**Suprtool 5.7 for HP-UX:**

# Change Notice

**by Robelle Solutions Technology Inc.**

# Contents

# Introducing Suprtool Version 5.7

## Overview

Use Suprtool/UX to read, select, and sort data from Oracle, Allbase and Eloquence databases and data files with fixed-length records. Suprtool/UX is designed to be similar to Suprtool for MPE while providing necessary HP-UX features.

Suprlink/UX provides high-speed data-file linking based on a sort key. Use STExport to convert fields in a self-describing input file into an output file that can be imported into different applications.

## Highlights in Suprtool 5.7

- Suprlink now has it's own "Suprmgr" file. Suprlink will process all the commands in /opt/robelle/linkmgr on startup.

- STExport now has it's own "Suprmgr" file. STExport will process all the commands in /opt/robelle/stexpmgr on startup.

- Set Comlog On has been added to Suprtool, Suprlink and STExport to log all commands entered in Suprtool, Suprlink or STExport are logged in it's own file.

- Suprtool now has the $proper function which will shift the first character in a string and any first character after a space or ampersand.

- Suprtool now has the Translate command and a $translate function to obfuscate test data or any byte field from being readable.

- Suprtool on both HP-UX platforms now correctly calculates how many records are in a file loaded via the Table command when the file is a greater than 2Gb.

- Suprtool/Open would not parse a negative number into a quad integer container.

- Suprtool for Itanium and Suprtool/Open would not properly convert negative, single and double integers when output,display is invoked.

- Suprtool for Itanium and Suprtool/Open incorrectly reallocated if/extract code space on subsequent tasks, which would eventually cause Suprtool to fail with the error, "Unable to allocate heap space."

• Suprtool is now compatible with Oracle 12 version of the client. The support begins with Suprtool 5.7 Build 6.

# Highlights in Suprtool 5.6

- Suprtool for Itanium and Suprtool/Open did not properly handle Display type sorts with over punch characters.

- Suprtool, Suprlink and STExport now handle 512 fields on HP-UX and Open platforms.

- Suprtools' extract command now has three special keywords to help with extract using a range, which is designed to make your Suprtool scripts more easily maintained. Suprtool now has $all, $first and $last which respectively means all fields, the first field or the last field. Note that $first and $last may only be used in a range extract.

- $subcount has been added to keep a running count for a given sort break.

- The limit of the Select command in Suprtool has been increased to 8192 bytes. (Suprtool 5.6 Build 11)

- Suprtool on Itanium had trouble with Arithmetic expressions with multiple sets of brackets when dealing with Packed-Decimal and Display data.

- Suprtool would use an incorrect field definition when copying a file where the input file had a duplicate field name with different field definition, the second field would utilize the first definition.

- Suprtool for HP-UX would potentially incorrectly set the decimal or date attribute on a straight copy of an SD file. This was introduced by the fix to copying SD files with duplicate fieldnames and was in 5.5.04 pre-release and 5.5.11 and 5.6 Build 1. This is fixed in Suprtool 5.6 Build 2.

- Suprtool would give an incorrect result when doing an arithmetic expression with brackets and the data involved is Packed-Decimal. (Itanium only Fixed Suprtool 5.6 Build 11)

- Suprtool and STExport would incorrectly assume a positive sign for a packed-decimal field that had an invalid sign value, when converting from Decimal to Ascii. (Itanium only)

- Suprtool for AMXW did not allocate enough space to support the same number of defined fields and items as previous versions.

- Set Ifouroutput on extracts would fail at xeq time with an "Unknown if execute phase" error in the PA_RISC version, when an alignment issue would occur in some circumstances.

# Highlights in Suprtool 5.5

- Set Fastread now has a default value of off.

- STExports Escape command has been re-written.

- Suprtool for HP-UX now supports 268 fields in both an Eloquence database and SD files.

- STExport for HP-UX now supports 268 fields in an SD file.

- Suprlink for HP-UX now supports 268 fields in an SD file.

- The PA_Risc version of Suprtool, Suprlink and STExport now prints out the Build version number.

- Set Oracle Integer on and Set Ifouroutput on no longer writes out double the calculated record size when output,data is used and the input source is an Oracle table, see the compatibility section for details.

