FUJITSU

FUJITSU Software BS2000 PERL

Version 52.4A
November 2019

Readme

1   Introduction

The release level November 2019 for Perl V52.4 has the correction state A00.

This README file describes the BS2000 specific supplements and differences to the online documentation and to the generally available literature named in the literature chapter.

Perl ("Practical Extraction and Report Language") is an interpreted script language known from the Unix environment, which has been developed by Larry Wall and is maintained by the Perl5 Porters Group. Perl syntax borrows from C, C++ and miscellaneous shell script languages.

BS2000 PERL V52.4A is based on Perl's developer version 5.24.4.

Additionally to the basic Perl some CPAN modules have been ported, in detail:
Term::ReadKey, Spiffy, Convert::EBCDIC, Digest::SHA1, Sub::Identify, Sub::Uplevel, Test::Base, Test::Pod, Test::Exception, Test::LeakTrace, Test::Deep, Test::Warn, Test::Warnings, File::Slurper, Pod::POM, URI, WWW::Curl, HTML::Tagset, HTML::Parser, DBI, Apache::DBI, DBD::Oracle, Business::ISBN, Business::ISBN::Data, Template::Toolkit, XML::Parser, Text::Template, Perl::OSType, SUPER, Module::Metadata, Module::Build, Test::MockModule, Archive::Zip, Acme::Damn, Devel::Symdump, Sys::SigAction, Exporter::Tiny, List::MoreUtils::XS, List::MoreUtils, forks, CGI, Imager and GD.

The Perl interpreter can be used for CGI scripts in connection with the Apache webserver (via mod_perl), but it is also usable as a standalone interpreter.

2   Installation

This chapter describes the installation of BS2000 PERL V52.4A.

Perl is delivered as component of the supply unit APACHE V2.4A and is installed and de-installed with the POSIX installation program (see Manual "POSIX Basics for Users and System Administrators").

Before installing a newly delivered package PERL, the previously installed version has to be removed. In order to perform a successful de-installation of Perl, the original installation libraries ("SINLIB, SKULIB") are needed. See Release Notice for supply unit APACHE V2.4A (chapter "Product installation").

Further remarks on installation of Perl:

- Before installing Perl in POSIX the APACHE base package has to be installed, which contains the shared objects used by some CPAN modules (C library, graphics libraries etc.) residing under /opt/apache24/lib (this does not mean, that the Apache webserver APACHE:httpd itself has to be installed.) When the APACHE base package has been updated too, then before an update installation of PERL the new APACHE base package must be installed in POSIX.

- The POSIX package installation is done under the TSOS account with the POSIX installation command
  /START-POSIX-INSTALLATION

  In doing so for the installation of Perl following selections have to be made and specifications have to be given:

  Function: Install packages on POSIX

  and then on the next screen:

  IMON support ?   : Y
  name of product   : PERL
  package of product :
  version of product   : 524

  The installation path showed in the course can be changed, but it is recommended to use the default /opt/perl. In the following this default is assumed at the naming of files.

2.1   Course of preinstallation scripts

At first several scripts check, whether some requirements for successfully installing Perl are fulfilled:

- whether required products are installed actually,
- whether perhaps a Perl installation is already/still present and
- whether the /opt file system has enough free space.

When one of this checks fails, the installation is cancelled, otherwise the installation program copies all files from the PLAM library into the POSIX file system or creates links to PLAM library elements alternatively.

2.2   Course of postinstallation script

After all files are copied, the postinstallation script, which handles the host-specific set-up of Perl, is started automatically.

Two symbolic links, /usr/bin/perl and /opt/bin/perl, are created, which both point to /opt/perl/bin/perl. When Perl is not installed under the default path /opt/perl, then a symbolic link is created, which refers from /opt/perl to this non-standard path. This is necessary, because the standard path is "burned" into Perl and Perl otherwise would not find Perl packages to be loaded.

Finally it will be tried to create a /etc/resolv.conf file, if there is not already one, for ensuring a working DNS name resolution. For this the files
$.SYSDAT.LWRESD.*.RESOLV.CONF and
$.SYSDAT.SOCKETS.*.SOC6.RESOLV are analyzed, whether they contain a valid nameserver line. If yes, then the first file with such a line found is copied to /etc/resolv.conf. A warning notice mentioning a missing /etc/resolv.conf file can be ignored, when you are sure, that you don't need DNS name resolution with your Perl utilization.

