IBM SPSS Statistics - Essentials for R: Installation Instructions for AIX

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Contents

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The following instructions are for installing IBM® SPSS® Statistics - Essentials for R on AIX® operating systems.

Overview

IBM SPSS Statistics - Essentials for R provides you with tools you need to start developing custom R applications for use with IBM SPSS Statistics. It includes the following:

1. The IBM SPSS Statistics - Integration Plug-in for R for IBM SPSS Statistics 24
2. A set of working examples of R applications for IBM SPSS Statistics

Install the IBM SPSS Statistics application

IBM SPSS Statistics - Essentials for R is designed for the following applications:

- IBM SPSS Statistics Server for AIX

The components installed with IBM SPSS Statistics - Essentials for R work with any valid IBM SPSS Statistics license.

If you have not already done so, follow the instructions provided with the software to install one of the IBM SPSS Statistics applications on the computer where you will install IBM SPSS Statistics - Essentials for R.

Download and install R 3.2

Version 24 of IBM SPSS Statistics - Essentials for R requires R version 3.2 (version 3.2.2 is recommended). Install R on the computer where you will install IBM SPSS Statistics - Essentials for R.

R version 3.2 is available from http://www.r-project.org/. You can also download it directly from ftp://ftp.stat.math.ethz.ch/Software/CRAN/src/base/R-3/.

Note: An AIX expert with RPM experience is required. The expert is expected to have an advanced skill set, not limited to but including the following: installing RPM packages; building open source software using IBM native C and Fortran compilers, as well as GNU make; installing and configuring X11, including the X Virtual Frame Buffer.

Environment requirements

OS: AIX6.1 or AIX7.1

Compiler: IBM XL C/C++ for AIX, V12 .1 and IBM XL FORTRAN for AIX, V14.1

R-3.2 depends on the 3rd party packages that are listed in the following table. Upload these RPM files to the AIX server before installing R and run the following command as root to install them:

```
# rpm -U --nodeps ./*.rpm
```

Note: If any warning messages are displayed when the `rpm -U` command is run, then execute the `rpm -qsi` command to check the installation result. For example: # rpm – qsi `bash-4.2-9`. If "normal" is returned, the RPM files were installed successfully. For more information, refer to the RPM command reference.

