GDPS Metro Global – XRC.

In addition, GDPS Continuous Availability Version 4 Release 4 is planned to be released on 30th June 2021.

This document describes at a high level:

- New function and changes in GDPS V4.4 solutions, including new function added in GDPS V4.3 via Small Programming Enhancement (SPE) APARs.
- New function and changes in GDPS Continuous Availability V4.4 plus significant new functions introduced in GDPS Continuous Availability V2.3 via SPE APARs.
- Preview of items planned to be released via SPE APARs in the coming months.
- Any formal GDPS Statements of Direction beyond the preview of planned SPEs already mentioned.
- End of support information for GDPS releases.

Restrictions at general availability

At general availability, support for fixed block (FB) devices is not available in GDPS GM 2-site solutions. This support is planned to be reintroduced by an SPE via the service stream. Until this time, if you exploit FB devices in your GM 2-site configuration, it is not possible to migrate to GDPS GM 4.4.

What's new or changed in GDPS Metro

The following new capabilities or procedures have been included in the GDPS Metro V4.4 solution or as small programming enhancements through the service stream since GDPS Metro V4.3 was made available:

- GDPS LCP Manager has been extended with the following capabilities:
  - Support is introduced for multiple recovery copy sets to provide greater flexibility when using the GDPS LCP Manager. Up to a total of 10 recovery copy sets can be defined for use. The total of FlashCopy sets and recovery copy sets cannot exceed 11.
  - Support for the DS8000® capability to dynamically expand the virtual capacity available for Safeguarded copy operations has been added to GDPS. This support allows users to retain existing backups when dynamically expanding the available virtual capacity. Instrumentation and tracking of capacity expansion are provided by the GDPS interface.
  - GDPS has been enhanced to instruct the DS8000 to create and maintain a persistent Safeguarded copy recovery relationship. This allows the user to query the persistent Safeguarded copy recovery relationship and percentage copied via the GDPS LCP Manager interface.
- GDPS has been extended to support concatenated members for the GDPS SCRIPT XML definitions.
- The SYSPLEX script statement has been enhanced with a new option in the system selection criteria for determining which systems will be within scope of the action. When using the GROUP option, the new operand available is TARGET on which you define whether the other system selection criteria should take into account where the system is DEFINED, ASSIGNED or RUNNING. DEFINED is the default value and corresponds to current processing. Furthermore, the IPLTYPE script statement is extended to make use of the GROUP option and associated operands.
- GDPS has been enhanced to support System Recovery Boost, both to initiate System Recovery Boost for HyperSwap plus support added to process System Recovery Boost temporary capacity records.
- GDPS processing in the event of a CEC failure is improved. GDPS can now execute a specified takeover script in the event of a failure. The script, CECFAIL_cpcname, can contain any valid script statements, such as the CAPACITY statement, which can be used to schedule the capacity changes needed on the backup CECs.
- GDPS no longer provides its own distribution of the WebSphere® Liberty Profile for z/OS® as it is shipped with all currently supported releases of z/OS as standard. In place of the GDPS distribution, you must now use the z/OS distribution of the WebSphere Liberty Profile for z/OS.
- The GDPSCHG command has been updated to re-introduce the STORAGE operand for this command.
- Support is added to be able to refresh the DS8000 microcode bundle information within the GDPS DASD Management panels.
- GDPS, in conjunction with z/OS and z/VM®, has been changed to support hardware reserves on primary PPRC volumes and ensure the reserve is properly transferred to the new primary devices during a planned or unplanned HyperSwap.
- GDPS processing is enhanced to automatically unbox secondary devices when performing a HyperSwap prepare action.
- The recommended number of CPC-related GDPS automation operators to define in the System Automation policy and NetView® for z/OS was just a recommendation in prior releases of GDPS.

With GDPS 4.4, this is now mandatory and GDPS will attempt to dynamically create the required number of operators based on the number of CPCs defined in the SA policy. If this is not successful for any reason such as missing SAF or NetView operator definitions, then GDPS initialization will fail. There have been RAS enhancements made in how GDPS monitors the hardware via the System Automation BCPii environment leveraging parallelism made possible by ensuring the required number of automation operators are always in place.

