White Paper

Fujitsu Software BS2000 OS DX V1.0

Design digital transformation in the BS2000 portfolio agile - with the new operating system package BS2000 OS DX V1.0 we lay the basis for the agile provision of the BS2000 software portfolio.

Contents

BS2000 DX concept

The strategy

Design digital transformation in BS2000 portfolio agile

Modern mainframes integrate seamlessly into the digital ecosystems of companies and organizations. We ensure exactly that through the strategy of continuous innovation in our BS2000 portfolio. A higher pace of innovation also strengthens the innovative capacity of BS2000 customers. With modern development methods and the agile provision of BS2000 software, we guarantee that innovative software functions are available transparently and efficiently as required.

Current change statuses are bundled and made available every six months as part of service packs - plannable and transparent. A representation of the current service packs with the corresponding documentation is available on the BS2000 manual server, as is advance information on our website. The aim is a timely use and a largely automated installation of the current service pack. With our BS2000 System Health Check, we offer a tried and tested service for checking whether the installed software is up to date.

Fujitsu offers BS2000 customers continuously agile innovations. The new approach ensures high efficiency with long-term support and ensuring compatibility.

By the way: The software development tailored to the business dynamics is also reflected in the name of the new operating system package, which will be called BS2000 OS DX in the future. "DX" stands for the global Fujitsu strategy "Digital Transformation".

Implementation of the BS2000 DX concept

Agile provision of BS2000 software

Enhancement of the BS2000 software, as well as corrections, are made available as part of service packs. The software is released in the combinatorics of the service packs, therefore the complexity of the supported software configurations is reduced. The prompt use of the current service pack ensures the reliability and performance of the BS2000 systems.

The release of functional enhancements via change statuses makes it easier for our customers to upgrade BS2000 software products; updating the BS2000 software is generally associated with significantly less effort. Since a new change status replaces the previous one, ensuring compatibility is of central importance. In addition, the development in change statuses offers the advantage that new orders are no longer required as standard for the use of extended functionalities.

The delivery letter is part of every BS2000 software delivery and installation guide. It describes, among other things, the components included in the delivery and information on installation. In order to simplify the installation, the delivery letter was fundamentally revised, the product-specific information was standardized and general information was concentrated centrally at the beginning of the delivery letter.

A central objective of the BS2000 DX concept is an automated installation of the BS2000 software deliveries. In particular in the IMON installation monitor, but also in BS2000 software products (see section "Extensions to BS2000 and openSEAS software products"), additional automation steps have been taken:

- BS2000 products, including their POSIX components, can now be automatically and completely uninstalled with IMON and updated to a new version. This saves manual intervention during installation with IMON.
- The product versions installed on a BS2000 system can be automatically updated to the latest delivered versions / statuses. This function is optional; the individual products can be selected for installation via a mask.

Information to Service Packs

A transparent description of the current service packs with an overview of products with extended functionality is available on the BS2000 manual server. The information relevant to the release of the service packs is provided in a separate release notice centrally on the manual server. This representation supplements the information on service packs on our BS2000 software web pages.

Information about the service pack installed in the system can be obtained using the SHOW-SYSTEM-INFORMATION command.

The BS2000 System Health Check (BS2HC) provides information on whether the installed BS2000 software is up to date. He proactively contributes to the smooth, secure operation of BS2000 systems by identifying potential disruptive factors at an early stage and making recommendations on how to remedy them. The BS2HC helps customers to avoid system interruptions that may occur due to missing correction and version statuses. The BS2000 System Health Check, used regularly and after major configuration changes, is a valuable component to ensure the reliability and performance of BS2000 systems.

The BS2HC has been available as part of the operating system for some time and is becoming increasingly important, also as an important part of the BS2000 DX concept.

New operating system package BS2000 OS DX

The basis for the BS2000 DX concept is the new operating system package Fujitsu software BS2000 OS DX V1.0.

It provides the same range of functions as the OSD/XC package but is flexible with regard to the change status / version of the individual components. The delivery units of the components have the version of the package, e.g. BS2OS.BS2000 V1.0. When ordering, you will always receive the latest version of the components included.

Overview of the components (delivery units) of the new operating system package:

Functional unit	Component	Version
Operating System	BS2000	21.0A
	POSIX	21.0A47
Job Control	JV	15.2A
	SDF	21.0A
Communication and Internet	APACHE	2.4A
	INETSERV	3.4B
	ONETSERV	21.0A
	TIAM	13.3A
openSEAS	WTOSD	7.5C
Performance	SCA	21.0A
Print Management	RSO	3.6A
	SPOOL	4.9A
Programming Systems	CRTE	21.0A
	JENV	8.1B
Storage Management	HSMS	12.0C
Utilities	BS2IDE	1.0A
	EDT	17.0D
	IMON	3.4A
	LMS	3.6A
	PERCON	2.9C
	SORT	8.0A

Topics in BS2000 OS DX V1.0

Net-Storage – Simplification of administration

Redesign of architecture

Up until now, the catalog entries for the Net-Storage files were stored both in the TSOSCAT of the pubset and in BS2FSCAT on the Net-Storage volume. However, it is sufficient only to have the catalog entry for the Net-Storage files in TSOSCAT. By deleting BS2FSCAT, the handling of the catalog management is simplified. In addition to a reduced susceptibility to errors, this solution also offers our customers improved performance. The changed architecture is also in line with the intention that Net-Storage is a pubset extension.