Table 1. Required RPM files

RPM file	URL
bash-4.2-9.aix6.1.ppc.rpm	http://www-frec.bull.com/affichage.php?id=2091
blas-3.4.1-2.aix6.1.ppc.rpm	http://www-frec.bull.com/affichage.php?id=2095
bzip2-1.0.6-2.aix6.1.ppc.rpm	http://www-frec.bull.com/affichage.php?id=1439
cairo-1.12.2-3.aix6.1.ppc.rpm	http://www-frec.bull.com/affichage.php?id=2011
expat-2.1.0-1.aix6.1.ppc.rpm	http://www-frec.bull.com/affichage.php?id=1639
fontconfig-2.8.0-4.aix6.1.ppc.rpm	http://www-frec.bull.com/affichage.php?id=1412
freetype2-2.4.4-3.aix6.1.ppc.rpm	http://www-frec.bull.com/affichage.php?id=1414
gettext-0.17-8.aix6.1.ppc.rpm	http://www-frec.bull.com/affichage.php?id=2013
glib2-2.31.2-1.aix6.1.ppc.rpm	http://www-frec.bull.com/affichage.php?id=2017
info-5.0-2.aix6.1.ppc.rpm	http://www-frec.bull.com/affichage.php?id=1918
jbigkit-libs-2.0-3.aix6.1.ppc.rpm	http://www-frec.bull.com/affichage.php?id=1422
libICE-1.0.8-1.aix6.1.ppc.rpm	http://www-frec.bull.com/affichage.php?id=1718
libSM-1.2.1-1.aix6.1.ppc.rpm	http://www-frec.bull.com/affichage.php?id=1722
libXft-2.2.0-3.aix6.1.ppc.rpm	http://www-frec.bull.com/affichage.php?id=1423
libXrender-0.9.6-5.aix6.1.ppc.rpm	http://www-frec.bull.com/affichage.php?id=2092
libffi-3.0.11-1.aix6.1.ppc.rpm	http://www-frec.bull.com/affichage.php?id=1587
libjpeg-8d-1.aix6.1.ppc.rpm	http://www-frec.bull.com/affichage.php?id=1874
libpng-1.5.10-1.aix6.1.ppc.rpm	http://www-frec.bull.com/affichage.php?id=1878
libtiff-4.0.1-1.aix6.1.ppc.rpm	http://www-frec.bull.com/affichage.php?id=1880
libxml2-2.9.1-1.aix6.1.ppc.rpm	http://www-frec.bull.com/affichage.php?id=1841
pango-1.30.1-2.aix6.1.ppc.rpm	http://www-frec.bull.com/affichage.php?id=2025
pcre-8.12-3.aix6.1.ppc.rpm	http://www-frec.bull.com/affichage.php?id=1460
pixman-0.26.0-1.aix6.1.ppc.rpm	http://www-frec.bull.com/affichage.php?id=1589
readline-6.2-3.aix6.1.ppc.rpm	http://www-frec.bull.com/affichage.php?id=1464
tcl-8.4.19-1.aix5.3.ppc.rpm	http://www-frec.bull.com/affichage.php?id=1047
tk-8.4.19-1.aix5.3.ppc.rpm	http://www-frec.bull.com/affichage.php?id=1052
xz-libs-5.0.4-1.aix6.1.ppc.rpm	http://www-frec.bull.com/affichage.php?id=1890
zlib-1.2.5-6.aix6.1.ppc.rpm	http://www-frec.bull.com/affichage.php?id=1908
gmp-5.1.3-1.aix6.1.ppc.rpm	http://www-frec.bull.com/affichage.php?id=2046
lapack-3.4.1-1.aix6.1.ppc.rpm	http://www-frec.bull.com/affichage.php?id=1612
libiconv-1.14-1.aix6.1.ppc.rpm	http://www-frec.bull.com/affichage.php?id=2024
mpfr-3.1.2-1.aix6.1.ppc.rpm	http://www-frec.bull.com/affichage.php?id=2049
pkg-config-0.25-3.aix6.1.ppc.rpm	http://www-frec.bull.com/affichage.php?id=1462
readline-devel-6.2-3.aix6.1.ppc.rpm	http://www-frec.bull.com/affichage.php?id=1465
texinfo-5.0-2.aix6.1.ppc.rpm	http://www-frec.bull.com/affichage.php?id=1920
xz-5.0.4-1.aix6.1.ppc.rpm	http://www-frec.bull.com/affichage.php?id=1888

Table 1. Required RPM files (continued)

RPM file	URL
xz-devel-5.0.4-1.aix6.1.ppc.rpm	http://www-frec.bull.com/affichage.php?id=1889
zlib-devel-1.2.5-6.aix6.1.ppc.rpm	http://www-frec.bull.com/affichage.php?id=1909
make-3.81-1.aix6.1.ppc.rpm	ftp://ftp.boulder.ibm.com/aix/freeSoftware/aixtoolbox/ RPMS/ppc/make/make-3.81-1.aix6.1.ppc.rpm

Building and installing R

1. Create a temporary directory where you will uncompress and unpack the R source. For example, at a command prompt type:

   ```
   mkdir ~/Rsource
   ```

2. Download the source code for building R, for example *R-3.2.2.tar.gz*, and save it to the temporary directory.

3. Change to the temporary directory. For example, at a command prompt type:

   ```
   cd ~/Rsource
   ```

4. Uncompress and unpack the R source to the temporary directory. For example, at a command prompt type:

   ```
   gzip –d –c R-3.2.2.tar.gz | tar –xvf –
   ```

5. Change to the source directory. For example, at a command prompt type:

   ```
   cd R-3.2.2
   ```

   Note: To install R to the default directory, you must run the following step as root, either by logging in as root or using the sudo command. It is recommended that you read the information in *doc/html/R-admin.html* (located under the directory where you unpacked the R source) before proceeding with configuring, building and installing R.

6. Verify that the */tmp* directory in your file system has over 200MB of free disk space.

7. Edit *~/Rsource/R-3.2.2/src/extra/tre/tre-internal.h* and change the following section (please refer to the patch at https://r-forge.r-project.org/scm/viewvc.php/patches/aix_R210_tre.patch?view=markup &root=aix:

   ```
   ----------------------------------------
   /* Wide characters. */
   typedef wint_t tre_cint_t;
   #define TRE_CHAR_MAX WCHAR_MAX
   ----------------------------------------

   to:

   ----------------------------------------
   /* Wide characters. */
   typedef wint_t tre_cint_t;
   /*
   WCHAR_MAX not possible to function for UINT32_MAX on AIX.
   AIX 64bit        WCHAR_MAX = UINT32_MAX
   Solaris-sparcv9  WCHAR_MAX = INT32_MAX
   Linux amd64      WCHAR_MAX = INT32_MAX
   */
   #if (WCHAR_MAX == UINT32_MAX)
   #define TRE_CHAR_MAX INT32_MAX
   #else
   #define TRE_CHAR_MAX WCHAR_MAX
   #endif
   ----------------------------------------
   ```

