

DELPHI JOB CONTROL System : User's Manual

C.Gaspar, ECP Division, CERN Geneva

This note describes the JOB CONTROL System, this system is composed of a set of tools which allow the control of *all* the jobs running on the DELPHI Online System.

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1

Introduction

The JOB CONTROL System allows the control of *all* the jobs running on the DELPHI Online System, this includes DAS, Slow Controls, Trigger, Quality Checking and LEP Communications.

The system offers the possibility of Starting, Stopping, Restarting or Verifying any job or set of jobs.

The system is available in three different options: a MOTIF interface, a command line interface and an image to be run by stations at startup in order to start their respective jobs.

Any of these three tools can be run from any account and on any machine since it is installed as a privileged image.

2 Tools

The two interactive tools JOB_CONTROL_DISPLAY and JOB_CONTROL allow the following operations :

Start

Checks if the job is already running, if it is not starts it, otherwise does nothing.

Stop

Checks where the job is currently running, if it finds it stops it.

Restart

Checks where the job is currently running, if it finds it stops it, then starts a new one.

Verify

Checks whether the job is currently running.

These operations will be performed on the job or set of jobs currently selected by the tool.

2.1 JOB Control Display

It's the Motif tool for controlling jobs, it allows for the choice of the jobs and the operation to be performed, possible operations are the ones described above.

Jobs can be selected by :

Detector

Will select all the jobs of a certain detector

Node

Will select all jobs running on a certain node

Domain

Will select all jobs of a certain Domain, possible domains are : DAS, SC, QC, TRIGGER, LEP, etc.

Further selections can then be made, like :

Job Type

Will restrict the previous selection to jobs of a certain type

Job Name

Will select only the specified Job

At any moment when the selection is the desired one the OK button can be pushed and the operation will be executed using the default parameters. But some of these parameters can be changed :

Tools

On Node

Will Start the job on the specified node (overrides the default node)

