# CONTROL-M Presentation

# Introducing CONTROL-M

- CONTROL-M is an interoperable solution for the integration of production control from a focal point of management across diverse environments

- Challenges

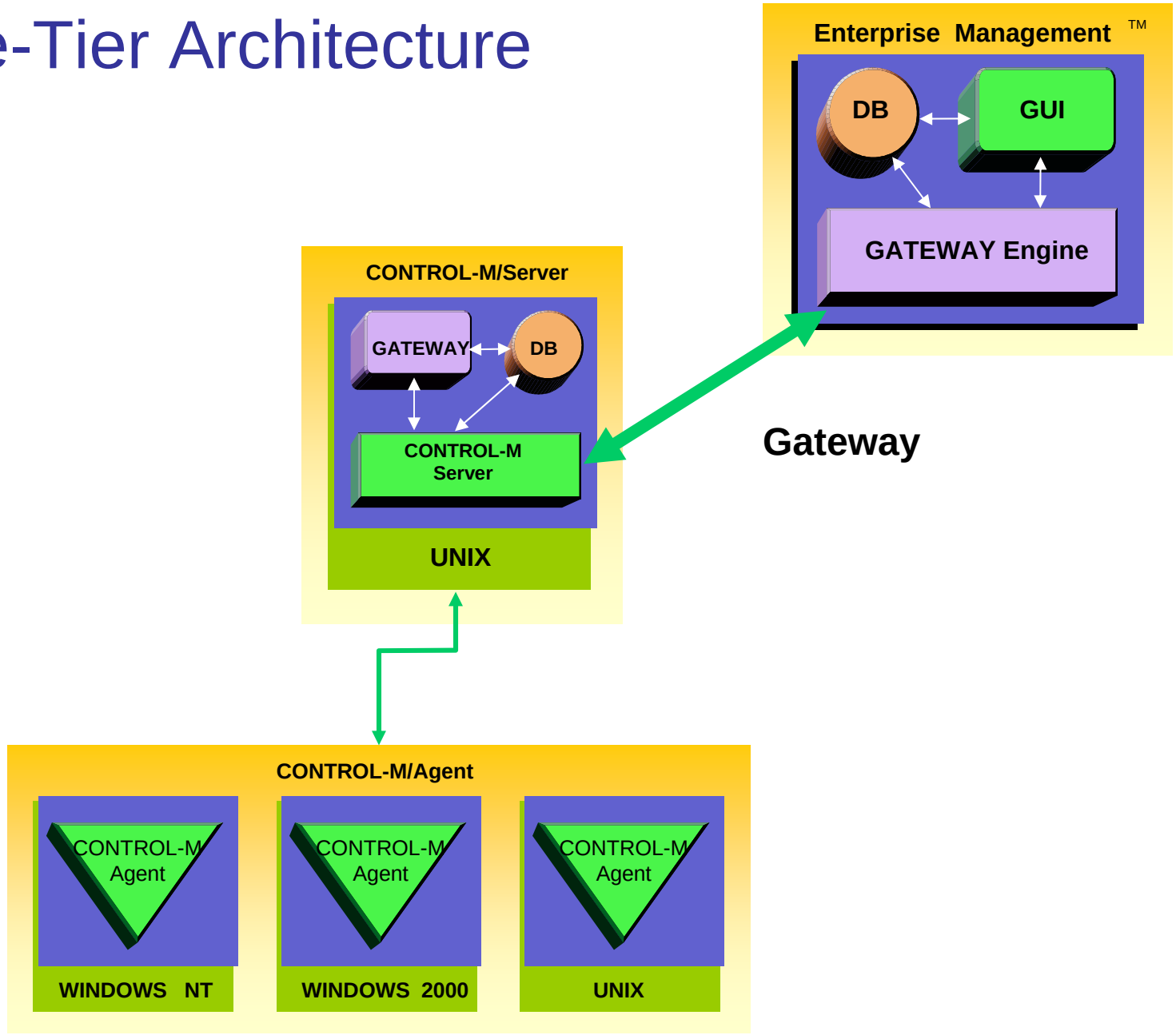
  Managing the enterprise vs. Platforms

  Controlling the Business Process

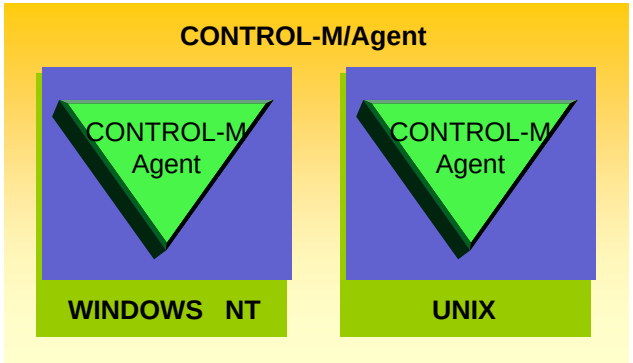
  Alert reactivity

# Control-m Architecture

# Three-Tier Architecture

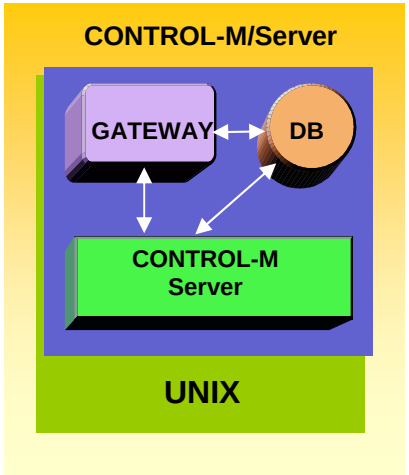


# Control-M Agent



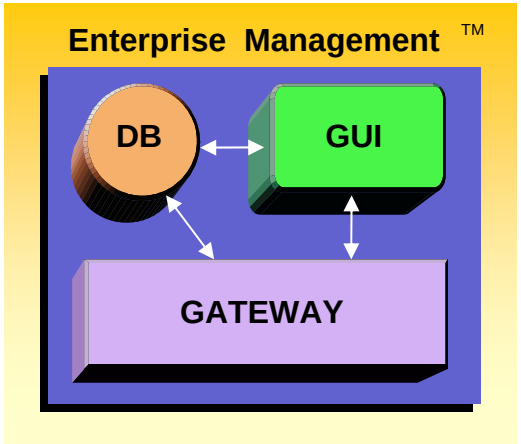

- Run under Windows NT/200, Unix, etc …
- Submit, monitor, control and manage jobs
- Receive order from Control-M Server
- Send result to Control-M Server

# Control-M Server



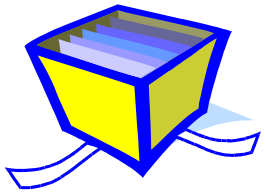