8. Edit *~/Rsource/R-3.2.2/configure* and delete the line: "#define HAVE_STDALIGN_H 1".

9. To specify necessary compiler settings and ensure the compiler is on the path, execute the following commands:

```
export CC="/usr/vacpp/bin/xlc_r -q64"
export CXX="/usr/vacpp/bin/xlC_r -q64"
export CXXFLAGS="-I/opt/freeware/include -I/usr/include -qrtti=all -qarch=auto -qcache=auto
        -qtune=auto -qstrict -qmaxmem=16384 -U__STR__ -qnolibansi"
export CFLAGS="-I/opt/freeware/include -I/usr/include -qrtti=all -qarch=auto -qcache=auto
        -qtune=auto -qstrict -qmaxmem=16384 -U__STR__ -qnolibansi"
export FC="/usr/bin/xlf_r -q64"
export F77="/usr/bin/xlf_r -q64"
export CPPFLAGS="-I/opt/freeware/include -I/usr/include"
export LDFLAGS="-L/opt/freeware/lib64 -L/opt/freeware/lib -L/usr/lib64 -L/usr/lib"
export FFLAGS="-I/opt/freeware/include -I/usr/include -qarch=auto -qcache=auto -qtune=auto
        -qstrict -qmaxmem=16384"
export FCLAGS="-I/opt/freeware/include -I/usr/include -qarch=auto -qcache=auto -qtune=auto
        -qstrict -qmaxmem=16384"
export AR="ar -X64"
export OBJECT_MODE="64"
```

10. Configure, build, and install R. Be sure to configure R with the `--enable-R-shlib` and `--with-x` arguments. For example, at a command prompt type:

```
./configure --with-ICU=no --with-system-pcre --with-system-zlib --with-system-bzlib
--enable-R-shlib --with-x --enable-BLAS-shlib --without-recommended-packages && gmake && gmake install
```

11. Add *<R_HOME>/bin* to the PATH environment variable. For example:

```
export PATH=<R_HOME>/bin:$PATH
```

   <R_HOME> is the location where R 3.2.2 is to be installed—for example, */usr/local/R-3.2.2*.

Install the recommended packages

1. Uncompress *~/Rsource/R-3.2.2/src/library/Recommended/Matrix_1.1-2.tar.gz*. Edit *~/Matrix/src/CHOLMOD/ Include/cholmod_blas.h* and change the following section:

```
--------------------------------------------------------
#elif defined (_AIX) || defined (MIBM_RS) || defined (ARCH_IBM_RS)
#define CHOLMOD_AIX
#define CHOLMOD_ARCHITECTURE "IBM AIX"
/* recent reports from IBM AIX seem to indicate that this is not needed: */
/* #define BLAS_NO_UNDERSCORE */
--------------------------------------------------------
```

   to:

```
--------------------------------------------------------
#elif defined (_AIX) || defined (MIBM_RS) || defined (ARCH_IBM_RS)
#define CHOLMOD_AIX
#define CHOLMOD_ARCHITECTURE "IBM AIX"
/* recent reports from IBM AIX seem to indicate that this is not needed: */
#define BLAS_NO_UNDERSCORE
--------------------------------------------------------
```

   Compress to ~/Rsource/R-3.2.2/src/library/Recommended/Matrix_1.1-2.tar.gz.

2. Change the directory to /R-3.2.2/src/library/Recommended/ and run R.

```
cd /R-3.2.2/src/library/Recommended/
R
```

3. Install the recommended R packages.

```
> install.packages("./KernSmooth_2.23-15.tar.gz", repos=NULL)
> install.packages("./MASS_7.3-43.tar.gz", repos=NULL)
> install.packages("./lattice_0.20-33.tar.gz", repos=NULL)
> install.packages("./Matrix_1.2-2.tar.gz", repos=NULL)
> install.packages("./boot_1.3-17.tar.gz", repos=NULL)
> install.packages("./class_7.3-13.tar.gz", repos=NULL)
> install.packages("./cluster_2.0.3.tar.gz", repos=NULL)
> install.packages("./codetools_0.2-14.tar.gz", repos=NULL)
> install.packages("./foreign_0.8-65.tar.gz", repos=NULL)
```

```
> install.packages("./nlme_3.1-121.tar.gz", repos=NULL)
> install.packages("./nnet_7.3-10.tar.gz", repos=NULL)
> install.packages("./rpart_4.1-10.tar.gz", repos=NULL)
> install.packages("./spatial_7.3-10.tar.gz", repos=NULL)
> install.packages("./survival_2.38-3.tar.gz", repos=NULL)
> install.packages("./mgcv_1.8-7.tar.gz", repos=NULL)
```

