

# ESP Product

## General Set-up Information





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## **READ ME FIRST**

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## 1. INTRODUCTION

### 1.1 Purpose

This document explains the set-up requirement to host the ESP products on a Linux environment.

### 1.2 Overview

Provides the following information:

- Linux overview and file-system structures (Recommended)
- Linux Profiles and Groups
- Environment Assignments
- Default Paths and executables
- Software location
- Natural Parameter module changes



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## 2. FILE-SYSTEM STRUCTURE

### 2.1 Linux File Systems:

During the installation of the Software AG products, some default system structures are suggested and should be used. Although the ESP Products will co-exist with the default layout structure, we recommend the following for our software:

#### 2.1.1 **/home** – User Home Directory

Under this directory we create subdirectories for the different users.

When you create a new user, the user's home directory should be located under the **/users/<user-id>** structure – each with their own **.bash\_profile**.

The **.bash\_profile** will be used to set-up defaults and a link to the **\$CRONUS/sysenv.setup** file that will contain specific settings for that group. Remember that **\$CRONUS** will have to be expanded/hardcode as this variable will not be available during login.

You can also setup a "skeleton" file in **/etc/skel/.bash\_profile** that will be used for all users. *Refer to the "useradd" command to define skeletons and command syntax.*

The "**sysenv.setup**" file is by default located under **\$CRONUS** directory (similar to the **sagenv** file located under **\$SAG**). However, to reference **\$CRONUS** in the **.bash\_profiles**, the complete path requires expansion. In the **sysenv.setup** file you define aliases, paths and so forth for each of the groups and, by doing so, one would only have to change the **sysenv.setup** files to modify the user defaults (eg: restrict access for a certain group or add aliases or paths for all users in that group).

**NOTE: The environment variable **\$CRONUS** will not be usable at login time and can therefore not be used in the **.bash\_profile** – the full path the **\$CRONUS** should be inserted.**



Example .bash\_profile:

```
# .bash_profile
# Get the aliases and functions
if [ -f ~/.bashrc ]; then
    . ~/.bashrc
fi
stty istrip
stty erase ^?

PATH=$PATH:/usr/bin:/usr/ucb:/etc:/usr/local/bin:.
export PATH
MANPATH=:/usr/man:/usr/share/man:/usr/local/man
export MANPATH
#LD_LIBRARY_PATH=/usr/lib64:$LD_LIBRARY_PATH:$JAVA_HOME

TERM=vt220 export TERM
EDITOR=vi; export EDITOR
VISUAL=vi
PS1='(`uname -n | cut -f1 -d '.')$PWD > '
umask 0002

# Software AG and Cronus environment files
. /opt/softwareag/bin/sagenv

# You must reset LD_LIBRARY_PATH after loading sagenv
export LD_LIBRARY_PATH=/usr/lib64:$LD_LIBRARY_PATH

# Cronus Linux menu environment
. /opt/softwareag/cronus/sum/sumenv

# Add any custom code in $CRONUS/sysenv.setup - not in .bash_profile
. /opt/softwareag/cronus/sysenv.setup
```



### 2.1.2 **/data** – Natural workfile directory

The **/data** file-system will be used as storage area for all Natural workfiles, as well as a staging area for temporary spool-files and temporary sort files generated by the application during online and/or batch execution.

The same structure is recommended in that you should create subdirectories for each of the different applications environments. ie. Development, QA and Production. You can further create additional subdirectories for each of the different Catalogs (for instance, the **/data/dev/wf/SYSDA** directory contains Natural User workfiles for the Catalog SYSDA).

The default Natural Temp (Natural TMP directory..... (TMP\_PATH)) should also be relocated to this file-system as **the Natural Temp directory is not relocated by default**, although this can be changed using Natparm – Configuration Setup.

Under the **/data/<env>/wf/** directory, one can create the subdirectories with the same names as on the mainframe (mainframe catalogs are now referred to as SUBSYSTEMS).

### 2.1.3 **/spool** – Spool area

This file-system is used as storage area for all “spool-files” and all archived reports will undergo deletion from this file-system.

### 2.1.4 **/archive** – Archived reports

All expired reports will be stored on this file-system. Although these files are compressed, you want to allocate enough space to last a couple of years.

### 2.1.5 **/adabas** – Adabas database(s)

A file-system to host the Adabas containers. (databases)

### 2.1.6 **/dba** – Adabas work area(s)

A file-system for the DBA to perform database maintenance tasks. Reorders etc.



## 2.2 User-ids and Groups:

When creating user-ids and groups with the above-mentioned structure, access to the applications is easily maintained.