To implement the concept, a new Net-Storage volume type NETVOL will be introduced for BS2000 OS DX V1.0 as an alternative to the designation NETSTOR, the previous Net-Storage volumes. Net-Storage volumes of the type NETSTOR can only be created up to and including BS2000 OSD/BC V11.0B.

Support of additional NAS file servers

Net-Storage volumes of the type NETVOL are qualified as standard for the NAS interface of the ETERNUS CS8000 and NetAPP ONTAP systems. Use on additional NAS file servers that support a block length of 2k and the setting of ACLs has been approved with restrictions - we only recommend productive use after consultation.

Manageability / Ease of Use

In order to improve the user-friendliness, we have made individual extensions to the command interface at the suggestion of our customers.

Extended selection criteria for the SHOW-JOB-STATUS command

As of BS2000 OS DX V1.0, the selection criterion of the SHOW-JOB-STATUS command was extended by a partially qualified job name and a user ID. The following information is also supported as a selection criterion for the jobs to be displayed:

- Job names with wildcards or a list of job names
- User IDs with wildcards or a list of user IDs (for privileged users)

Example: /SHOW-JOB-STATUS JOB-ID=*JOB-NAME(JOB-NAME=*145*)

E-mail addresses in the catalog entry can be modified more easily

In the MOD-USER-ATTR command, the operand EMAIL-ADDRESS= were extended by the new suboperands ADD-EMAIL-ADDRESS= and REMOVE-EMAIL-ADDRESS=. This means that the user has the option of adding or deleting email addresses in the catalog entry during operation.

Optional suppression of a system dump after FORCE-JOB-CANCEL

In order to be able to optionally prevent a system memory dump, the FORCE-JOB-CANCEL command has been extended by the parameter DUMP=*YES/*NO.

Improvements on message output

JMS messages generated by the standard job scheduler can now also be output to the console if no other logging is required. A new stream parameter MSG-OUTPUT= is offered to set this behavior.

As of BS2000 OS DX V1.0, the message HJT0032 is also output on the console in addition to the CONSLOG file. This means that the user can be automatically informed by the "Eventlist" product from OPG from the occurrence of the event *JIT memory limit for the current program is exceeded*.

Some system messages have been supplemented with helpful information; for example, the system message NKR0168 also contains a reference to the fact that the import has not yet taken place if the pubset has not been imported at least once beforehand.

Performance

High-performance sharing in VM operation

When using FastDPAV, further increases in performance can be achieved for shared disks (SHARED) in VM operation. The requirement to select a FastDPAV alias device first for an I/O job can lead to performance gains, since the alias devices are exclusively assigned to a guest system and thus the hypervisor overhead for carrying out the I/O job not applicable. The functionality can be set using the FastDPAV option of the new VM2000 command MODIFY-IO-OPTIONS.

Performance optimization in the SLED

Optimizations in the SLED when reading from the paging area result in improved performance behavior.

Agile development of the BS2000 software

Modernized development methodology

As an IT company of the digital future, we use DevOps successfully:

In order to implement change requests in the shortest possible time and to meet higher security requirements, we have modernized the development methodology and the tools used, but also redesigned the cooperation between the entities involved in the development.

We have been using our BS2IDE development environment in BS2000 software development for some time. Building on this, we have adapted further components of the software development process to the current requirements: for example, we manage the source code via Git/Gerrit, we use Jenkins for integration and Robot Framework for test automation.

With this modernized approach, BS2000 offers the continuous availability of new functions - compatible and reliable.

Updated coding

To create the prerequisites for more agile and even more efficient development, support for hardware and functions that are no longer required was discontinued for BS2000 OS DX V1.0. This applies, among other things, to the support of SPARC- and MIPS-based servers, Global Store, User PFA and much more.

In addition, the peripheral devices that are no longer supported - more precisely the device types assigned to them in BS2000 - have been removed from the internal tables; this simplifies the operation of the SDF command interface and all parameters remain compatible in procedures.

Enhancements in BS2000 and openSEAS software products

An overview of the BS2000 software products for which functional extensions have been released with BS2000 OS DX V1.0 as part of Service Pack 21.1, with a list of the main innovations, is contained in the Inform [Service Pack 21.1 - Innovations for BS2000 software](#).

In addition, new versions are also available for a number of other BS2000 products; these are based on tool modernization, refactoring measures and the technical coupling of the products.

Information about extensions in the subsequent service packs can be accessed via the [Fujitsu Software BS2000](#) website.

An overview of the current status of the BS2000 software products released in BS2000 OS DX V1.0 can be found in the document [Inform Software Configuration BS2000 OS DX V1.0](#).

Release

Dates

- Pilot release: end of March 2021
- General release: end of June 2021, in the frame of Service Pack 21.1

Supported servers

SE servers (supported models SE320, SE310, SE710 und SE300B, SU300B, SE500B, SE700B)

- Pilot release: SE-SW as of V6.4, status November 2020
- General release: SE-SW as of V6.4 SP2

Details of the supported hardware can be found in the relevant release notice after the product has been released.

About Fujitsu

In addition to Fujitsu Software BS2000, Fujitsu provides a range of platform solutions. They combine reliable Fujitsu products with the best in services, know-how and worldwide partnerships.

Fujitsu Portfolio Built on industry standards, Fujitsu offers a full portfolio of IT hardware and software products, services, solutions and cloud offering, ranging from clients to datacenter solutions and includes the broad stack of Business Solutions, as well as the full stack of Cloud offerings. This allows customers to select from alternative sourcing and delivery models to increase their business agility and to improve their IT operation's reliability.

Learn more about Fujitsu Software BS2000, please contact your Fujitsu sales representative or Fujitsu Business partner, or visit our website.

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