FUJITSU Software BS2000 APACHE

Version 2.2A
May 2018

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Release Notice

1   General

This Release Notice contains in concise form the most essential dependencies and operation information for APACHE V2.2A under the BS2000 operating system.

*9 APACHE (BS2000) V2.2A is based on official release version of the web server Apache httpd 2.2.34 from the Apache Software Foundation[1].

*9 Additional components are the scripting language PHP version 5.6.33 and the scripting
*9 language Perl version 5.8.9 with the module mod_perl.

The copyright information can be found at the end of this document.

*9 The contents correspond to the release date: May 2018.

Changes to release level October 2008 are marked with *2.
Changes to release level May 2009 are marked with *3.
Changes to release level June 2013 are marked with *4.
Changes to release level October 2013 are marked with *5.
Changes to release level May 2014 are marked with *6.
Changes to release level November 2015 are marked with *7.
Changes to release level May 2016 are marked with *8.
Changes to release level May 2017 are marked with *9.

This and other current Release Notices are shipped on the SoftBooks DVD and are available online at http://manuals.ts.fujitsu.com/.

If one or more previous versions are skipped when this product version is used, the information from the Release Notices (and README files) of the previous versions must also be noted.

1.1   Ordering

APACHE (BS2000) V2.2A can be ordered via your local sales office.

APACHE (BS2000) V2.2A is subject to the general terms and conditions of the software product use and service agreement.

APACHE (BS2000) V2.2A is an integral part of the hardware-specific BS2000 of-fer packages OSD/BC and OSD/XC.

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[1] This product includes software developed by the Apache Software Foundation for the Apache HTTP server project (http://httpd.apache.org/).

1.2 Delivery

The APACHE (BS2000) V2.2A files are delivered using the SOLIS delivery program. The valid file and data media attributes are listed in the accompanying SOLIS2 delivery document.

The delivery consists of the following files:

APACHE V2.2A:

*4	SYSDOC.APACHE.022.OSS	License files for APACHE
	SYSFGM.APACHE.022.D	Release Notice (German)
	SYSFGM.APACHE.022.E	Release Notice (English)
	SYSRME.APACHE.022.D	README file (German)
	SYSRME.APACHE.022.E	README file (English)
	SYSSDF.APACHE.022	SDF syntax file
	SYSSII.APACHE.022	IMON information file
	SYSSPR.APACHE.022	internal command procedures
	SINLIB.APACHE.022	APACHE Basic package (/390)
	SINLIB.APACHE.022.HTTPD	APACHE Secure web server (/390)
	SINLIB.APACHE.022.MODPERL	PERL APACHE module (mod_perl) (/390)
	SINLIB.APACHE.022.MODPHP	PHP5 APACHE module (libphp5) (/390)
	SKULIB.APACHE.022	APACHE Basic package (X86)
	SKULIB.APACHE.022.HTTPD	APACHE Secure web server (X86)
	SKULIB.APACHE.022.MODPERL	PERL APACHE module (mod_perl) (X86)
	SKULIB.APACHE.022.MODPHP	PHP5 APACHE module (libphp5) (X86)
	SINLIB.APACHE.022.HTTPD-DOC	Online-Doc APACHE web server
	SINLIB.APACHE.022.MODPERL-DOC	Online-Doc PERL APACHE module
	SINLIB.APACHE.022.MODPHP-DOC	Online-Doc PHP5 APACHE module

PERL V5.8A:

	SINLIB.PERL.058	PERL Interpreter & Runtime (/390)
	SKULIB.PERL.058	PERL Interpreter & Runtime (X86)
*4	SYSDOC.PERL.058.OSS	License files for PERL
	SYSRME.PERL.058.D	README file (German)
	SYSRME.PERL.058.E	README file (English)
	SYSSII.PERL.058	IMON information file

*9   **TOMCAT V5.5A (OSD V10 only):**

	SINLIB.TOMCAT.055	APACHE TOMCAT (/390, X86)
*4	SYSDOC.TOMCAT.055.OSS	License files for TOMCAT
	SYSRME.TOMCAT.055.D	README file (German)
	SYSRME.TOMCAT.055.E	README file (English)
	SYSSII.TOMCAT.055	IMON information file

1.3 Documentation

The complete documentation is included in the installation packages in the form of HTML files.