- Set Oracle DataBug On | Off has been added to mimic the incorrect behaviour of writing double the number of bytes in versions 5.1 thru 5.4 and if no extract commands were in place and either set ifouroutput or set oracle integer were on.

- The $edit function did not work properly with alpha based edit masks and if the target was greater than 32 characters.

- A NUMRECS command with a percent greater than 101 would produce a strange result if the input source was an Oracle table on the Itanium version. This is fixed in Suprtool 5.5 Build 5.

# Itanium vs PA_RISC

There are two types of machines that HP has that run HP-UX, the older machines are based on the PA_RISC chip and the new machines that use the Itanium (and Itanium 2 chips). There are also program files that are specific to each chip. PA_RISC programs can run on both PA_RISC and Itanium machines, however, Itanium programs can only run on Itanium machines.

Any program that runs on Itanium must utilize libraries that match its own program type. Therefore if a PA_RISC program runs on Itanium and looks for a library, it must find/load the PA_RISC version of the libraries that it needs and conversely an Itanium program must load the libraries specific to its type.

**How to Tell what Machine I am on?**

There are many ways to tell what kind of machine you are on, here are a couple:

```
uname -m
getconf MACHINE_MODEL
```

In each case the Itanium machine will typically say ia64 somewhere in the result of the above two commands. PA_RISC machines typically say "9000" somewhere in the string.

**What is the Program File Type?**

Since there are two types of machines there are also at least two types of program files. Suprtool is primarily either PA_RISC 1.1 or ELF-32 / IA64 which is also known as Itanium. To determine the type of program file you can use the file command:

Itanium

```
file suprtool
suprtool:      ELF-32 executable object file - IA64
```

PA_RISC

```
file suprtool
suprtool:       PA-RISC1.1 executable dynamically linked -not stripped
```

The PA_RISC binary can run on both platforms but you need to have PA_RISC libraries for Eloquence or Oracle if you are using the Oracle module. An Itanium binary will not run on a PA_RISC machine and will fail with "cannot execute".

Of course we've made a provision to identify if you are running the ia version of Suprtool in the banner and verify command with the ia after the UX :

```
SUPRTOOL/UXia/Copyright Robelle Solutions Technology Inc. 1981-2009.
(Version 5.2 Internal)  MON, JUN  8, 2009, 11:26 AM  Type H for help.
```

**PA_RISC Loading**

Suprtool by default looks in the libraries in any of the directories named in SHLIB_PATH.  For example to insure that Suprtool resolves the library loads you can set the SHLIB_PATH system wide in your /etc/profile file in the following manner:

```
 export SHLIB_PATH=/opt/eloquence6/lib/pa11_32:/opt/oracle/lib
```

If you do not have the SHLIB_PATH variable set to a value where the libraries can be found, Suprtool will then try to load from their default names locations.  For Eloquence the default location is :/opt/eloquence6/lib/pa11_32.

The Oracle interface will first try to load libclntsh.so and then attempt to load libclntsh.sl from $ORACLE_HOME/lib32/libclntsh.sl.

**Itanium Loading**

You can change Suprtool to pay attention to LD_LIBRARY_PATH and use dlopen to load libraries by setting the environment variable:

```
export ROBELLE_DYN_LOAD =Y.
```

It is generally advisable to use DLOPEN or the ROBELLE_DYN_LOAD option when using the Itanium version. The PA_RISC version of Suprtool can use  either type of loading, the default or the dlopen method invoked with ROBELLE_DYN_LOAD.

The Itanium version will make one more attempt at loading the Eloquence libraries from hpux32/libimage3k.sl and hpux32/libeqdb.sl as most users are setting SHLIB_PATH and LD_LIBRARY_NAME pointing to the lib directory.

**Running the PA_RISC version on Itanium:**

You can of course run the PA_RISC version of Suprtool, however, given that the PA_RISC version requires SHLIB_PATH to point to PA_RISC libraries may go against the configuration necessary for other programs that may need SHLIB_PATH to point to Native Itanium libraries.

The solution to this is fairly simple, you can create a command file (let's say /opt/robelle/cmd/suprtool) that runs suprtool for you, of course you need to insure your path variable has /opt/robelle/cmd before /opt/robelle/bin.