2.3   Listing of the most important files and directories used by Perl

Name	Type	Explanation
/opt/perl	Directory	Standard Perl installation directory
/opt/perl/bin	Directory	Executable programs and general Perl scripts
/opt/perl/bin/perl	Program	Perl interpreter
/opt/perl/bin/perl5.24.4	Program	Perl interpreter
/opt/perl/lib	Directory	Perl packages
/opt/perl/lib/5.24.4	Directory	Basic Perl packages
/opt/perl/lib/5.24.4/ BS2000-posix-bc	Link	Refers to the appropriate architecture-specific directory
/opt/perl/lib/5.24.4/ BS2000-posix-bc-390	Directory	/390-specific parts of basic Perl packages
/opt/perl/lib/5.24.4/ BS2000-posix-bc-x86	Directory	X86-specific parts of basic Perl packages
/opt/perl/lib/site_perl	Directory	Additional Perl packages (e.g. CPAN)
/opt/perl/lib/site_perl/5.24.4	Directory	Additional Perl packages (e.g. CPAN), built with Perl 5.24.4
/opt/perl/lib/site_perl/5.24.4/	Link	Refers to the appropriate architecture-specific directory
/opt/perl/lib/site_perl/5.24.4/ BS2000-posix-bc-390	Directory	/390-specific parts of CPAN Perl packages
/opt/perl/lib/site_perl/5.24.4/ BS2000-posix-bc-x86	Directory	X86-specific parts of CPAN Perl packages
/opt/perl/share/man	Directory	Documentation in form of man pages
/opt/perl/readme	Directory	Readme files
/opt/perl/readme/html	Directory	Documentation in form of HTML files
/etc/default/PERL	Script	Configuration options
/etc/default/ PERL_default_tmpl	Script	Template file for /etc/default/PERL

3   Deinstallation

The deinstallation is carried out under the TSOS account too with the POSIX installation command:
/START-POSIX-INSTALLATION

Doing so select the function "Delete packages from POSIX". In the list showing up for deinstallation mark the line with Product=PERL and Version=524 and follow the further instructions of the tool. The symbolic links created during the postinstallation are removed too.

4   Usage instructions

4.1   locale settings

Perl scripts don't work with many national 7 bit character sets, because in such character sets Perl syntax elements as e.g. curly brackets aren't available. E.g. one such national 7 bit character set is activated implicitly with the locale setting 'LANG=De', therefore a locale environment with an 8 bit character set (or a suitable 7 bit character set) has to be established.

4.2   Annotations to Oracle usage

The Perl module DBD::Oracle supports the Oracle interface of ORACLE 12c Release 1 (12.1.0.2) for Fujitsu BS2000/OSD. In order to use it, the following configuration changes must be made:

- Assume $ORAUID to be the ID under which the ORACLE software was installed in BS2000.

- With the specification of corresponding environment variables one can determine, which Oracle installation the Perl module shall use for loading the Oracle modules.

  ORACLE_BASE=<your oracle_base>
  ORACLE_HOME=<your oracle_home>
  TNS_ADMIN=<your network admin path,
              e.g. $ORACLE_HOME/network/admin>
  ORACLE_SID='APAC'
  CLN_BASE='200M'
  export ORACLE_BASE ORACLE_HOME
  export TNS_ADMIN ORACLE_SID CLN_BASE
  LD_LIBRARY_PATH="$LD_LIBRARY_PATH:$ORACLE_HOME/lib"
  export LD_LIBRARY_PATH

  The environment variable TNS_ADMIN specifies the path, under which the Oracle Net parameter files sqlnet.ora and tnsnames.ora are searched.

- The file **tnsnames.ora** contains Oracle Net Alias names, with which a database can be addressed. If Oracle Net Alias names are used in the Perl scripts, these have to be defined in the tnsnames.ora file. This file must be created in the directory specified by TNS_ADMIN. If TNS_ADMIN is not supplied, the file is searched under $ORACLE_HOME/network/admin. It is recommended to use the TCP protocol for the communication with the Oracle database.

5   License arrangements

For the utilization of Perl in principle two different licenses are available, either the GNU GPL or the so-called Artistic License. We use for the redistribution of Perl (and CPAN modules with the same license as Perl) the Artistic License. For particulars, especially differing licenses of some CPAN modules, please read the license texts in the PLAM library SYSDOC.PERL.524.OSS.

6   Literature

POSIX (BS2000/OSD)
Basics for Users and System Administrators
User Guide

Target group
BS2000 system administrators, POSIX administrators, BS2000 users

Contents
- Introduction to and working with POSIX
- BS2000 software products in a POSIX environment
- Installing POSIX
- Controlling POSIX and administering file systems
- Administering POSIX users
- BS2000 commands for POSIX

6.1   Additional literature

Under https://www.perl.org/books one finds a very comprehensive overview over Perl literature.