This documentation is only available in English
(Exception: parts of APACHE:httpd-doc and APACHE:modphp-doc)

Information about installation, configuration, usage and documentation for the components of the supply unit APACHE V2.2A in BS2000 can be found in the README files for

APACHE V2.2
PERL V5.8

The README files are available on the SoftBooks-DVD or online under http://manuals.ts.fujitsu.com.

2   Software extensions

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- PHP V5.6.33 with a SESAM and Oracle SQL database link
  APACHE V2.2 has in PHP a whole range of functions that also permits the editing of SESAM and Oracle databases from PHP scripts. In a simple way, it is possible to make the contents of existing databases available in the web; and even write accesses are allowed.

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- Perl V5.8.9
  Perl is fully integrated in the APACHE web server so that high-performance implementation of the scripts is ensured. Moreover, Perl is also stand-alone - i.e. can be installed and used without APACHE web server, e.g. for process automation in POSIX.

2.1   Extensions to version V2.2 compared with V1.3

- Integrated SSL and DAV modules
  The SSL and DAV modules have now regularly found their way into the official Apache code base. Both modules have been revised and functionally extended.
  The functionality of the previously separately available add-on product "interNet Security" (Secure Webserver) has thus been integrated in the APACHE Basic product.

- IPv6 support
  IPv6 support, now a regular part of the Apache code base, is also supported by configuration directive lists, NameVirtualHost and VirtualHost in numerical IPv6 address arguments (e.g., "Listen [2001:db8::1]:8080").

- New Apache API
  The API for modules has changed significantly for 2.0. Many of the module-ordering/-priority problems from 1.3 should be gone. 2.x does much of this automatically, and module ordering is now done internally per-hook to allow more flexibility. Also, new calls have been added that provide additional module capabilities without patching the core Apache server.

- Filtering
  Apache modules may now be written as filters which act on the stream of content as it is delivered to or from the server. This allows, for example, the output of CGI scripts to be parsed for Server Side Include directives using the INCLUDES filter in mod_include. The module mod_ext_filter allows external programs to act as filters in much the same way that CGI programs can act as content-handlers.

- Multilanguage error responses
  Error response messages to the browser are now provided in several languages, using SSI documents. They may be customized by the administrator to achieve a consistent look and feel.

- Simplified configuration
  Many confusing directives have been simplified. The often confusing Port and BindAddress directives are gone; only the Listen directive is used for IP address binding; the ServerName directive specifies the server name and port number only for redirection and vhost recognition.

- Authentication / Authorization
  The bundled authentication and authorization modules have been revised. The new module mod_authn_alias simplifies certain authentication configurations considerably.

- Cache functionality
  htcacheclean has been introduced to clean mod_disk_cache setups.

- Partial configurations
  The standard configuration has been simplified and modularized.
  Partial configurations, which can be used to enable frequently used functions, are now a part of the bundle with Apache and can simply be added to the main server configuration.

- Graceful stop
  The multi-processor modules prefork, worker and event enable a well-regulated end to httpd by using the graceful stop signal.
  The directive GracefulShutdownTimeout has been added so that an optional timeout can be specified once httpd is ended independent of the status of processed requests.

- Proxy functionality
  The new module mod_proxy_balancer provides load distribution services for mod_proxy. The new module mod_proxy_ajp provides additional support for Apache JServ Protocol version 1.3 for Apache Tomcat.

- Regular expression library updated
  Now contains an updated version of the Perl Compatible Regular Expression Library (PCRE). All regular expression evaluation now uses the more powerful Perl 5 syntax.

- Intelligent filtering
  mod_filter introduces the dynamic configuration for output filtering. This enables the conditional insertion of filters on the basis of random request or response headers or environment variables.

- Support for large files
  httpd now supports files that are larger than 2 GB.

- SQL database support
  Together with the apr_dbd framework, mod_dbd provides direct SQL support for modules that are in need of support. This permits, for example, the user authentication for a SQLite3 database.

2.2 Extensions in version 2.2 as part of the BS2000 adjustments:

- SDF command interface
  APACHE is also supplied with an SDF syntax file, with the help of which start, restart, stop commands and status queries can be performed directly as SDF commands by TSOS or SYSROOT with the BS2000 ID.

- Unicode extension
  APACHE (BS2000) V2.2 also supports the BS2000-specific Unicode variant UTF-E (modified UTF-8), the various 8-bit-EBCDIC-DF04 variants, the equivalent 7-bit national EBCDIC-DF03 code variants and the 8-bit ISO codes 8859-x and a variety of other standardized character sets as well as conversion between these code sets during input/output.