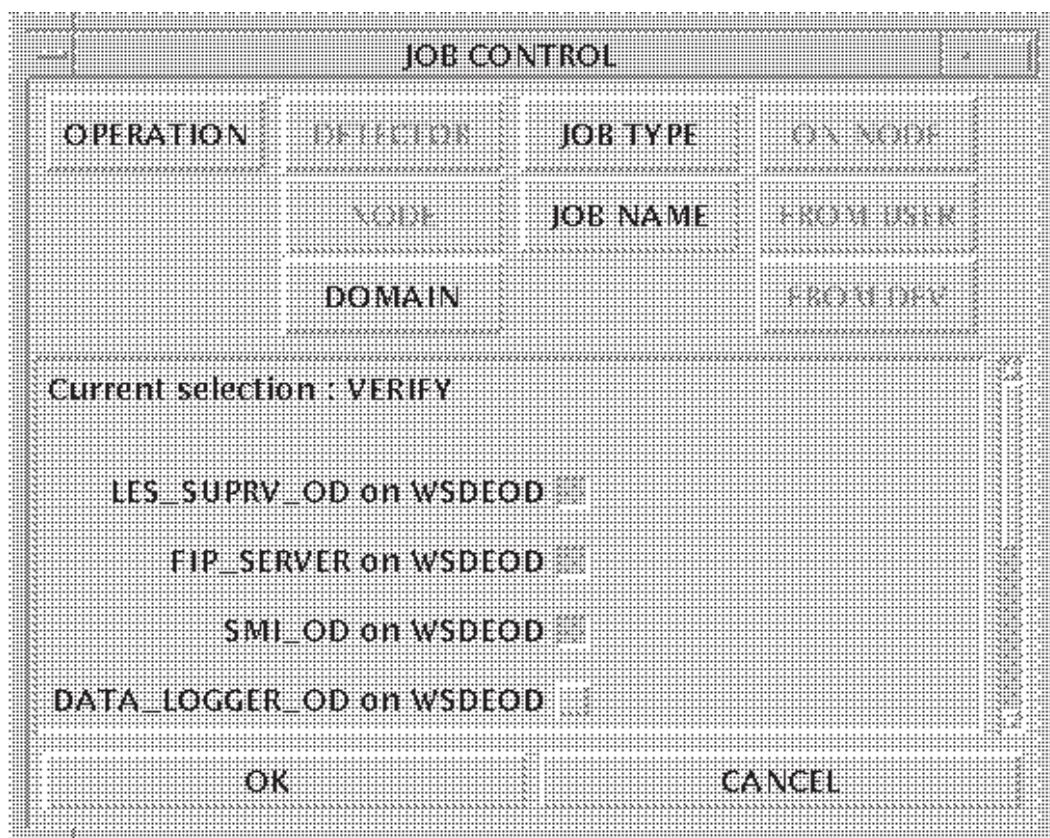
From User

By default the job is started as "Detector" _operator, this option when set overrides this parameter

From Dev

Will start the job from the development area of the specified user.

Figure 2-1 Example of a JOB_CONTROL_DISPLAY session



In this figure the operation VERIFY has been selected and the DETECTOR selection is OD.

2.2

JOB Control

It's the command line tool for controlling jobs, it allows for the choice of the jobs and the operation to be performed. The command is:

JOB_CONTROL

And the possible qualifiers are :

"/"OPERATION"

Selects the operation, if no operation is given START is taken as default.

/DET=...

Selects jobs by detector name, the default is the Current detector. (set by the detector account or by ONLDET)

/NODE=...

Selects jobs by node name, the default is the Current node.

/DOMAIN=...

Selects jobs by domain name.

/TYPE=...

Selects jobs by JOB TYPE.

/PROC=...

Selects a specific job.

/NEW_NODE=...

Will Start the JOB on the specified node (overriding the default).

/USER=...

By default the job is started as "Detector" _operator, this qualifier overrides this parameter

/DEV=...

Will start the job from the development area of the specified user.

If only one job is selected the operation is performed immediately, otherwise the user is informed of what is going to be done and prompted for a confirmation.

Follows a set of EXAMPLES :

The following command will start all jobs for the current detector (set by ONLDET or detector login)

```
JOB_CONTROL /DET
```

The following command will start all jobs in the current node

```
JOB_CONTROL /NODE
```

The following command will start all DAS jobs for ID

```
JOB_CONTROL /DET=ID /DOMAIN=DAS
```

The following command will start all SC jobs on node WSDESC

```
JOB_CONTROL /START /NODE=WSDESC /DOMAIN=SC
```

The following command will restart all jobs of type SMI (usefull for a new realease of SMI)

```
JOB_CONTROL /RESTART /TYPE=SMI
```

Tools

The following command will verify if the process SMI_VD is running

```
JOB_CONTROL /VERIFY /PROC=SMI_VD
```

2.3

Node Startup

It's the command to be included in the startup of every machine in the online cluster, this command can be used without parameters (the current node is assumed) or followed by a node name.

When activated node_startup will check which jobs should be running on the node and start them. If some of the jobs are already running in another machine the jobs will not be started. This allows moving jobs from one machine to another and not being bothered when the first machine reboots.

3

Implementation

The system uses two "Databases" which are in reality VMS indexed files. One of them contains the description of all the jobs that can run in the Online System (the JOB Description database), each job description contains attributes that can be used as selection criteria. The second database contains information of jobs currently running outside their default settings (e.g. in another machine). This one is called the Current database.

The three tools described above make use of these databases in order to perform the requested operation. All operations done on online jobs should be done through one of these tools, otherwise the Current database will not be correctly updated.

3.1 JOB Description Database

The JOB Description database contains the description of every job that can run at any time on the Online System, for each job there are attributes that can be used to select the job.