You can then have the following commands in the /opt/robelle/cmd/suprtool command file:

```
export SAVED_SHLIB_PATH=$SHLIB_PATH
export SHLIB_PATH=/opt/oracle/pa_risc/lib:/opt/eloquence/lib/pa11_32
/opt/robelle/bin/suprtool $@
export SHLIB_PATH=$SAVED_SHLIB
```

Essentially all it does save the current SHLIB_PATH setting, sets it to point to PA_RISC libraries, runs suprtool and then resets the library back.

**Suprtool for Itanium**

Now that you know all about PA_RISC and Itanium you do need to be aware of what Suprtool for Itanium is in terms of new code and risk for potential issues. Suprtool for Itanium is completely in C code. This does not mean that it is all new C code however, the majority of the Suprtool code is still based on SPL, but is converted to C, using Allegro's SPLASH compiler.

So while the C code is new it is based on the original SPLash code, however, given differences between C and SPLash not all code can be automatically converted in some cases. We worked closely with Allegro to find ways to have the source code work and address the various issues that came up. The entire time Allegro improved the SPLash to C converter.

So while we are based on the original Suprtool we do have new code paths in the Native Itanium version and other potential issues where the C code might not work in exactly the same manner as the SPLash code.

Having said that we have tested this against our test suites, and improved and added a large number of tests to our HP-UX test suites.

# Compatibility

Fastread option is now set to Off for Suprtool for HP-UX. The Dynamic loading version of Suprtool the option is set to off.

Suprtool production versions 5.1 thru 5.4.01 would incorrectly double the record size for an output,data file when either Set Ifouroutput or Set Oracle Integer were on. This has been fixed but if your script accounted for a doubled record size this may cause and issue as we no longer incorrectly write out double the bytes. If you want to have the old bug behaviour to be re-instated you can Set Oracle DataBug On. The default for this setting is off.

# Itanium Compatibility

There are a couple of differences in the Itanium version of Suprtool, which you need to be aware of.

**The DBEdit module is not available in the Itanium versions of Suprtool. This module is invoked by the EDIT command.**

**The layout for the Verify command is slightly different then the PA-RISC versions of Suprtool.**

# CPU Serial Number (uname)

This program runs only on CPUs whose serial numbers have been encoded (the "uname" on HP-UX). If it fails to run and you get an "invalid HPSUSAN" error message, contact Robelle for assistance, via support@robelle.com or the support number at 1.289.480.1060.

# Documentation

The user manual contains the full description of all the Suprtool suite of products including Dbedit, Suprlink, STExport, and Suprtool2, as well as usage tips and

commands for each. The manuals are up-to-date with all the latest changes. To see only the changes in the latest version, see the "What's New" section of the manual.

You can download our manuals and Change Notices in various formats and order printed (hardcopy) manuals from our web site at:

 http://www.robelle.com/library/manuals/.

# Installation

## Overview

The following instructions describe the installation process of a new Suprtool release. The new version overwrites an existing version of Suprtool on your HP-UX system.

## Installation Instructions

There are typically two main types of installations. The first and most often utilized is the Download instructions. You can find the HP-UX download install instructions here:

http://www.robelle.com/downloads/install-sxprod.html

Tape installation instructions can be found here:

http://www.robelle.com/support/install/tape/sxprod.html

## Installation Assistance

If you have any questions or run into any problems, please call us. Technical support is available on weekdays from 8 a.m. to 4 p.m. Pacific time at 1.289.480.1060. Technical support can also be obtained via e-mail at: support@robelle.com  If your new version of software will not run, you can page someone from technical support by calling the support number, or you can typically easily run extend with the disaster option to tide you over until business hours. Instructions for this are available at:

http://www.robelle.com/disaster/

# Enhancements in Version 5.7

## Introduction

Suprtool is constantly being updated with new features. The following section(s) describes the new enhancements to Suprtool since Suprtool 5.6.

## Linkmgr

Suprlink now has a "suprmgr" file similar to Suprtool. Suprlink will process all the commands found in /opt/robelle/linkmgr or $ROBELLE/linkmgr.