- Modular installation
  During installation only the product components that are chosen and needed by the customer are installed. This avoids any unnecessary resource allocation.

- Interactive installation
  Thanks to the new interactive installation the basic configuration can already be implemented during the POSIX installation so that after completion of the installation the web server can be started immediately as an option. During the installation of the add-on modules for PHP and Perl support the newly installed module can, if requested, be directly activated and is thus immediately available.

- Utility programs
  Enclosed utility programs enable the web server operator to convert explicit character sets for files in POSIX, create SSL certificates and generate & maintain SQLite3 databases.

2.3 Extensions to correction package I/2013

*3   PERL V5.8A02
*3   -   XML::Parser
*3   A Perl module for parsing XML documents

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*5
2.4 Extensions to correction package I/2014
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*5
*5   APACHE V2.2A03:
*5
*5   Upgrade of product implementation libraries to current software release versions
*5   of ported software.
*5
*5   Optimized SQ support: For optimized throughput X86 code is implemented on
*5   machines of SQ-Series now.

*6   2.5   Extensions to correction package II/2015

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*6   APACHE V2.2A05:

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*6   Upgrade to the official release version of the web server Apache httpd 2.2.29 and up-
*6   date of product implementation libraries to current software release state of ported
*6   software.
*6

*6   The web server supports now delivering of (BS2000-) files residing on bs2fs file
*6   systems.
*6

*6   Password files, created by htpasswd with md5 encryption, are now exchangeable
*6   with other open systems.
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*6   PERL V5.8A03:
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*6   The scripting language perl version 5.8.9 is now supported.

*8   2.6   Extensions to correction package I/2017

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*8   PERL V5.8A04
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*8   1) Update
*8   Any installed addon package (PERL:ADDON) must be uninstalled before Perl.
*8

*8   2) New functionality
*8   Support of Perl module Archive::Zip
*8   Support of Perl module Compress::Raw::Zlib
*8   Update of Perl module DBD::Oracle 1.74

*9   2.7   Extensions to correction package I/2018

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*9   APACHE V2.2A06:
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*9   Upgrade of mod_php to the official release version 5.6.33 and update of the online
*9   manual for php and mod_php.
*9

*9   Upgrade of mod_perl to the official release version 2.0.10.
*9

3   Technical information

3.1   Resource requirements

The packages and their space requirements:

PACKAGE	LMS-ELE VERSION	DESCRIPTION	BS2000 K-PAM		POSIX /opt MBYTE
			390	X86	
APACHE	V02.2A06	Basic package: joint directories and shared libraries	37	56	47
APACHE: HTTPD	V02.2A06	APACHE Secure web server, runtime	37	60	14
APACHE: HTTPD-D	V02.2A06	Online manual for APACHE	9		14
APACHE: MODPERL	V02.2A06	MOD_PERL APACHE module & mod_perl runtime	5	6	10
APACHE: MODPRL-D	V02.2A06	Online manual for MOD_PERL	13		22
APACHE: MODPHP	V02.2A06	MOD_PHP5 APACHE module, PHP-CLI	23	35	27
APACHE: MODPHP-D	V02.2A06	Online manual for PHP & MOD_PHP5	138		173
PERL	V05.8A04	PERL Interpreter CLI & runtime	58	71	90

The name "APACHE:MODPHP-D" (e.g.) stands for a package in the form of a SINLIB.APACHE.022.MODPHP-DOC or SPULIB or SKULIB, which is installed with the POSIX-INSTALLER as the product "APACHE" and the package of the product "MODPHP-D".

Server resource requirements:

When using APACHE (BS2000) V2.2A main storage of at least 256 MB on all systems is practical.

The minimum memory requirement of the APACHE server amounts to (default configuration with 5 child processes) 300 MB of virtual memory. The individual child processes may require additional memory. Each additionally started child process requires about 50 MB of virtual memory.

With increasing server workload additional memory also becomes necessary. To achieve the best performance as high a percentage as possible of the virtual memory should be available as "real memory".

3.2   Software configuration

*9   APACHE V2.2A is delivered with OSD/BC as of V10.0 and OSD/XC as of V10.0.

3.3   Product installation

Standard installation is via the product IMON (Installation MONitor).