### Example System User Structure:

Base directory: **/home/dba001**

Execute **.bash\_profile**

Reference **\$SAG/sagenv**

Reference **\$CRONUS/sysenv.setup**

```
# .bash_profile

# Get the aliases and functions
if [ -f ~/.bashrc ]; then
    . ~/.bashrc
fi

stty istrip
stty erase ^?

PATH=$PATH:/usr/bin:/usr/ucb:/etc:/usr/local/bin:.
export PATH
MANPATH=/usr/man:/usr/share/man:/usr/local/man
export MANPATH
#LD_LIBRARY_PATH=/usr/lib64:$LD_LIBRARY_PATH:$JAVA_HOME

TERM=vt220 export TERM
EDITOR=vi; export EDITOR
VISUAL=vi
PS1='(uname -n | cut -f1 -d '.')$PWD > '
umask 0002

# Software AG and Cronus environment files
. /opt/softwareag/bin/sagenv

# You must reset LD_LIBRARY_PATH after loading the sagenv
export LD_LIBRARY_PATH=/usr/lib64:$LD_LIBRARY_PATH

# Cronus Linux menu environment
. /opt/softwareag/cronus/sum/sumenv

# Add any custom code in $CRONUS/sysenv.setup - not in .bash_profile
. /opt/softwareag/cronus/sysenv.setup
```

After a secondary group is defined for the user, the EspMenu product will detect such a group and routes access to the ESP products accordingly. The Linux Security software products can also reference the secondary groups as a convenient way of controlling certain access on the system without changing many files.

Note that all users should belong to the primary group “sag”. Secondary groups are only applicable to users that require the restriction or granting of access.





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**Using the Groups command on Linux:**

This command displays the user's default group:

Example:

➔ \$ groups dba001

➔ \$ sag system

**2.3 Environment Assignments:****The \$CRONUS/sysenv.setup**

The user's .bash\_profile file should reference the "sysenv.setup" file. From here, access to Natural environments can be set and group specific aliases defined.

The existence of a "sysenv.setup" file is mandatory for each secondary group to reference a subsequent "sysenv.<group>" file. Upon execution, this can then be used to set specific attributes for each of the groups.

**2.4 Paths and executables:****Main Sub directory \$SAG/cronus****Key Subdirectories:****\$CRONUS/batch** – Temporary Linux Batch scripts

- During the submission of batch jobs, scripts are created under this directory.
- These scripts are automatically deleted upon the completion of the job.

**\$CRONUS/printing** – Static Print routing scripts

- These scripts are used to spool the output from the Natural WRITE/DISPLAY command to either workfiles or to the Linux Print spooler.

**\$CRONUS/ccont\*** – Change Control Scripts

- These scripts are used to transfer Natural objects between environments.



## 2.5 Natparm Definitions:

Special Natural parameters are defined to reference the ESP print scripts, ESP Start-up programs, and to use ESP workfile assignments (NATWK). Each of these NATPARMs are tailored to suit the environment and should not be changed.

Despite the definition of different parameters, the above-mentioned “report assignments and workfile assignments” will not change.

### **Modified Parameters values:**

- Device Parameter Assignments (LPT1-31) – (Subheading A.)
- Report Assignments (LPT Routing) – (Subheading B.)
- Environment Assignments (STEPLIBS)
- Miscellaneous Options (CM/NC)
- Natural Stack Command - **ESPSETUP**
- System File assignments (Fuser Assignments) – (Subheading C.)
- Workfile Assignments – (Subheading D.)

### **Example Parameters:**

- |              |  |
|--------------|--|
| <b>nat9</b>  | – Production Parameter without Natural command line access<br>Restricted CM/NC settings                              |
| <b>nat9s</b> | – Production Parameter with Natural command line access<br>No Restrictions   |
| <b>nat9b</b> | – Production Batch Parameter with Natural<br>No default start-up program specified<br>MAINPR setting changed to (31) |
| <b>nat9c</b> | – Production Change Control Parameter<br>No default start-up program specified                                       |

The Start-up program **ESPSETUP** determines the secondary group and sets up default Report Assignments, workfile names etc.



### A. Device Parameter Assignments (LPT1-31)

```
sag@jnatdev1:/opt/softwareag/cronus/scripts
```

15/11/2021

Natural Configuration Utility  
V 9.1.3    Software AG 2021

User: (Config)  
File: NATD

File

Edit

Batch Mode...  
Buffer Sizes

Search

Device Assignments

Logical Device	Close Mode	Line Size	Page Size	Max Page	Physical Output Device
VIDEO	Auto	80	24	32767	VIDEO
LPT1	Auto	250	60	0	\$CRONUS/printing/prt01
LPT2	Auto	250	60	0	\$CRONUS/printing/prt02
LPT3	Auto	250	60	0	\$CRONUS/printing/prt03
LPT4	Auto	250	60	0	\$CRONUS/printing/prt04
LPT5	Auto	250	60	0	\$CRONUS/printing/prt05
LPT6	Auto	250	60	0	\$CRONUS/printing/prt06
LPT7	Auto	250	60	0	\$CRONUS/printing/prt07
LPT8	Auto	250	60	0	\$CRONUS/printing/prt08
LPT9	Auto	250	60	0	\$CRONUS/printing/prt09
LPT10	Auto	250	60	0	\$CRONUS/printing/prt10
LPT11	Auto	250	60	0	\$CRONUS/printing/prt11