## Stexpmgr

STExport now has a "suprmgr" file similar to Suprtool. STExport will process all the commands found in /opt/robelle/stexpmgr or $ROBELLE/stexpmgr.

## Set ComLog

Suprtool, Suprlink and STExport can now log all commands in each product. Every command will be logged if the setting Set ComLog, is on. Commands will not be logged if the user does not have write access to the comlog file. There are three separate log files, one for each product. The stlog file for Suprtool, sllog for Suprlink and sxlog for STExport. The files are by default located in /opt/robelle/log/suprtool directory. If the $ROBELLE variable is set, the log files would be in the directory $ROBELLE/log/suprtool.

The format of the log file is as follows:

DateTime, Username, UID, PID, command entered

The Date and Time is 16 bytes in the format Year, Month, Day, Hours, Minutes, Seconds, while the Username is eight bytes

UID/PID are six digit numbers, followed by the command with a line feed at the end.

Please note that if this command is global the log files can expand quickly, taking up disc space by default in the /opt/robelle directory. You can redirect where the commands are logged by using linked files.

```
ln -s /log/robelle/suprtool/stlog /opt/robelle/log/suprtool/stlog
ln -s /log/robelle/suprtool/sxlog /opt/robelle/log/suprtool/sxlog
ln -s /log/robelle/suprtool/sllog /opt/robelle/log/suprtool/sllog
```

The user running any of the products must have write access to the log files whether Link files or directly.

# $Proper

Suprtool now has the $proper function which will shift to upper case the first character of a byte type field and after any space or ampersand. It will also shift to lower case any other characters in the byte-field.

```
>in mprod
>list stan
>xeq
Apr 29, 2014 13:00                File: mprod              Page 1

PRODUCT-DESC

skil 3/8" variable speed drill
b&d router
skil var. sp. auto-scroll saw
skil 8 1/2" circular saw
b&d cordless screwdriver
makita 8 1/4" circular saw
b&d variable speed jigsaw
makita 1/2" router
makita 3/8" var. speed drill
skil router
b&d 7 1/4" circular saw
b&d 3/8" variable speed drill
makita 1" jigsaw
```

Considering the following data, you can fix all of the product names with one simple task:

```
>in mprod
>ext product-desc=$proper(product-desc)
>list stan
>xeq
May 01, 2014 11:40                File: MPROD              Page 1

PRODUCT-DESC

Skil 3/8" Variable Speed Drill
B&D Router
Skil Var. Sp. Auto-Scroll Saw
Skil 8 1/2" Circular Saw
B&D Cordless Screwdriver
Makita 8 1/4" Circular Saw
B&D Variable Speed Jig Saw
Makita 1/2" Router
Makita 3/8" Var. Speed Drill
Skil Router
B&D 7 1/4" Circular Saw
B&D 3/8" Variable Speed Drill
Makita 1" Jig Saw
```

Note that any character after a space, "&", or "-" is upshifted for a proper name. Suprtool will also downshift those characters that do not qualify as needing proper capitalization and it is a capital character, the proper function will downshift those characters. See an example below:

```
>IN NAME
>LIST
>XEQ
>IN NAME.NEIL.GREEN (0) >OUT $NULL (0)
NAME            = NEIL ARMSTRONG

>IN NAME
>EXT NAME=$PROPER(NAME)
>LIST
>XEQ
>IN NAME.NEIL.GREEN (0) >OUT $NULL (0)
NAME            = Neil Armstrong
```

The $proper function only works on byte type fields. (5.6.12)