Test R

To test R from the command line, you will need to add the R library to the LIBPATH environment variable. In the following, *<R_HOME>* is the location where R 3.2 is installed--for example, */usr/local/R-3.2.2*.

For example, at the UNIX prompt type:

```
export LIBPATH=<R_HOME>/lib/R/lib:.:$LIBPATH
```

Test R to make sure that it can run. For example, at the UNIX prompt type:

```
cd /usr/local/R-3.2.2/bin
```

```
./R
```

You should see a message from R and the R prompt (for example, >). You can end the R session by typing q(). You may want to remove the R source directory to recover disk space.

Download and install IBM SPSS Statistics - Essentials for R

Be sure to use a version of IBM SPSS Statistics - Essentials for R that is compatible with the version of IBM SPSS Statistics Server on your machine. Within a major version of IBM SPSS Statistics, such as 24, you must use a version of IBM SPSS Statistics - Essentials for R that has the same major version. It is not necessary to uninstall earlier versions of IBM SPSS Statistics - Essentials for R before installing a newer version.

For users who are working in distributed mode (with IBM SPSS Statistics Server) please install IBM SPSS Statistics - Essentials for R on both the client and server machines.

Download version 24 of IBM SPSS Statistics - Essentials for R, available from the IBM SPSS Predictive Analytics community at https://developer.ibm.com/predictiveanalytics/predictive-extensions/. Be sure to download the version of IBM SPSS Statistics - Essentials for R for the operating system of your IBM SPSS Statistics application.

Important:
- If you are installing Essentials for R on a computer that does not have internet access and you plan to use the working R examples included with Essentials for R, then you must obtain any R packages that are required by those examples and manually install them in R. To determine which R packages are required for a specific R example, open the Extension Hub (Extensions > Extension Hub), go to the Installed tab and click **More info** for the example that you want (each example is installed as a separate extension). The required R packages are listed in the Dependencies section on the Extension Details dialog. R packages can be obtained from any of the R CRAN mirror sites, which are accessed from http://www.r-project.org/. Be sure to obtain the versions of the packages that match your R version. The version-specific packages are available from links on the "Contributed Packages" page of the CRAN mirror site.

1. Change to the directory where you downloaded IBM SPSS Statistics - Essentials for R.

   The following steps document the silent installer using a response file. You can also execute the installer directly to launch a graphic version of the installer. You will need an X Window System to do so.

2. Using a text editor, create a response file named *installer.properties*.
3. Add the following properties and associated values to the response file:

```
INSTALLER_UI=silent
USER_SPSS_HOME=<IBM SPSS Statistics location>
USER_R_HOME=<(R 3.2)/lib/R directory>
```

where <IBM SPSS Statistics location> is the installation location of IBM SPSS Statistics and <(R 3.2)/lib/R directory > is the path to the *lib/R* directory under the location where R 3.2 is installed. For example, if R 3.2 is installed in */usr/local/R-3.2.2*, then:

```
USER_SPSS_HOME=/opt/IBM/SPSS/StatisticsServer24
USER_R_HOME=/usr/local/R-3.2.2/lib/R
```

4. Save *installer.properties* to the directory containing the *.bin* file for IBM SPSS Statistics - Essentials for R and change to that directory.
5. Run the installer with the following command:

```
./<installer_name>
```

where *<installer_name>* is the name of the *.bin* file for IBM SPSS Statistics - Essentials for R. *Note*: You must run the previous command as root, either by logging in as root or using the sudo command.

As part of the installation, any R packages required by the R examples will be automatically downloaded over the Internet if possible. This may take a few minutes. If you experience problems with any required R packages (particularly for AIX), then you might need to download the packages and manually install them.

Note: To use a different response file (other than *installer.properties*), run the installer with the following command:

```
./<installer_name> -f <response file name>
```

Configure the environment for the IBM SPSS Statistics - Integration Plug-in for R

The IBM SPSS Statistics - Integration Plug-in for R requires additions to the *LD_LIBRARY_PATH* environment variable (or whichever environment variable is appropriate for shared libraries on your operating system). Add these settings to the file statsenv.sh, which is under the location where IBM SPSS Statistics is installed.