- It’s the engine of Control-M
- Contain all job definitions
- Contain all calendars
- Activate and Control the « up to plan »

# Enterprise Management



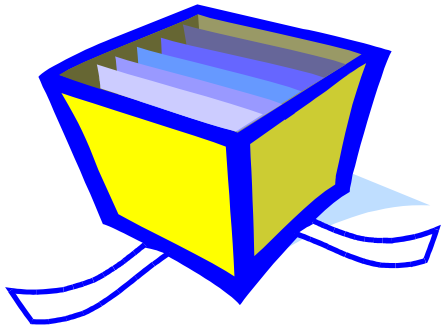

- Focal point of control
- Standard GUI for all the Production platforms
- Responsible for cross-platform dependencies
- Give graphic tools to develop jobs

# Job Definitions



# Control-M Job Definition

- What ?
- Where ?
- Who ?
- When ?
- Flow Control ?
- Resource Requirements
- Results Control



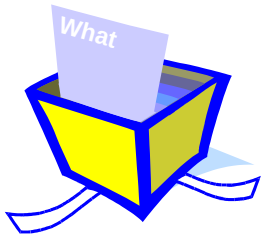
# What do we schedule

- Unix shell scripts

  /export/home/hipfeed/interfaces/scripts/ft_process.pl

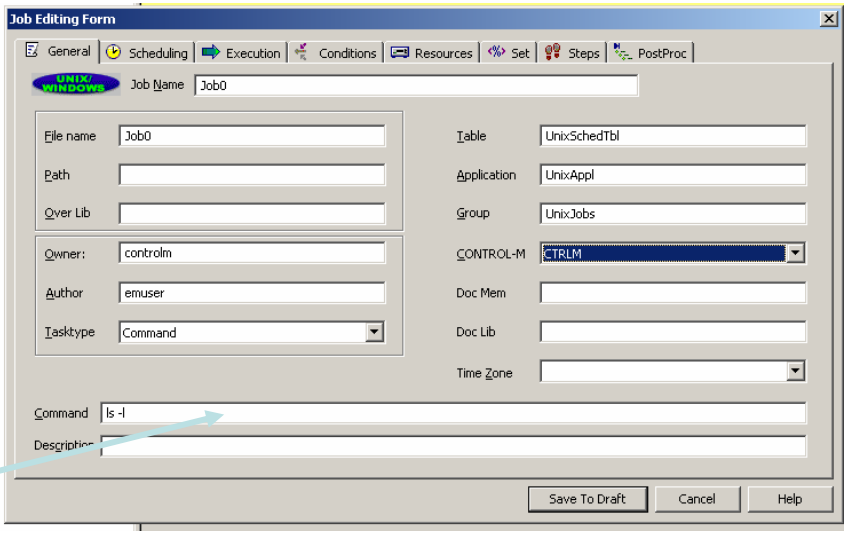
- NT Batch Files (.bat .cmd)