The following is a description of the JOB entries in the database, the DAS jobs for the OD are used as example. The entry SF (Startup Flag) is a flag defining whether the job should be started at node startup.

```
-detector -domain-- -process----- SF-node- -type-
OD      DAS      LES_SUPRV_OD      Y WSDEOD LES
OD      DAS      FIP_SERVER      Y WSDEOD FIP
OD      DAS      SMI_OD        Y WSDEOD SMI
OD      DAS      DATA_LOGGER_OD  N WSDEOD LOGGER

the following lines are the continuation of the previous ones.

-procedure-----
DELPHI$ONLINE:[LOCAL_CONTROL.LES_SUPERVISOR]LES_SUPERVISOR.PAR
DELPHI$ONLINE:[LOCAL_CONTROL.TCP.TCP_SERVER]FIP_SERVER.PAR
DELPHI$ONLINE:[CONTROL.RCN]SMI_LOCAL.PAR
DELPHI$ONLINE:[LOCAL_CONTROL.DATA_LOGGER]DATA_LOGGER.PAR
```

This database also contains the definition of the available domains, detectors and nodes in the system. For each detector definition the account from which the jobs are to be started is described.

The TYPE given to the job is up to the person inserting the job in the database, having in mind it will be used as selection criteria.

The PROCEDURE entry contains the descriptions of how to start the job, it points to a PARAMETER ("PAR") file.

Implementation

3.1.1 PARAMETER FILE

This file contains the list of parameters to be passed to the job in the format of submit qualifiers, any submit qualifier can be used in this file, it will be added to the submit command, or override a default qualifier. It also contains the command file ("JOB") that will be passed to the submit command in order to start the job.

The default submit qualifiers are :

/NOPRINT

/NOIDENTIFY

/NAME = "PROCESS_NAME"

/LOG = DETECTOR\$JOBLOG:"PROCESS_NAME".LOG

/QUEUE = "NODE\$"XXX_CONTROL"

Where XXX depends on the domain defined for the job

/USER = "XXX_OPERATOR"

Where XXX is the detector name.

Any line starting by a "\$" inserted before the submit qualifiers will be executed before submiting the job.

In these parameter files some predefined macros can be used, they will be translated at run time, these macros are :

JOB\$DET

The detector name

JOB\$NOD

The node where the job is to be started

JOB\$DEV

The development directory (if one has been specified)

The following is an example of the PARAMETER file used to start the LES_SUPERVISOR, it overwrites the default /log qualifier.

```
! Parameter file for starting the les_supervisor
/parameters = ( -
"JOB$DET", "JOB$DEV", "", "TCP_SERVER_MBX" ) -
/log = detector$joblog:les_supervisor.log
DELPHI$ONLINE:[LOCAL_CONTROL.LES_SUPERVISOR]LES_SUPERVISOR.JOB
```

The following is an example of the PARAMETER file used to start the DIM Name Server, it executes some DCL commands before submiting the JOB.

```
! Parameter file for starting the DIM Name Server (DNS)
```

```
$ NODE=f$trnlnm("DIM_DNS_NODE")
$ if NODE.nes."JOB$NOD"
$ then
$     spawn/nowait @DELPHI$ONLINE:[COMMUNICATIONS.DIM.DNS]set_dns_logical "JOB$NOD"
$ endif
$ if("JOB$NOD".nes."VXDEAQ").and.("JOB$NOD".nes."VXDEZ0")
$ then
$     exit
$ endif

/parameters = ("JOB$NOD") -
DELPHI$ONLINE:[COMMUNICATIONS.DIM.DNS]DNS.JOB
```

3.1.2 How to modify or view the JOB DESCRIPTION database

This data base should only be modified by DAS or Slow Controls responsibles. Access to the delphi\$online area is necessary anyway.

The database can be modified using the command :

MOD_JOB_DB

This command will start up an editor session (EVE), fields can then be modified with the due care. Make sure of using spaces instead of tabs. When exiting the file it will be automatically converted to an indexed file and stored, it will immediately be used by the next operation made using one of the available tools.

The database can be checked by any user using the command :

TYPE_JOB_DB

This command will allow viewing of the database but no modification will be possible.

3.2 JOB CURRENT Database

The JOB CURRENT database contains the description of every job that is currently running in a machine which is not the default one, it is used by the STOP operation and also by the startup command.

This database is not to be modified by hand it is used only by the JOB Control tools internally.

The following is a description of the entries in this database. It is supposed as an example that the LES_SUPERVISOR of OD is currently running in WSDEID

```
-det_dom- -node---- --process-----
OD_DAS      WSDEID      LES_SUPERVISOR
```