ESP Product

General Set-up Information

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

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. The ESP Products will co-exist with the default layout structure but we recommend the following for our software:

/home – User Home Directory (/users is just an example – you can also use /users)

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 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 setting 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.

The **"sysenv.setup"** file is by default located under **$CRONUS** directory (similar to the sagenv file located under $SAG) but to reference $CRONUS in the .bash_profiles the full complete path needs to be expanded. In the sysenv.setup file you define aliases, paths etc for each of the groups. By doing this you 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) Refer to the "useradd" command to define skeletons and command syntax.

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
```

/data – Natural workfile directory

The **/data** file-system will be used as storage area for all Natural workfiles and as 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 – 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 difference Catalogs. (eg. /data/dev/wf/SYSDA directory contains Natural User workfiles for Catalog SYSDA.

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

Under the /data/<env>/wf/ directory create the subdirectories with the same names as on the mainframe (mainframe catalog's are now referred to as SUBSYSTEMS)

/spool – Spool area

This file-system is used as storage area for all "spool-files". Archived reports will be deleted from this file-system.

/archive – Archived reports

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

/adabas – Adabas database(s)

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

2.2 User-id's and Groups:

When creating user-id's and groups and the above-mentioned structure is used – access to the applications can easily be 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
~
```

A secondary group is defined for the user – the EspMenu product will detect such a group and can route access to the ESP products according to this group. The PowerDesk Delegator product also references the "secondary" groups. It is an easy way of controlling certain access on the system without changing many files.

All users should belong to the primary group "sag" and secondary groups only allocated to users to restricted or grant access.

Using the Groups command on Linux:

This command display 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 alias be defined.

A "sysenv.setup file should exist and for each one of the secondary groups can a reference to a subsequent "sysenv.<group>" file be made and when executed can this be used to set specific attributes for each of the different 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 delete after the job has completed

$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 suite the environment and should not be changed.

Although deferent parameters are defined the above-mentioned "report assignments and workfile assignments" will not change.

Modified Parameters values:

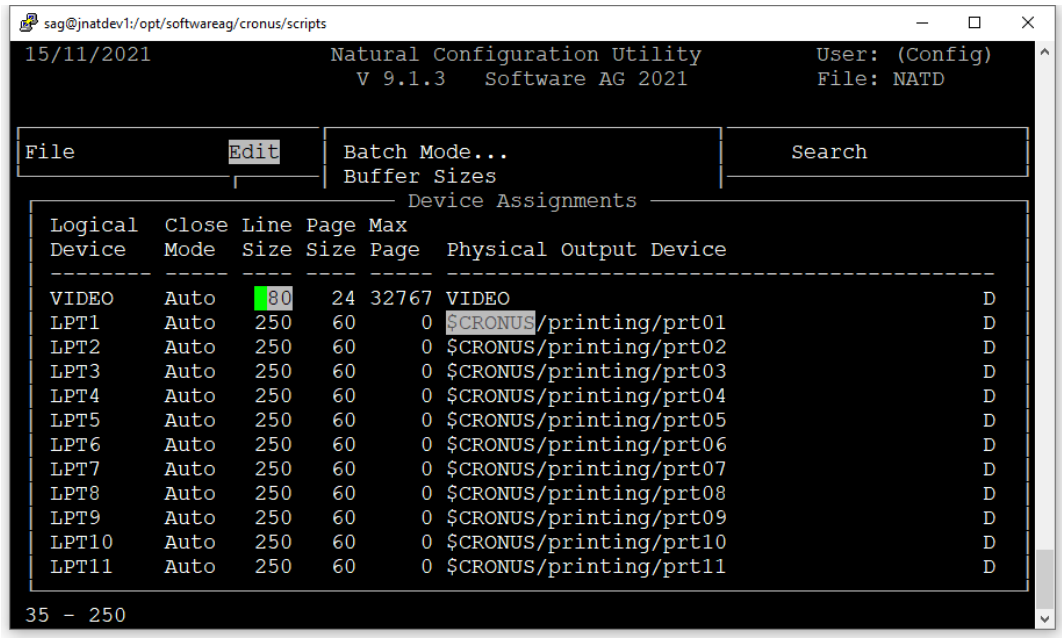
- Device Parameter Assignments (LPT1-31)
- Report Assignments (LPT Routing)
- Environment Assignments (STEPLIBS)
- Miscellaneous Options (CM/NC)
- Natural Stack Command - **ESPSETUP**
- System File assignments (Fuser Assignments)
- Workfile Assignments