- GDPS exploitation of the System Automation for z/OS BCPii has been enhanced such that sessions to remote Support Elements will be suspended when the session to the local Support Element is lost. Likewise, when the local session is resumed, GDPS will resume the remote sessions.
- GDPS Query Host Access (QHA) monitor processing has been optimized to significantly reduce the time taken to query each CPC defined in the SA policy, reducing the time the BCPii is serialized performing this activity.
- GDPS Health Checks have been enhanced and the following new capabilities are introduced to GDPS Health Checks or Health Check processing:
  - IOS Channel Path Recovery definitions are checked as part of GDPS_Check_CONFIG and if the default of PATH_SCOPE=DEVICE is detected, an exception is raised. PATH_SCOPE=CU is recommended.
  - GDPS_Check_K_SYS_LPAR has been revised to only check LPAR real storage and the CANZLOG allocation if the LPAR is defined with less than 8GB.
  - GDPS_Check_XCF is updated to check the current CFRM message-based manager and if it detects that this role is on a GDPS Controlling System will issue an exception, giving you a prompt to move this role to a production system using the relevant SETXCF commands on the system you want to become the manager.
  - GDPS health check processing has been enhanced to provide an SDF alert forwarding capability for exceptions raised by a check. This can be done on an individual exception basis through definition in GEOHCPxx.
  - The GDPS Main Menu option ‘H’ has been changed such that you are presented with a new panel when selecting this option, allowing access to Health Checks, Remote Health Checks and the GDPSIVP panels.
- The process for transferring GDPS internal variable updates between systems has been in enhanced. For all such updates, when a queue of messages is found waiting to be processed, an alternative path will be taken to have the messages associated with updating these critical variables processed by an alternative GDPS automation operator. The message processing for these critical updates ensures they are processed in the correct sequence. This provides greater reliability of the process for updating the variables used within GDPS processing.
- A number of internal GDPS Metro processes have been optimized with a focus on reliability, availability and serviceability.
- The GDPS GUI has been enhanced such that when viewing GDPS WTORs, the corresponding GDPS WTO will also be presented making correlation of the two messages straightforward. Initially, this support is for the GDPS failure notification prompt only.
- The GDPS RESTful API has been enhanced to standardize the responses produced when interacting with GDPS via the API. This is considered to be V2 format of the GDPS RESTful API. V1 format remains supported.
- A number of enhancements have been made to the GDPS Metro xDR and z/OS Proxy environment.

These are:

- Use of the user defined system symbol &GDPSMODE. has been extended to support running z/OS Proxy-managed and xDR systems (z/VM, KVM) with no DASD configuration active through use of the NO_DASD setting for this symbol in the Controlling System. Note that for such environment, at least one GDPS Controlling System must be active.
- GDPS now collects and preserves First Failure Data Capture for errors received during execution of commands on the xDR Linux Proxy guests. The messages are captured at the time of the initial failure and are written to the NetView log of the GDPS Master system.
- For z/OS Proxy-managed systems, a new **MODIFY GEOPFSRV,QUERY** command is available to display the GDPS environment topology and the name of the Metro Mirror consistency group.
- Overall recovery time for SSC (Db2® Analytics Accelerator on IBM Z) environments can be reduced by GDPS now checking the LPAR state when performing a STOP action.

What’s new or changed in GDPS Metro HM

The following new capabilities or procedures have been included in the GDPS Metro HyperSwap Manager V4.4 solution or as small programming enhancements through the service stream since GDPS Metro HM V4.3 was made available:

- GDPS in conjunction with z/OS have been changed to support hardware reserves on primary PPRC volumes and ensure the reserve is properly transferred to the new primary devices after a planned or unplanned HyperSwap.
- The GDPSCHG command has been updated to re-introduce the STORAGE operand for this command.
- GDPS no longer provides its own distribution of the WebSphere Liberty Profile for z/OS as it is shipped with all currently supported releases of z/OS as standard. In place of the GDPS distribution, you must now use the z/OS distribution of the WebSphere Liberty Profile for z/OS.
- A number of internal GDPS Metro HM processes have been optimized with a focus on reliability, availability and serviceability.
- The GDPS GUI has been enhanced such that when viewing GDPS WTORs, the corresponding GDPS WTO will also be presented making correlation of the two messages straightforward. Initially, this support is for the GDPS failure notification prompt only.
- The GDPS RESTful API has been enhanced to standardize the responses produced when interacting with GDPS via the API. This is considered to be V2 format of the GDPS RESTful API. V1 format remains supported.
- GDPS health check processing has been enhanced to provide an SDF alert forwarding capability for exceptions raised by a check. This can be done on an individual exception basis through definition in GEOHCPxx.
- The GDPS Main Menu option ‘H’ has been changed such that you are presented with a new panel when selecting this option, allowing access to Health Checks, Remote Health Checks and the GDPSIVP panels.