35 - 250

### B. Report Assignments (LPT1-31)

sag@jnatdev1:/opt/softwareag/cronus/scripts

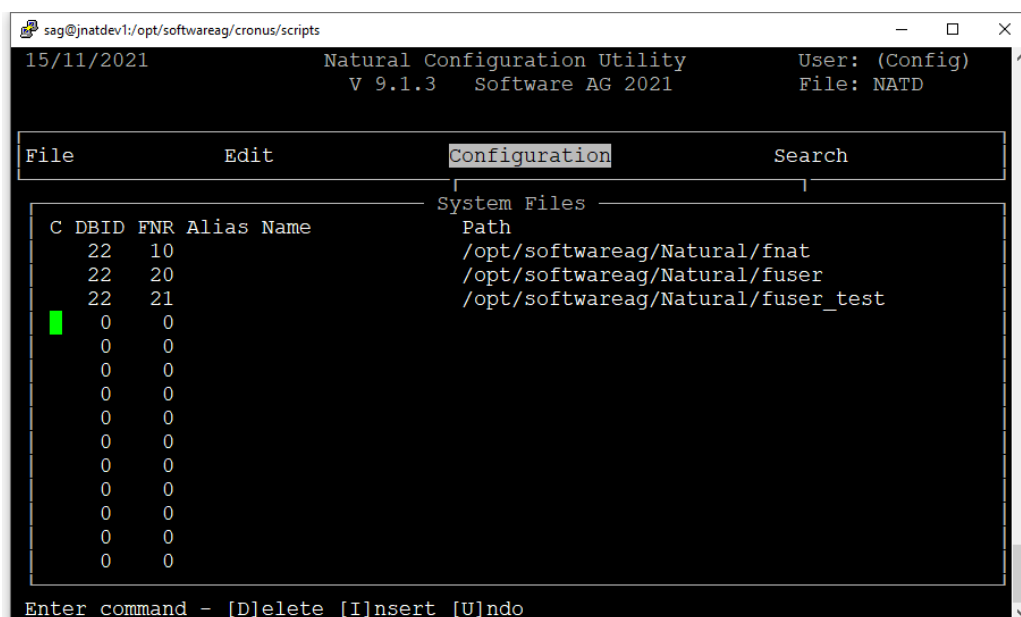
15/11/2021 Natural Configuration Utility User: (Config)  
V 9.1.3 Software AG 2021 File: NATD

File	Edit	Batch Mode...	Search
Buffer Sizes			
Report Assignments			
Override default report number (MAINPR) 0			
Report	Device	Profile	
0	VIDEO		
1	LPT1		
2	LPT2		
3	LPT3		
4	LPT4		
5	LPT5		
6	LPT6		
7	LPT7		
8	LPT8		
9	LPT9		

0 - 31



### C. System File Assignments



Reports created via an online program or batch program will spool to a temporary file located under the \$PRINTTMP directory – this will then be routed to the destination printers defined in EspBatch or, if omitted, to a system default printer.

Several environment variables are used to route and/or distribute the reports.

Natural statement:

**WRITE/DISPLAY/PRINT (1)**

Redirects output to Device "LPT1" that executes script  
\$CRONUS/printing/prt01

**WRITE/DISPLAY/PRINT (2)**

Redirects output to Device "LPT2" that executes script  
\$CRONUS/printing/prt03

...

**WRITE/DISPLAY/PRINT (0 and 31)**

Redirects output to Device "LPT31" that executes script  
\$CRONUS/printing/prt31

*Additional destinations can be defined for a single "Write (1)" statement – See EspBatch documentation for more detail.*



#### D. Workfile Assignments

```
sag@jnatdev1:/opt/softwareag/cronus/scripts
```

```

Work Files
Entire Connection protocol mode.... (ECPMOD)      ON
Entire Connection local NCF protocol (NCFVERS)    2
PC support..... (PC)                          OFF
Max. work file number..... (WORK)              32
Alternate sort work file names..... (TMPSORTUNIQ) OFF
Work file open on first access..... (WFOPFA)      ON

```

Number	Name	Attributes	Mode	Type
1	\$NATWK01		Auto	Default
2	\$NATWK02		Auto	Default
3	\$NATWK03		Auto	Default
4	\$NATWK04		Auto	Default
5	\$NATWK05		Auto	Default
6	\$NATWK06		Auto	Default
7	\$NATWK07		Auto	Default
8	\$NATWK08		Auto	Default
9	\$NATWK09		Auto	Default
10	\$NATWK10		Auto	Default
11	\$NATWK11		Auto	Default
12	\$NATWK12		Auto	Default

ON or OFF

In Cobol/Natural environments, the default format of workfiles is often set as “unformatted”. This format is supported in both Cobol and Natural and permits the sharing of workfiles between the two applications. It further supports signed packed fields without problem.