  d:\prod\Ctm\Copy_Logs\del_logs.cmd



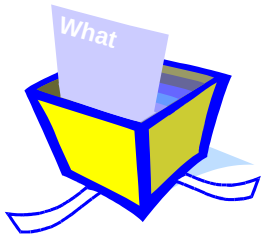

- Executable

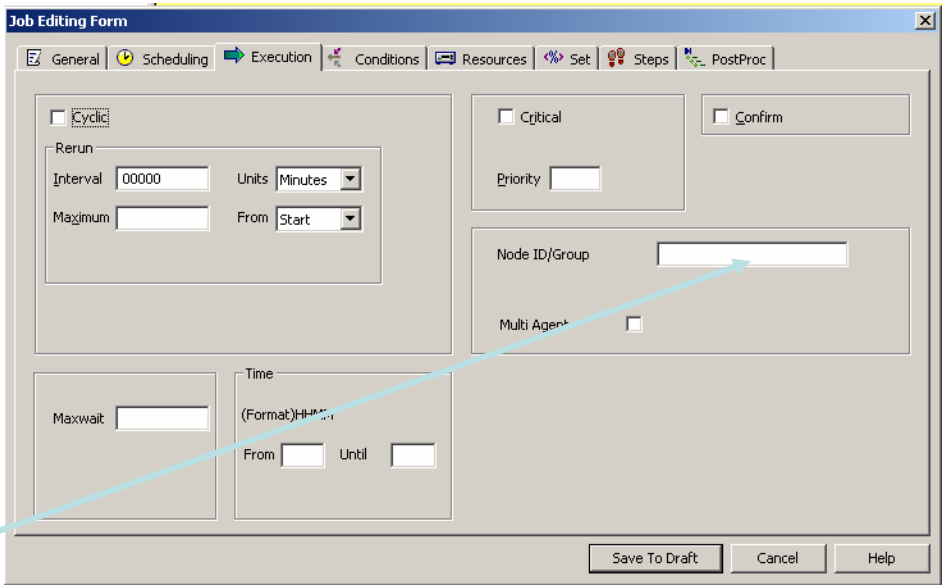
- Operator Commands




**Execute Command**
**ls -l**

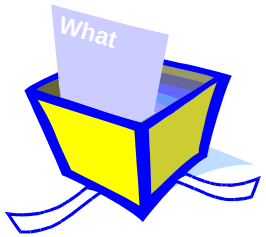
# Where do we run

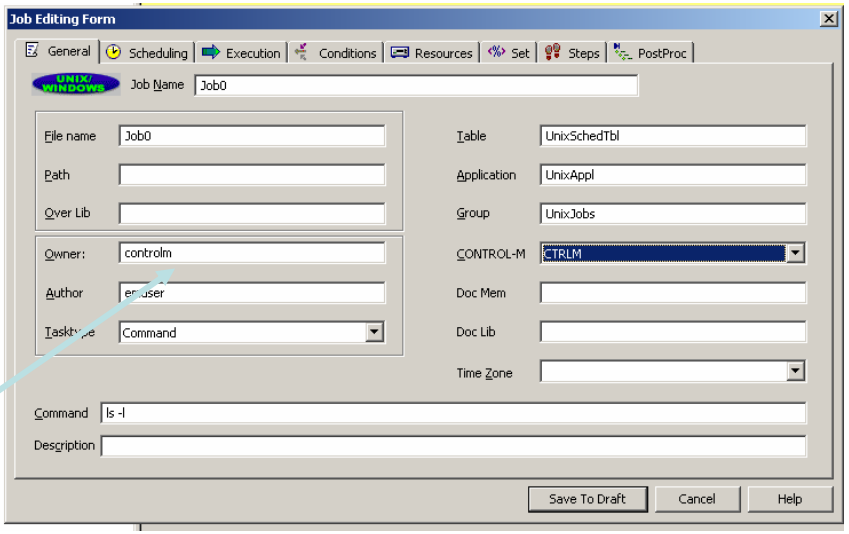



- Which server do we use
- Does it have a Control-M Agent
- Is it a Production or a Uat agent