What's new or changed in GDPS Global - GM

The following new capabilities or procedures have been included in the GDPS Global – GM V4.4 solution or as small programming enhancements through the service stream since GDPS GM V4.3 was made available:

- GDPS LCP Manager has been extended with the following capabilities:
  - Support is introduced for multiple recovery copy sets to provide greater flexibility when using the GDPS LCP Manager. Up to a total of 10 recovery copy sets can be defined for use.
  - Support for the DS8000 capability to dynamically expand the virtual capacity available for Safeguarded copy operations has been added to GDPS. This support allows users to retain existing backups when dynamically expanding the available virtual capacity. Instrumentation and tracking of capacity expansion are provided by the GDPS interface.
  - GDPS has been enhanced to instruct the DS8000 to create and maintain a persistent Safeguarded copy recovery relationship. This allows the user to query the persistent Safeguarded copy recovery relationship and percentage copied via the GDPS LCP Manager interface.
  - Support is introduced for a GM 2-site LCP topology with virtual isolation.
- GDPS GM 2-site configurations are now required to adopt a new XML format for defining the disk configuration to GDPS. Furthermore, the GEOMPARM DD card has been replaced by a new DD card, GEOPARM. This brings GDPS GM 2-site configurations in line with other GDPS Metro and GDPS Metro Global – GM solutions that have already adopted this new configuration file format.
- To aid with UCB constraint relief, GDPS GM has been enhanced to no longer require UCBs be defined for the GM FlashCopy devices (also known as GM journals).
- GDPS no longer provides its own distribution of the WebSphere Liberty Profile for z/OS as it is shipped with all currently supported releases of z/OS as standard. In place of the GDPS distribution, you must now use the z/OS distribution of the WebSphere Liberty Profile for z/OS.
- GDPS has been extended to support concatenated members for the GDPS SCRIPT XML definitions.
- The IPLTYPE script statement is extended to make use of the GROUP option and associated operands for system selection criteria similar to the SYSPLEX script statement.
- The recommended number of CPC-related GDPS automation operators to define in the System Automation policy and NetView for z/OS was just a recommendation in prior releases of GDPS. With GDPS 4.4, this is now mandatory and GDPS will attempt to dynamically create the required number of operators based on the number of CPCs defined in the SA policy. If this is not successful for any reason such as missing SAF or NetView operator definitions, then GDPS initialization will fail. There have been RAS enhancements made in how GDPS monitors the hardware via the System Automation BCPii environment leveraging parallelism made possible by ensuring the required number of automation operators are always in place.
- GDPS exploitation of the System Automation for z/OS BCPii has been enhanced such that sessions to remote Support Elements will be suspended when the session to the local Support Element is lost. Likewise, when the local session is resumed, GDPS will resume the remote sessions.
- GDPS Query Host Access (QHA) monitor processing has been optimized to significantly reduce the time taken to query each CPC defined in the SA policy, reducing the time the BCPii is serialized performing this activity.

- GDPS health check processing has been enhanced to provide an SDF alert forwarding capability for exceptions raised by a check. This can be done on an individual exception basis through definition in GEOHCPxx.
- The GDPS Main Menu option ‘H’ has been changed such that you are presented with a new panel when selecting this option, allowing access to Health Checks, Remote Health Checks and the GDPSIVP panels.
- The GDPS RESTful API has been extended to support GDPS GM to provide a comprehensive set of services to access GDPS information or drive GDPS actions programmatically.

New or updated GDPS Tools for GDPS Global – GM

A GDPS GM 2-site specific GDPS XML Conversion tool (GEOXML) has been provided to convert an existing GEOMPARM dataset into the new XML format GEOPARM required for migration for GDPS V4.4. This tool will be available for all currently supported releases of GDPS Global – GM.