Example Parameters:

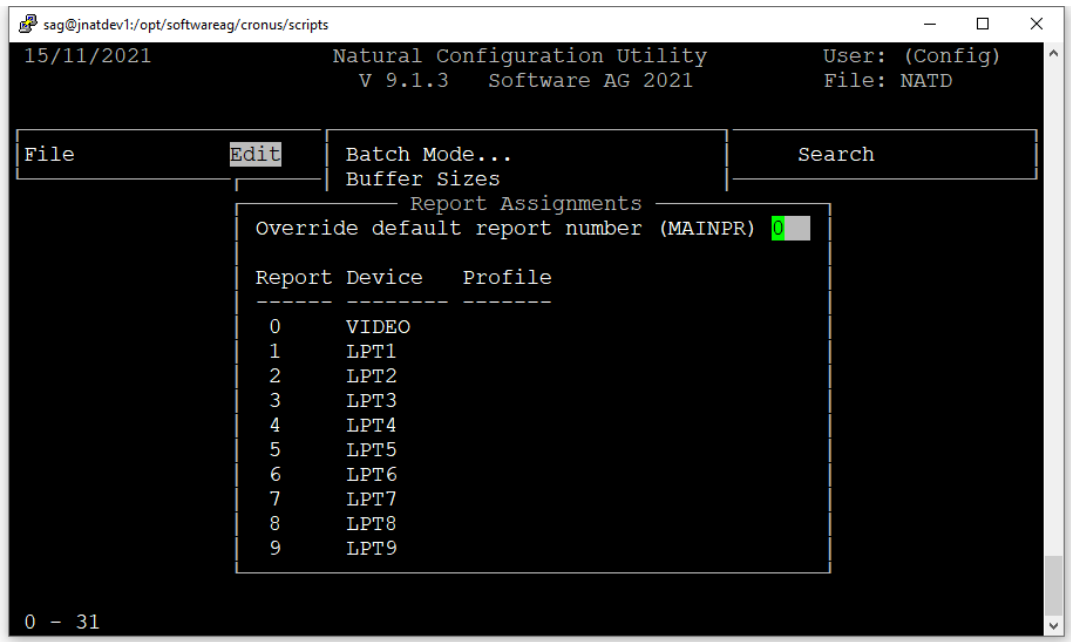
nat9	– Production Parameter without Natural command line access Restricted CM/NC settings
nat9s	– Production Parameter with Natural command line access No Restrictions
nat9b	– Production Batch Parameter with Natural No default start-up program specified MAINPR setting changed to (31)
nat9c	– Production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