# $Translate

Suprtool now has a $translate function which in conjunction with the translate command allows you to build a translation table, whereby you can translate from any byte character to any character. We have also added a method to a supplied translate table which will allow you to obscure the data such that it can't be read.

```
>in newprod
>list
>xeq
>IN NEWPROD.NEIL.GREEN (0) >OUT $NULL (0)
PRODUCT-DESC    = Skil 3/8" Variable Speed Drill

>IN NEWPROD.NEIL.GREEN (1) >OUT $NULL (1)
PRODUCT-DESC    = B&D Router

>in newprod
>translate tounread
>ext product-desc=$translate(product-desc)
>out unread,link
>xeq
IN=13, OUT=13. CPU-Sec=1. Wall-Sec=1.

>in unread
>num 1
>list
>xeq
>IN UNREAD.NEIL.GREEN (0) >OUT $NULL (0)
PRODUCT-DESC    = Hzxo .2)? Epcxpqot Hatts Rcxoo
Warning:  NUMRECS exceeded; some records not processed.
IN=2, OUT=1. CPU-Sec=1. Wall-Sec=1.

>in unread
>translate toread
>ext product-desc=$translate(product-desc)
>list
>xeq
>IN UNREAD.NEIL.GREEN (0) >OUT $NULL (0)
PRODUCT-DESC    = Skil 3/8" Variable Speed Drill

>IN UNREAD.NEIL.GREEN (1) >OUT $NULL (1)
PRODUCT-DESC    = B&D Router
```

You can make your own Translate table using the Translate command, where you can specify the character you want to translate and what you want to translate to, using Decimal Notation. So if you want to translate "A" to "Z", you would type the command:

```
Translate "^65:^90"
```

So you specify the from character on the left in decimal which is the capital-A and the to-character is also in decimal format which is capital-Z, which is decimal 90. If you want to reverse the translation you can simply do the following command and translate the field back with:

```
Translate "^90:^65"
```

This is not meant to be an encryption solution, but it will help obfuscate test data really quickly. (5.6.12)

# Enhancements in Version 5.6

## Introduction

Suprtool is constantly being updated with new features. The following section describes the new enhancements to Suprtool since Suprtool 5.5

## Extract Command

Suprtool's extract command now has three new keywords, which can be used for extract range feature. You can now say extract $all, extract $first / $last on an SD file or Image/Eloquence dataset. The intention is to make your scripts more easily maintained. If you had a script that you wanted to put a sequence number at the beginning and then extract the rest of the dataset you previously had to specify the starting field and the ending field. For example if the first field in a dataset was order-no and the last field was pst-code you may have a script that looked like this.

```
base orddb
get customers
def seq-no,1,4,double
ext seq-no=$counter
ext order-no / pst-code
out newfile,link
xeq
```

If you added any fields to the beginning or end of the dataset you would have to re-write the script. Now you can write the script as being:

```
base orddb
get customers
def seq-no,1,4,double
ext seq-no=$counter
ext $all
out newfile,link
xeq
```

You can also write the script using $first / $last as your preference, but $first and $last are also useful if you need to add data into the middle of the fields you extract:

```
base orddb
get customers
def seq-no,1,4,double
ext $first / zip
ext seq-no=$counter
ext tax-code / $last
out newfile,link
xeq
```

Please note that if a self-describing file has a fieldname that is a duplicate field and one of the duplicate fields is the last field in the file, then $first / $last and $all, will only extract up to the first occurrence of the duplicate fieldname. This may seem as an issue but it is consistent with what Suprtool does currently with extract from a range. Currently and prior to the $first / $last enhancement Suprtool would have extracted only up to the first occurrence of the field if you had a file such as this:

```
>form
File: newfile      (SD Version B.00.00)  Has linefeeds
      Entry:                    Offset
         CHAR-FIELD          X5      1
         INT-FIELD           I1      6
         DBL-FIELD           I2      8
         PACKED-FIELD        P12    12
         PACKED*-FIELD       P12    18
         QUAD-FIELD          I4     24
         ID-FIELD            I1     32
         LOGICAL-FIELD       K1     34
         DBLLOG-FIELD        K2     36
         ZONED-FIELD         Z5     40
         FILLER              X36    45
         FILLER              X36    81
   Entry Length: 116  Blocking: 1
```

Notice that FILLER is a duplicate named field, so if you entered, extract char-field / filler, Suprtool would only extract up to and including the first FILLER field. For consistency, extract $first / $last behaves the same way.

# Data Items Support

Suprtool now supports 512 data items in both Eloquence datasets and SD files and Oracle fields. STExport and Suprlink have also been updated to support the increased number of data items in the SD fields that they read, but please note that other limitations still exist. [5.5.10]

# $SubCount

$SubCount has been added to provide a counter that only gets reset at a given sort break.

```
In file1sd
Sort char-field
Def control-count,1,4,double
Ext $first / $last
Ext control-count=$subcount(char-field)
Out newfile,link
xeq
```

What Suprtool will do in this case is start incrementing a number starting with 1, and increase by 1 for any given char-field value. This way you can add a counter based on a sort break for a given field.