What’s new or changed in GDPS Metro Global - GM

In addition to the new functions provided in the individual products that constitute the GDPS Metro Global – GM (MGM) offering, the following new capabilities or procedures have been included in the GDPS MGM V4.4 solution or as small programming enhancements through the service stream since GDPS MGM V4.3 was made available:

- Support is introduced into the GDPS LCP Manager feature for the GDPS MGM 3-site solution with virtual isolation for the Safeguarded copy backups. That is where the backups are stored in the same DS8000 to the GM secondary disks in the MGM 3-site solution.
- With the extension of the GDPS RESTful API to support GDPS GM, services are also provided to access GDPS information or drive GDPS actions programmatically in GDPS MGM 3-site and 4-site solutions.
- The GDPS Procedure Handler has been updated to provide an exception check report to highlight any potential issues that could impact a region switch.
- GDPS HMT support has been integrated with execution of GDPS MGM procedures to ensure the direction of transfer of Easy Tier® learning information reflects the replication direction at successful completion of the procedure.
- To provide further UCB constraint relief, GDPS MGM 4-site environments can now exploit MSS1 support for Metro secondaries in both the production and the DR region.
- Support for the IBM Db2 Analytics Accelerator on Z running in a Secure Service Container in an MGM 4-site configuration is introduced, in addition to the MGM 3-site support already available. Note that this 4-site support requires a specific level of IDAA on Z that contains the required updates. Refer to GDPS PSP for further information on the level required.

What's new or changed in GDPS Global - XRC

The following new capabilities or procedures have been included in the GDPS Global - XRC V4.4 solution or as small programming enhancements through the service stream since GDPS XRC V4.3 was made available:

- XRC Script statement processing is enhanced to provide grouping for CopyOnce or individual SDMs (those not part of a Master session) to be addressed by a single script command. Actions are performed against all the grouped SDMs in parallel. This will reduce the overall elapsed time for operations against multiple such SDMs when for those XRC script statements that can exploit this capability.
- In line with recent announcements, both from IBM Storage and IBM z/OS, GDPS will continue to support GDPS Global – XRC-based solutions on the DS8000 and z/OS levels that support z/OS Global Mirror (XRC). There are several considerations regarding the recent announcements:
  - GDPS XRC-based solutions are functionally stabilized from GDPS 4.4 onward, only inheriting capability enhancements that are common across all GDPS solutions.
  - GDPS XRC-based solutions will no longer be offered to new GDPS clients adopting GDPS for the first time. Existing clients can obtain additional licenses to meet their requirements.
  - GDPS is offering a license exchange from GDPS XRC to GDPS GM for existing clients. This will be at no additional license charge. Clients will be able to start the migration to GDPS GM without incurring any additional support charges for running both solutions.

The items inherited by GDPS XRC solutions are as follows:

- GDPS no longer provides its own distribution of the WebSphere Liberty Profile for z/OS as it is shipped with all currently supported releases of z/OS as standard. In place of the GDPS distribution, you must now use the z/OS distribution of the WebSphere Liberty Profile for z/OS if you plan to exploit the GDPS RESTful API.
- The recommended number of CPC-related GDPS automation operators to define in the System Automation policy and NetView for z/OS was just a recommendation in prior releases of GDPS. With GDPS 4.4, this is now mandatory and GDPS will attempt to dynamically create the required number of operators based on the number of CPCs defined in the SA policy. If this is not successful for any reason such as missing SAF or NetView operator definitions, then GDPS initialization will fail. There have been RAS enhancements made in how GDPS monitors the hardware via the System Automation BCPii environment leveraging parallelism made possible by ensuring the required number of automation operators are always in place.
- GDPS exploitation of the System Automation for z/OS BCPii has been enhanced such that not only is performance improved, but sessions to remote Support Elements will be suspended when the session to the local Support Element is lost. Likewise, when the local session is resumed, GDPS will resume the remote sessions.
- GDPS Query Host Access (QHA) monitor processing has been optimized to significantly reduce the time taken to query each CPC defined in the SA policy, reducing the time the BCPii is serialized performing this activity.
- GDPS has been extended to support concatenated members for the GDPS SCRIPT XML definitions.
- GDPS health check processing has been enhanced to provide an SDF alert forwarding capability for exceptions raised by a check. This can be done on an individual exception basis through definition in GEOHCPxx.
- The GDPS Main Menu option 'H' has been changed such that you are presented with a new panel

when selecting this option, allowing access to Health Checks, Remote Health Checks and the GDPSIVP panels.