Products from APACHE (BS2000) V2.2 are installed using the POSIX installation program under the ID TSOS.

APACHE (BS2000) V2.2 consists of several POSIX package components that can be combined with each other on a modular basis. Depending on the functionality required, the installation can then be restricted to the components actually required.

*3   Generally all new delivered POSIX package components have to be replaced be-
*3   cause of possible functional dependencies between the packages of the current
*3   correction version.

See the attached Readme files for a precise description of the installation procedure.

When upgrading a product, please observe the following:

- Before installing a newly delivered POSIX package component of APACHE, the previously installed version has to be removed. In order to perform a successful de-installation of an APACHE product, the original installation libraries ("SINLIBs, SPULIBs, SKULIBs") are needed. This applies whether or not the main version number has changed.

- In order to avoid unintentional overwriting of original installation libraries by SOLIS new libraries are installed with suffix ".NEW" if files with original name exist.

  Steps to perform for POSIX component de-installation/installation if main version number has not changed:
  - POSIX component de-installation with original version.
  - Renaming the new installation libraries to original name (without suffix ".NEW").
  - POSIX component installation with new (renamed) version.

- Any modified configuration files remain unchanged (if upgrading to the same main version number) and are adopted by the new version.

3.4 Product use

We recommend a performance analysis before using APACHE (BS2000) V2.2A.

3.5 Discontinued functions (and those to be discontinued)

*3   PHP:
*3   GDBM will not be supported in future versions.

3.6 Incompatibilities

Perl:
As a result of the partial change in the internal representation of characters according to UTF-E, incompatibilities may arise in Perl scripts, which in some way depend on the internal presentation.

*5   APACHE V2.2A03:
*5   For changes of installation and configuration of SESAM connection interface for
*5   PHP-programs please refer to remarks in the product readme file.

*6   APACHE V2.2A05
*6   Password files with md5 encryption, created by htpasswd or htdbm of previous
*6   APACHE versions, are no longer valid and have to be re-created.

*9   APACHE V2.2A06
*9   With update of mod_php there have been some changes to the configuration
*9   parameters in "/opt/apache22/php/etc/php.ini". Therefore, a new example file
*9   php.ini-production is delivered in the same directory. Please check the content of
*9   a possibly existing php.ini file against the new example file. Without changes the
*9   previous file will not work anymore.
*9
*9   In context of the correction for "CVE-2016-8743 httpd: Apache HTTP Request
*9   Parsing Whitespace Defects" the default behaviour during the syntax check
*9   of http requests received by APACHE has been strengthened. If necessary,
*9   compatible behaviour can be established with the newly introduced option
*9   httpProtocolOptions.

3.7 Restrictions

*2   Perl:
*2   The loading in a POSIX-Program-Cache (posdbl, pdbl) is not allowed.

*7   As of OSD V11 the product component TOMCAT will no longer be delivered.

For description of further restrictions compared to the original of the ported software please refer to the product readme files.

3.8   Procedure in the event of errors

In the event of an error, we need - depending on the type of problem - the follow-ing information for diagnosis purposes:

- exact problem description

- output error messages

- logging files (excerpts):
  ```
  /opt/apache22/logs/error_log
  /opt/apache22/logs/access_log
  /var/adm/syslog
  ```

- Apache and (if related to the error) add-on components' configuration files:
  ```
  /opt/apache22/conf/*.conf
  /opt/apache22/conf/extra/*.conf
  /opt/apache22/conf/conf.d/*.conf
  ```

- BS2000 user attributes of the SYSROOT user ID and the Apache run ID, e.g.:

  /SHOW-USER-ATTR SYSROOT [,PUBSET=*DEFAULT]
  /SHOW-USER-ATTR APACHE [,PUBSET=*DEFAULT]
  /SHOW-POSIX-USER-ATTR SYSROOT
  /SHOW-POSIX-USER-ATTR APACHE

  Also if SECOS is used:
  /SHOW-LOGON-PROT SYSROOT
  /SHOW-LOGON-PROT APACHE

- Remaining space on the respective POSIX file systems (verify whether space problems could be the cause of the error):
  ```
  # /sbin/df /opt/apache22 /var/opt/APACHE22.httpd
  ```

- If CGI or PHP script: program description.