For example, at the UNIX prompt type:

```
export LIBPATH=
<R_HOME>/lib/R/lib:/opt/freeware/lib64:/opt/freeware/lib:/usr/lib64:/usr/lib:<SPSS_HOME>/lib:.:$LIBPATH
```

In the preceding statement, *<SPSS_HOME>* is the location where version 24 of the IBM SPSS Statistics application is installed, and *<R_HOME>* is the location where R 3.2 is installed--for example, */usr/local/R-3.2.2*.

Note:
- To support conversions between code page and Unicode, the plug-in uses the iconv library. You must add the path to the iconv, libpng, libjpeg and zlib libraries on your computer to the *LD_LIBRARY_PATH* environment variable (or whichever environment variable is appropriate for shared libraries on your operating system).
- To display R graphs in the IBM SPSS Statistics output viewer when working in distributed mode, you must configure X11 on the server and set the *DISPLAY* environment variable.

To Rerun the R 3.2 build process

If you have to stop the R build process before it completes, you need to delete the files that were created by the process before attempting to rerun the process. For example, assuming that the R3.2 source is located in *~/Rsource*, from the UNIX prompt type:

```
cd ~/Rsource
```

```
make clean
```

Before you start using the IBM SPSS Statistics - Integration Plug-in for R

After you install IBM SPSS Statistics - Essentials for R, you will be able to start developing R applications with the IBM SPSS Statistics - Integration Plug-in for R. Documentation for the plug-in is provided in *R Integration Package for IBM SPSS Statistics.pdf*, which is included with the documentation for your IBM SPSS Statistics product. It describes how to use the plug-in and all of the functions available with the plug-in.

Accessing the R examples

IBM SPSS Statistics - Essentials for R includes a set of working examples of R extensions for IBM SPSS Statistics that provide capabilities beyond what is available with built-in SPSS Statistics procedures. All of the R extensions include a custom dialog and an extension command. The extension commands can be run from SPSS Statistics command syntax in the same manner as any built-in command such as FREQUENCIES. You can generate command syntax for each extension command from the associated custom dialog.

Table 2. Listing of R extensions.

Menu location	Command name	Description
Analyze>Reports>Apriori	SPSSINC APRIORI	Discover frequent itemsets, association rules using the Apriori algorithm.
Analyze>Correlate>Heterogeneous Correlations	SPSSINC HETCOR	Calculate correlations between nominal, ordinal, and scale variables.
Analyze>Descriptive Statistics>Two-Variable or Group Q-Q Plot	SPSSINC QQPLOT2	Two variable or two group Q-Q plot.
Analyze>Regression>Quantile Regression	SPSSINC QUANTREG	Estimate one or more conditional quantiles for a linear model.
Analyze>RanFor Estimation	SPSSINC RANFOR	Estimate random forest.
Analyze>Ranfor Prediction	SPSSINC RANPRED	Compute predicted values for new data using forests from SPSSINC RANFOR.
Analyze>Regression>Robust Regression	SPSSINC ROBUST REGR	Estimate a linear regression model by robust regression, using an M estimator.
Analyze>Regression>Tobit Regression	SPSSINC TOBIT REGR	Estimate a regression model whose dependent variable has a fixed lower bound, upper bound, or both.
Analyze>Survival>Cox Regression Extension	STATS COXREGR	Cox (proportional hazards) regression.
Analyze>Classify>Predict Using Density Cluster	STATS DBPRED	Prediction based on density-based clustering.

Table 2. Listing of R extensions (continued).