# Enhancements in Version 5.5

## Introduction

Suprtool is constantly being updated with new features. The following section describes the new enhancements to Suprtool since Suprtool 5.4.

## Set Oracle

Suprtool now has a command done strictly for compatibility. In Suprtool 5.1, thru to 5.4, the output record size written out will be double the actual size when the input source was an Oracle table, either Set IFourOutput was on or Set Oracle Integer was on and no extract command were used and Output,link was not used.

**Set Oracle DataBug On** can be turned on to write out double the calculated record size in case some customers had code that relied on the larger record size. The default however, is off. [5.4.16]

## Data Items Support

Suprtool now supports 268 data items in both Eloquence datasets and SD files. STExport and Suprlink have also been updated to support the increased number of data items.

The number of data items supported has been reduced due to a heap corruption issue which cause an fwrite to the sort scratch file. [5.4.12]

# Bugs Fixed

## Bugs Fixed In Suprtool 5.7

**STExport/Suprlink.**  PA_RISC versions of Suprlink and STExport would fail when attempting to report an error on an OUTPUT file if the user specified a directory that didn't exist or the user didn't have write permission to.

## Bugs Fixed In Suprtool 5.6.11

**Output , Display Command.**  Suprtool for Itanium and Suprtool/Open would not properly convert negative, single and double integers when output/,display is invoked

**Quad Integer Input Parsing.** Suprtool/Open would not parse a negative number into a quad integer container.

## Bugs Fixed In Suprtool 5.6

**Arithmetic Expressions.**  Suprtool/Open had problems with arithmetic expressions with brackets for Packed-Decimal and Zoned-Decimal data types.

## Bugs Fixed In Suprtool 5.5.11

**Over Punch Sort.** Suprtool would not properly sort display type data with Over punch characters. (Itanium and Open platforms only)

## Bugs Fixed In Suprtool 5.5.04

**SD File Copy.** Suprtool would use an incorrect field definition on a straight copy of an SD file if the input file had a duplicate field name with different byte lengths. (HP-UX only)

# Bugs Fixed In Suprtool 5.5.03

**Extract Command.** Suprtool would give an incorrect result when doing an Arithmetic Expression that has more than one set of brackets as in: extract amt-p=(packed-field + packed-field) – (packed-field *2) (Itanium only)

# Bugs Fixed In Suprtool 5.5.02

**Decimal to Ascii.** Suprtool and STExport would incorrectly assume a positive sign for a packed-decimal field that had an invalid sign value, when converting from Decimal to Ascii. (Itanium only)

# Bugs Fixed In Suprtool 5.5.01

**Ifouroutput.** Set Ifouroutput on extracts would fail at xeq time with an "Unknown if execute phase" error in the PA_RISC version, when an alignment issue would occur in some circumstances.

# Bugs Fixed In Suprtool 5.5

**$edit function.** The $edit function did not work well with alpha based edit masks and if the target was greater than 32 characters.

**Output,data.** Suprtool would write out double the calculated record size when set oracle integer was on or set ifouroutput was on, and output,data option was used and no extract commands were specified and the input source was an Oracle table.

**List Command.** The List command on Suprtool for HP-UX on PA_RISC would not print the specified headings and title for list command to a file.
**Sorting.** Suprtool for HP-UX on PA_RISC would abort when sorting a file with an output record size of 39 bytes and only on some machines, with fastread on.

# Bugs Fixed In Suprtool 5.4.01

**Sorting.** Suprtool for HP-UX on Itanium would abort when sorting very large records.

# Bugs Fixed In Suprtool 5.3.12

**Packed Data.** Suprtool for HP-UX on Itanium would incorrectly coerce the number negative 65536 from Binary to Decimal and Decimal to Binary.

**Table Command.** Suprtool did not properly clear the data field information from a table at the end of a task.

**Extract from Table**. Suprtool did not properly zero out a packed field target when an table entry was not found when extracting data from a table and the Packed field was P12 or higher.