- System environment
  BS2000 system:
  BS2000:   Version, loader
  POSIX: Version, loader or correction status
  DCAM: Version, loader or correction status
  APACHE: Version
  PERL: Version

4   Hardware requirements

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The products of APACHE (BS2000) V2.2A can be run on all supported systems from OSD/BC V10.0 and above.

5 Appendix

5.1 Copyright information

- Apache Web Server:

  "This product includes software developed by the Apache Software Foundation for use in the Apache HTTP server project (http://httpd.apache.org/)."

- PHP scripting language:

  "This product includes PHP software, freely available from
  <URL:http://www.php.net/software/>"

  PHP includes the Zend Engine, freely available at
  <URL:http://www.zend.com>.

- perl acripting language
  (see /opt/perl/readme/ after installation)
  *6   Perl is Copyright (C) 1993, 1994, 1995, 1996, 1997, 1998, 1999, 2000, 2001,
  *6   2002, 2003, 2004, 2005, 2006, 2007, 2008 by Larry Wall and others.
  *6   All rights reserved.(Distributed under the 'Artistic License')
  The source distribution is available freely from
  <URL:http://www.perl.com/CPAN/src/>.

- cronolog: Logfile Rotierprogramm

  This product includes the cronolog utility <URL:http://cronolog.org/> originally written by Andrew Ford <A.Ford@ford-mason.co.uk>: "This product includes software developed by the Apache Group for use in the Apache HTTP server project http://www.apache.org/)."

- Open Source Bibliotheken
  (siehe unter /opt/apache22/license.d/ nach Installation)

  [libz.so]:
  This product includes the zlib library developed by Jean-loup Gailly
  <jloup@gzip.org> and Mark Adler <madler@alumni.caltech.edu>.

  [libbz2.so]:
  This product includes the libbzip2 library developed by Julian R Seward.

  *6   [libdb1.so]:
  *6   This product includes software developed by the University of
  *6   California, Berkeley and its contributors.

  [libpng.so]:
  This product includes the libpng library developed by Glenn Randers-Pehrson, Andreas Dilger, Guy Eric Schalnat, Group 42, Inc.

  [libjpeg.so]:
  This product includes the libjpeg library developed by the Independent JPEG Group.

  *6   [libssl.so libcrypto.so openssl libcrypt.so]:
  This product includes cryptographic software written by Eric Young
  (eay@cryptsoft.com)

    *6   [libssl.so libcrypto.so openssl]:
This product includes software developed by the OpenSSL Project for use in the OpenSSL Toolkit (http://www.openssl.org/)

[libedit.so]:
This product includes software developed by the NetBSD Foundation, Inc. and its contributors.

[libfreetype.so]:
Portions of this software are copyright (C) 2007 The FreeType Project (www.freetype.org). All rights reserved.

[libmm.so]:
"This product includes software developed by Ralf S. Engelschall <rse@engelschall.com>."

[libgd.so]:

*6   Portions copyright 1994, 1995, 1996, 1997, 1998, 1999, 2000, 2001,
*6   2002 by Cold Spring Harbor Laboratory. Funded under Grant
*6   P41-RR02188 by the National Institutes of Health.
*6   Portions copyright 1996, 1997, 1998, 1999, 2000, 2001, 2002 by
*6   Boutell.Com, Inc.
*6   Portions relating to GD2 format copyright 1999, 2000, 2001, 2002
*6   Philip Warner.
*6   Portions relating to PNG copyright 1999, 2000, 2001, 2002 Greg
*6   Roelofs.
*6   Portions relating to gdttf.c copyright 1999, 2000, 2001, 2002 John
*6   Ellson (ellson@lucent.com).
*6   Portions relating to gdft.c copyright 2001, 2002 John Ellson
*6   (ellson@lucent.com).
*6   Portions copyright 2000, 2001, 2002, 2003, 2004, 2005, 2006, 2007
*6   Pierre-Alain Joye (pierre@libgd.org).
*6   Portions relating to JPEG and to color quantization copyright 2000,
*6   2001, 2002, Doug Becker and copyright (C) 1994, 1995, 1996, 1997,
*6   1998, 1999, 2000, 2001, 2002, Thomas G. Lane. This software is
*6   based in part on the work of the Independent JPEG Group. See the
*6   file README-JPEG.TXT for more information.
*6   Portions relating to WBMP copyright 2000, 2001, 2002 Maurice
*6   Szmurlo and Johan Van den Brande.