Menu location	Command name	Description
Analyze>Classify>Density-Based Clustering	STATS DBSCAN	Density-based clustering.
Analyze>Regression>Equation Systems	STATS EQNSYSTEM	Estimate system of linear equations.
Analyze>Scale>Extended Rasch	STATS EXRASCH	Calculate standard and extended Rasch models.
Analyze>Regression>Firth Logistic Regression	STATS FIRTHLOG	Firth logistic regression.
Analyze>Forecasting>GARCH Models	STATS GARCH	GARCH models.
Analyze>Generalized Linear Models>Generalized Boosted Regression	STATS GBM	Estimate generalized boosted regression models.
Analyze>Generalized Linear Models>Generalized Boosted Regression Prediction	STATS GBMPRED	Calculate predictions for generalized boosted regression models.
File>Get R Workspace	STATS GET R	Get information about R workspace contents and create SPSS datasets.
Analyze>Scale>Graded Response Model	STATS GRM	Fit graded response models to ordinal data.
Analyze>Scale>Item Response Model	STATS IRM	Fit three parameter item response models.
Analyze>Loglinear>Latent Class Analysis	STATS LATENT CLASS	Latent Class Analysis.
Analyze>Descriptive Statistics>Calculate Adjusted P Values	STATS PADJUST	Calculate p-values adjusted for multiple testing.
Analyze>Generalized Linear Models>Proportional Regression	STATS PROPOR REGR	Linear models for dependent variables that are proportions.
Analyze>Generalized Linear Models>Proportional Regression Prediction	STATS PROPOR REGRPRED	Calculate predicted values for proportional regression models.
Analyze>Regression>Regression Discontinuity	STATS RDD	Regression discontinuity analysis.
Analyze>Regression>Regression Relative Importance	STATS RELIMP	Relative importance measures for regression.
Analyze>Survival>Parametric Regression	STATS SURVREG	Parametric survival regression.
Analyze>Classify>Support Vector Machines	STATS SVM	Support vector machine.
Analyze>Generalized Linear Models>Zero-Inflated Count Models	STATS ZEROINFL	Estimate and predict a zero-inflated count model.

Important:

The Heterogeneous Correlations extension requires both the IBM SPSS Statistics - Integration Plug-in for R and the IBM SPSS Statistics - Integration Plug-in for Python. The IBM SPSS Statistics - Integration Plug-in for Python is included with IBM SPSS Statistics - Essentials for Python, which is installed by default with your IBM SPSS Statistics product.

Notes

- Help for each of the R extensions is available from the **Help** button on the associated dialog box. The help is not, however, integrated with the SPSS Statistics Help system.
- Complete syntax help for each of the extension commands is available by positioning the cursor within the command (in a syntax window) and pressing the F1 key. It is also available by running the command and including the /HELP subcommand. For example:

      SPSSINC HETCOR /HELP.

  The command syntax help is not, however, integrated with the SPSS Statistics Help system and is not included in the *Command Syntax Reference*.

  Note: The F1 mechanism for displaying help is not supported in distributed mode.
- If the menu location that is specified for an extension command is not present in your IBM SPSS Statistics product, then look on the **Extensions** menu for the associated dialog.
- The dialogs were created with the Custom Dialog Builder in IBM SPSS Statistics. You can view the design for any of the dialogs and you can customize them using the Custom Dialog Builder. It is available from **Extensions>Utilities>Custom Dialog Builder (Compatibility mode)...**. To view the design for a dialog, choose **File>Open Installed** from within the Custom Dialog Builder.
- The implementation code (R source code file) and XML specification files for each of the R extension commands can be found in the location where extension commands are installed on your computer. To view the location, run the SHOW EXTPATHS syntax command. The output displays a list of locations under the heading "Locations for extension commands". The files are installed to the first writable location in the list.
- You may need to set your SPSS Statistics locale to match the SPSS Statistics output language (OLANG) in order to display extended characters properly, even when working in Unicode mode. For example, if the output language is Japanese then you may need to set your SPSS Statistics locale to Japanese, as in SET LOCALE='japanese'.
- Other extension commands that are not included in IBM SPSS Statistics - Essentials for R are available for download from the Extension Hub, accessible from **Extensions>Extension Hub**. The Extension Hub also displays any updates that are available for the extension commands included with IBM SPSS Statistics - Essentials for R in addition to updates for any other extensions that you installed.

  Note: Extensions are always installed, or downloaded, to your local computer from the Extension Hub. If you work in distributed analysis mode, then you must separately install the extensions on the server. For information, see **Core System > Extensions> Installing local extension bundles** in the Help system.
- If you are installing extensions on SPSS Statistics Server, you can use a script to install multiple extensions at once. For information, see **Core System > Extensions> Installing local extension bundles > Batch installation of extension bundles** in the Help system.

Uninstalling IBM SPSS Statistics - Essentials for R components

1. Start a terminal program.
2. Change the directory to *Uninstall_IBM_SPSS_Statistics_Essentials_for_R_24* in the IBM SPSS Statistics installation directory.
3. At the command prompt, type:

   ./Uninstall_IBM_SPSS_Statistics_Essentials_for_R_24

   Important: You must have permissions to remove the installation directory, or the uninstallation process will fail.

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