



Perl 5.6.1 Build Instruction - Red Hat Enterprise Linux on Intel/AMD

TIVOLI® NETCOOL® PERFORMANCE MANAGER FOR WIRELESS
TIVOLI® NETCOOL® GATEWAY FRAMEWORK

Note: Before using this information and the product it supports, read the information in Notices on page 12.

This edition applies to Version 4.1 of IBM® Tivoli® Netcool® Performance Manager for Wireless and to all subsequent releases and modifications until otherwise indicated in new editions.

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1 About this Documentation

The Tivoli Netcool Gateway Framework requires Perl 5.6.1. This provides the instruction on how to build Perl 5.6.1 for Red Hat Enterprise Linux on Intel or AMD architecture machine.

1.1 Audience

The target audience of this document is IBM Tivoli Netcool Performance Manager for Wireless customers. They should be familiar with Perl and IT principles and should also have a good understanding of Red Hat Enterprise Linux.

Note: Performance Manager for Wireless Administrators should not, without prior consultation and agreement from IBM, make any changes to the Index Organized tables or database schema. Changes to the Index Organized tables or database schema may result in corruption of data and failure of the Performance Manager for Wireless System. This applies to all releases of Performance Manager for Wireless using all versions of interfaces.

1.2 Required Skills and Knowledge

This guide assumes you are familiar with the following:

- General IT Principles
- Red Hat Enterprise Linux Operating System
- C Compiler
- Perl Scripting
- Windows operating systems
- Graphical User Interfaces

This guide also assumes that you are familiar with your company's network and with procedures for configuring, monitoring, and solving problems on your network.

2 Requirements

2.1 System Requirement

The operating system and processor architecture required is listed in the table below.

Vendor	O/S Version	Architecture
Red Hat	Enterprise Linux 4 & 5	x86-32, and x86-64

*Notes: x86-64 includes EM64T (Xeon) and AMD64 (Opteron);
x86-32 is Intel 32-bit and AMD Athlon*

2.2 Software Requirement

The RPM packages required for RHEL 4 is listed in the table below:

Software	RPM Packages Name	Version
GCC	gcc	3.4.6
GCC libraries	libgcc	3.4.6
GNU Make	make	3.80
GNU binary utilities	binutils	2.15.92.0.2
GNU C development headers and libraries	glibc-devel	2.3.4
GNU C-compatible Compiler Processor	cpp	3.4.6
Berkeley Yacc	byacc	1.9

*Note: The development library to compile perl for this instruction must be in 32 bit binary.
This requirement applies for both x86-32 and x86-64 architectures.*

The RPM packages required for RHEL 5 is listed in the table below:

Software	RPM Packages Name	Version
GCC	gcc	4.1.2
GCC libraries	libgcc	4.1.2

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GNU Make	make	3.81
GNU binary utilities	binutils	2.17.50.0.6
GNU C development headers and libraries	glibc-devel	2.5
GNU C-compatible Compiler Processor	cpp	4.1.2
Berkeley Yacc	byacc	1.9

Note: The development library to compile perl for this instruction must be in 32 bit binary. This requirement applies for both x86-32 and x86-64 architectures.

3 Preparation

Download Perl 5.6.1 source code from <http://www.perl.com/CPAN/src>

Extract the content of the source package using the following command:

```
$ gunzip -dc perl-5.6.1.tar.gz | tar xvf -
```

The directory `perl-5.6.1` will be created with its contents.

Ensure that `make` and `cc` is in the `$PATH` environment.

Remove the `config.sh` and `Policy.sh` from within the `perl-5.6.1` directory if available:

```
$ cd perl-5.6.1  
$ rm -f config.sh Policy.sh
```

Create the installation directories at a desired location, e.g.:

```
$ mkdir -p /usr/local/gways/perl5/5.6.1/bin
```

4 Build Instruction

Run Configure within the Perl source directory with the following parameters:

1. set the prefix to use the installation directory created earlier,
2. do not install perl as /usr/bin/perl,
3. do not load DB_File extension, and
4. accept all other default parameters.

```
$ sh Configure -Dprefix=/usr/local/gways/perl5/5.6.1 \  
-Uinstallusrbinperl -Ui_db -des -Dcc='cc -m32' \  
-Darchname='i686-linux'
```

After Configure is completed, edit the following makefiles:

1. makefile
2. x2p/makefile

Remove the lines containing the following from the makefiles:

1. <built-in>
2. <command line>

The command to remove the lines is as follows:

```
$ mv makefile makefile.1  
$ cat makefile.1 | sed '\: </d' > makefile
```

Repeat the above commands for x2p/makefile.

```
$ cd x2p  
$ mv makefile makefile.1  
$ cat makefile.1 | sed '\: </d' > makefile  
$ cd ..
```