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

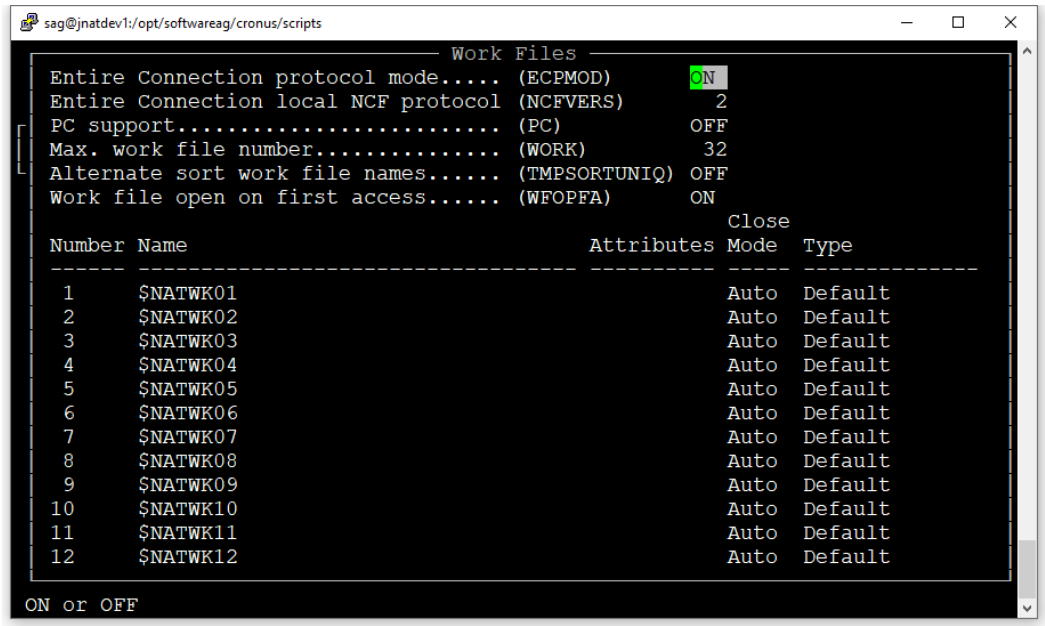
Device Parameter Assignments (LPT1-31)



Report Assignments (LPT1-31)

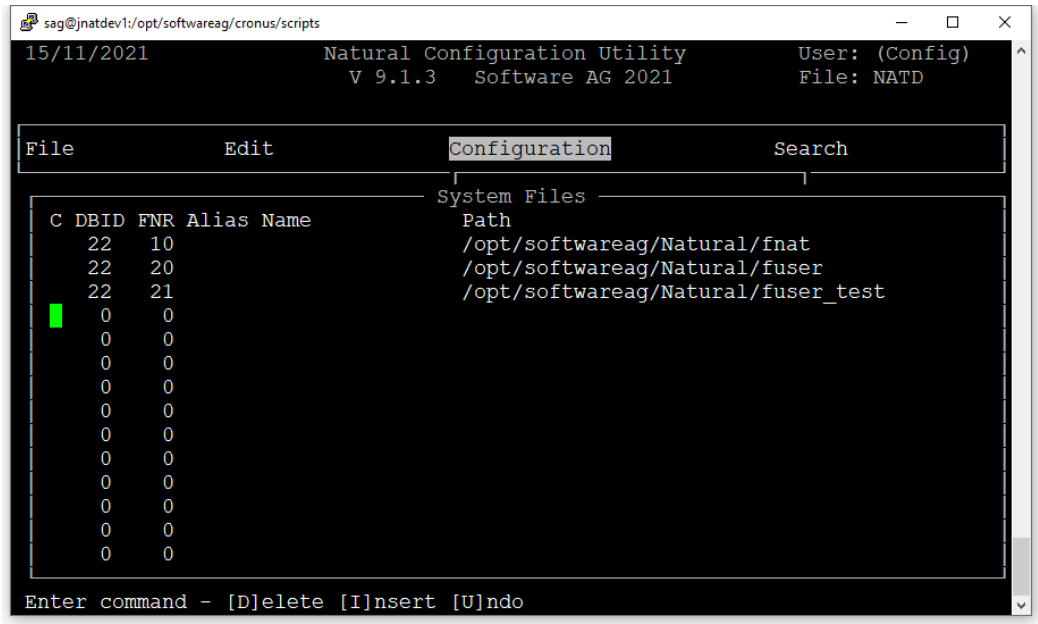


Workfile Assignments



In Cobol/Natural environments the default format of workfiles are often set the “unformatted” – This format is supported in both Cobol and Natural and allows the sharing of workfiles between the two applications. It also supports signed packed fields without any problems.

System File Assignments



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

A number of environment variables are used to route and/or distribution of 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.