What’s new or changed in GDPS Metro Global - XRC

In addition to the new functions provided in the individual products that constitute the GDPS Metro Global - XRC (MzGM) offering, the following new capabilities or procedures have been included in the GDPS Metro Global - XRC V4.4 solution or as small programming enhancements through the service stream since GDPS MzGM 4.3 was made available:

- There are no GDPS MzGM-specific functions being delivered in this release.
- In line with recent announcements, both from IBM Storage and IBM z/OS, GDPS will continue to support GDPS Metro Global – XRC-based solutions on the DS8000 and z/OS levels that support z/OS Global Mirror. There are several considerations regarding the recent announcements:
  - GDPS MzGM-based solutions are functionally stabilized, only inheriting capability enhancements that are common across all GDPS solutions.
  - GDPS MzGM-based solutions will not be offered to new GDPS clients adopting GDPS for the first time. Existing clients can obtain additional licenses to meet their requirements.
  - GDPS is offering a license exchange from GDPS XRC to GDPS GM for clients impacted. This will be at no additional license charge. Clients will be able to start the migration to GDPS GM without incurring any additional support charges for running both solutions.
  - GDPS is offering a license exchange from GDPS Metro HM to GDPS Metro for those clients running GDPS MzGM with the GDPS Metro HM solution. This exchange will not incur additional license charges, but the support and subscription (S&S) will increase in line with GDPS Metro S&S charges.

What's new or changed in GDPS Continuous Availability

The following new capabilities or procedures have been included in the GDPS Continuous Availability V4.4 solution and enhancements delivered as small programming enhancements through the service stream for GDPS CA V2.3:

- GDPS CA is now fully aligned with other GDPS solutions in terms of version/release to avoid any confusion between the different levels in use previously. As such, the new version release is GDPS CA V4.4.
- GDPS has been enhanced to support the recently introduced IBM Multi-site Workload Lifeline user exit which allows clients to add their own custom routing process and other monitoring information into the workload routing decisions.
- GDPS has been extended to support concatenated members for the GDPS SCRIPT and WORKLOAD XML definitions.
- GDPS no longer provides its own distribution of the WebSphere Liberty Profile for z/OS as it is shipped with all currently supported releases of z/OS as standard. In place of the GDPS distribution, you must now use the z/OS distribution of the WebSphere Liberty Profile for z/OS.
- Support is added to GDPS CA to enable an IMS™ workload to include multiple IMS replication subscriptions. All the subscriptions defined to the 'global consistency group' are managed within a single operation for that workload.
- New function has been added to provide support for multiple database managers (such as IMS and Db2) and the associated software replication engines to be defined to a single workload. Be aware there is no data consistency provided between the different database subsystems.
- GDPS support for switching IMS workloads has been extended to exploit a fencing capability for replication of IMS data to avoid any stray updates in the standby site for IMS workloads.

Functions to be removed in the next release of GDPS

The following items are planned to be removed in the next release of GDPS:

- The GDPSCHG ZDISK command will be removed in the next release of GDPS. This command is replaced by the GDPSCHG STORAGE command.

GDPS Statements of direction

There are no formal GDPS statements of direction at this time. For your planning purposes, “GDPS Small Programming Enhancements (SPE) Preview” includes a number of specific enhancements that are expected to be released within the coming months.

GDPS Small Programming Enhancements (SPE) Preview

The following SPEs are currently planned to be released in the coming months through the GDPS service stream:

- GDPS intends to deliver fixed block disk support into GDPS GM 2-site solutions via an SPE on GDPS 4.4.
- GDPS intends to deliver new functionality to enhance the LCP Manager flag setting process including bulk processing for volumes protected with Safeguarded copy.
- GDPS intends to deliver new functions to support an incremental restore to production from the GDPS LCP Manager for environments exploiting logically isolated Safeguarded copy backup and recovery copy sets.
- GDPS intends to deliver documentation and supporting code for a largely non-disruptive migration path for GDPS clients planning to move from XRC 2-site, 3-site or 4-site to the corresponding GM 2-site, 3-site or 4-site configuration via an SPE on GDPS 4.4.
- GDPS intends to deliver the capability to automatically refresh the SSL/TLS certificate from the HMC for Secure Service Container environments.
- GDPS intends to deliver an extension of the GDPS Graphical User Interface (GUI) to provide functions to manage and control GDPS MGM 3-site and 4-site environments. This will be done via the GDPS Global – GM interface.

End of support

In accordance with the GDPS “n, n-2” support policy, support for GDPS V4.2 and GDPS Continuous Availability V2.2 will be discontinued on March 31, 2022 and also note that support will be discontinued for GDPS V4.3 and GDPS Continuous Availability V2.3 on March 31, 2023.

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