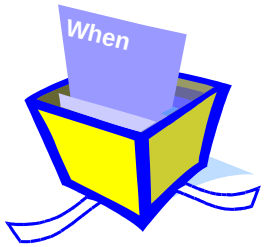
# Who can execute it



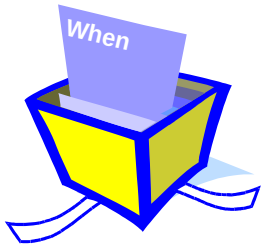

- Which user login is needed to run the job
- Does the user login have access right to run the job.

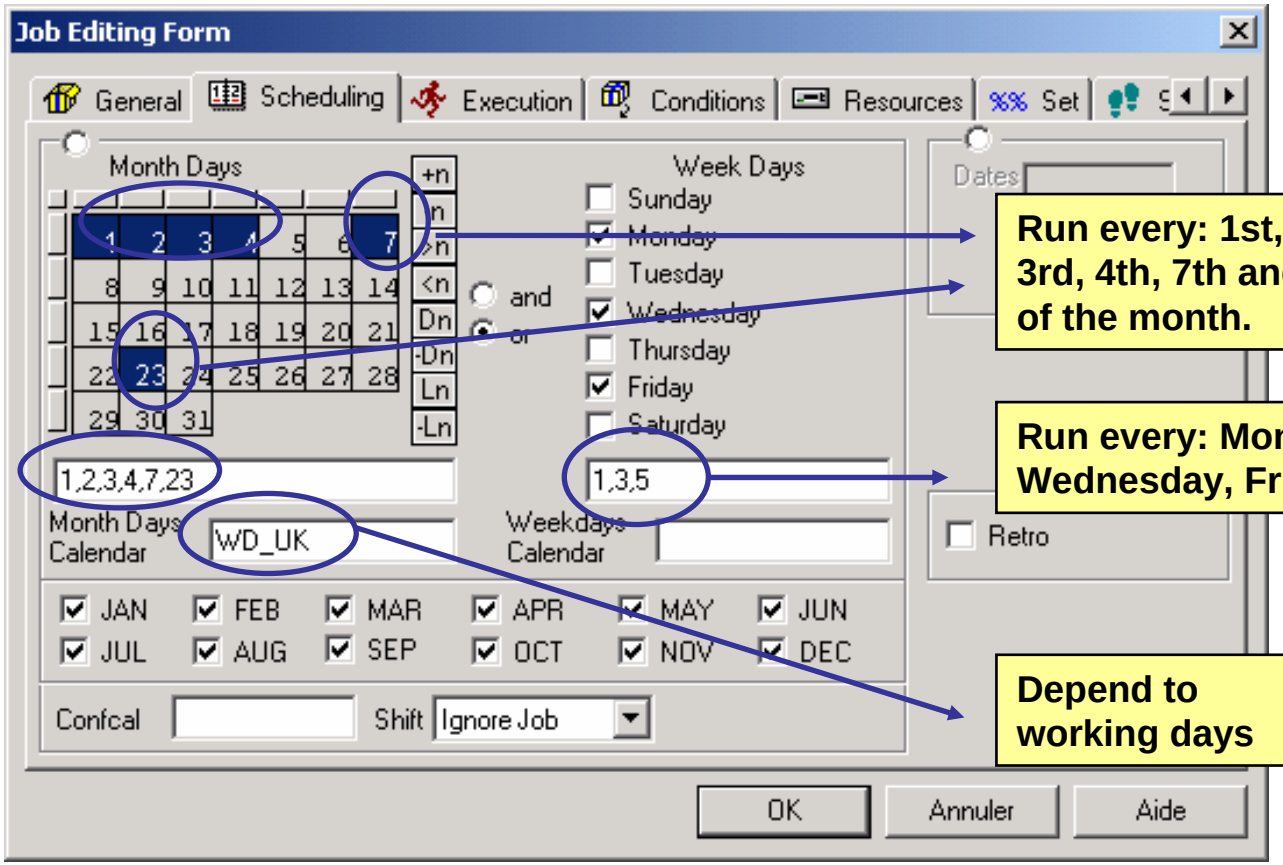
# When : Date & time Scheduling Criteria