For RHEL 5, please run the following command to ensure the correctness of the SIG_NAME defines in config.h file:

```
$ perl -pi -e 's/^#define SIG_NAME [ ]*"ZERO", 0/#define SIG_NAME
"ZERO", "HUP", "INT", "QUIT", "ILL", "TRAP", "ABRT", "BUS", "FPE",
"KILL", "USR1", "SEGV", "USR2", "PIPE", "ALRM", "TERM", "STKFLT",
"CHLD", "CONT", "STOP", "TSTP", "TTIN", "TTOU", "URG", "XCPU",
"XFSZ", "VTALRM", "PROF", "WINCH", "IO", "PWR", "SYS", "NUM32",
"NUM33", "RTMIN", "NUM35", "NUM36", "NUM37", "NUM38", "NUM39",
"NUM40", "NUM41", "NUM42", "NUM43", "NUM44", "NUM45", "NUM46",
"NUM47", "NUM48", "NUM49", "NUM50", "NUM51", "NUM52", "NUM53",
"NUM54", "NUM55", "NUM56", "NUM57", "NUM58", "NUM59", "NUM60",
"NUM61", "NUM62", "NUM63", "RTMAX", "IOT", "CLD", "POLL", "UNUSED",
0/g' config.h
```

For RHEL 5, please run the following command to ensure the correctness of the SIG_NUM defines in config.h file:

```
$ perl -pi -e 's/^#define SIG_NUM [ ]*0, 0/#define SIG_NUM 0, 1,
2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20,
21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 35, 36, 37,
38, 39, 40, 41, 42, 43, 44, 45, 46, 47, 48, 49, 50, 51, 52, 53, 54,
55, 56, 57, 58, 59, 60, 61, 62, 63, 64, 6, 17, 29, 31, 0/g'
config.h
```

Run make to build the binaries.

```
$ make
```

The binaries are verified using the following command:

```
$ make test
```

The last two lines of the output should show something similar to the following:

```
All tests successful.
u=0.13 s=0.12 cu=10.12 cs=3.21 scripts=252 tests=12605
```

Finally, install perl into the target installation directory:

```
$ make install
```

Check the perl configuration summary by running the following command:

```
$ <perl_installation_directory>/bin/perl -V
```

A sample of the perl configuration summary is in **Appendix A**.

Check the perl build architecture by running the following command:

```
$ file <perl_installation_directory>/bin/perl
```

The sample output of the command is as below:

```
/usr/local/gways/perl5/5.6.1/bin/perl: ELF 32-bit LSB executable,  
Intel 80386, version 1 (SYSV), for GNU/Linux 2.2.5, dynamically  
linked (uses shared libs), not stripped
```

Appendix A Perl Configuration Summary

Summary of my perl5 (revision 5.0 version 6 subversion 1) configuration:

```
Platform:
  osname=linux, osvers=2.6.9-55.0.6.el, archname=i686-linux
  uname='linux unknown 2.6.9-55.0.6.el #1 thu aug 23 10:59:21 edt 2007 i686
i686 i386 gnulinux '
  config_args='-Dprefix=/usr/local/gways/perl5/5.6.1 -Uinstallusrbinperl -Ui_db
-des'
  hint=recommended, useposix=true, d_sigaction=define
  usethreads=undef use5005threads=undef useithreads=undef usemultiplicity=undef
  useperlio=undef d_sfio=undef uselargefiles=define usesocks=undef
  use64bitint=undef use64bitall=undef uselongdouble=undef
Compiler:
  cc='cc', ccflags ='-fno-strict-aliasing -I/usr/local/include -
D_LARGEFILE_SOURCE -D_FILE_OFFSET_BITS=64',
  optimize='-O2',
  cppflags='-fno-strict-aliasing -I/usr/local/include'
  ccversion='', gccversion='3.4.6 20060404 (Red Hat 3.4.6-8)', gccosandvers=''
  intsize=4, longsize=4, ptrsize=4, doublesize=8, byteorder=1234
  d_longlong=define, longlongsize=8, d_longdbl=define, longdblsize=12
  ivtype='long', ivsize=4, nvtype='double', nvsize=8, Off_t='off_t',
lseeksize=8
  alignbytes=4, usemymalloc=n, prototype=define
Linker and Libraries:
  ld='cc', ldflags ='-L/usr/local/lib'
  libpth=/usr/local/lib /lib /usr/lib
  libs=-lnsl -lgdbm -ldb -ldl -lm -lc -lcrypt -lutil
  perllibs=-lnsl -ldl -lm -lc -lcrypt -lutil
  libc=/lib/libc-2.3.4.so, so=so, useshrplib=false, libperl=libperl.a
Dynamic Linking:
  dlsrc=dl_dlopen.xs, dlexit=so, d_dlsymun=undef, ccdlflags='-rdynamic'
  cccdlflags='-fpic', lddlflags='-shared -L/usr/local/lib'

Characteristics of this binary (from libperl):
Compile-time options: USE_LARGE_FILES
Built under linux
Compiled at Mar 18 2008 15:37:35
@INC:
  /usr/local/gways/perl5/5.6.1/lib/5.6.1/i686-linux
  /usr/local/gways/perl5/5.6.1/lib/5.6.1
  /usr/local/gways/perl5/5.6.1/lib/site_perl/5.6.1/i686-linux
  /usr/local/gways/perl5/5.6.1/lib/site_perl/5.6.1
  /usr/local/gways/perl5/5.6.1/lib/site_perl
.
```

Appendix B Notices and Trademarks

This appendix contains the following:

- Notices
- Trademarks

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