- Specific days of the month/week/period
- Automatic holiday processing
- The nth workday
- The nth last workday
- Time window
- Job can be executed in several times in cyclic mode with personnal interval

# When : Selecting a Date



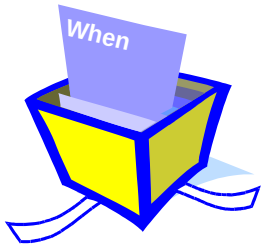



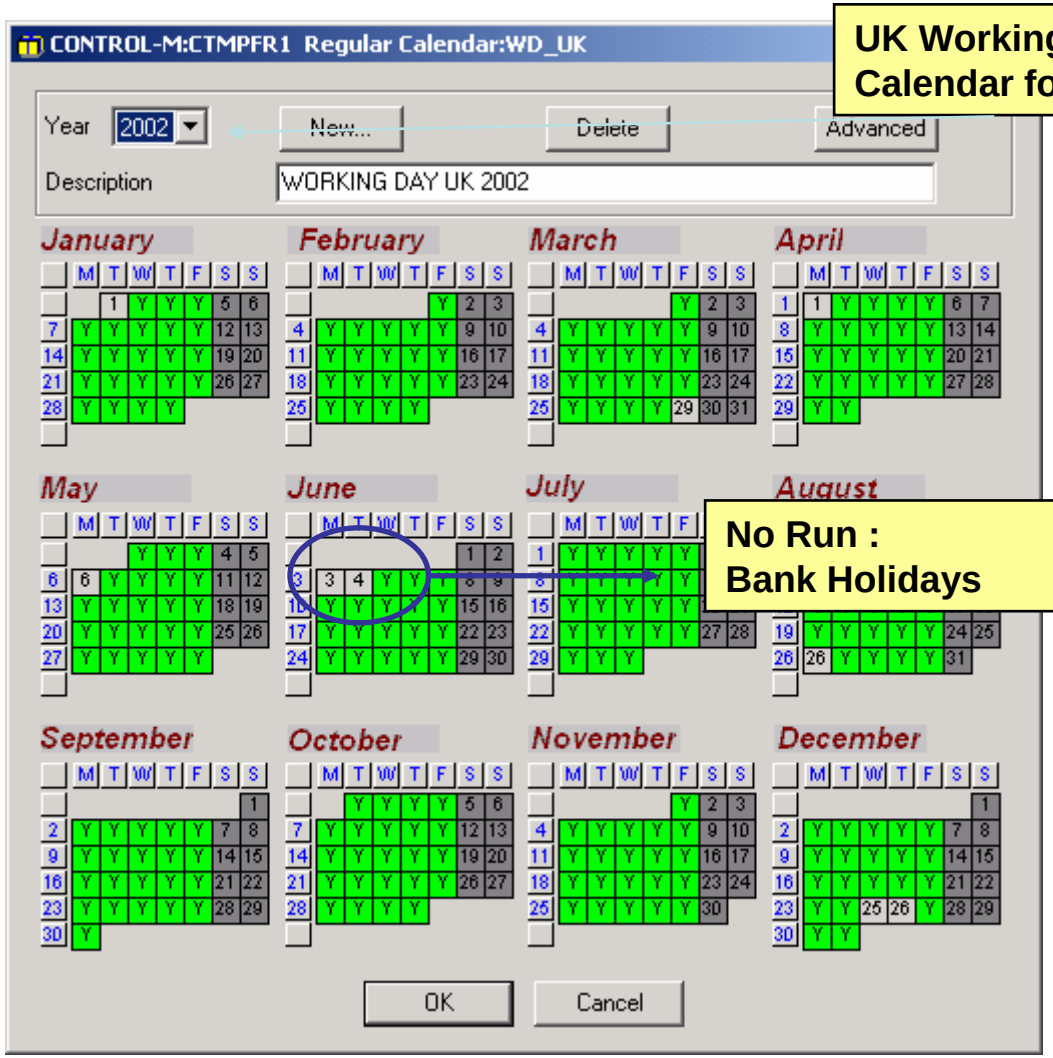

**Run every: 1st, 2nd, 3rd, 4th, 7th and 23rd of the month.**

**Run every: Monday, Wednesday, Friday**

**Depend to working days**

# When : Calendars

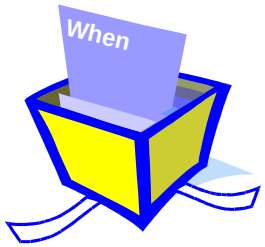


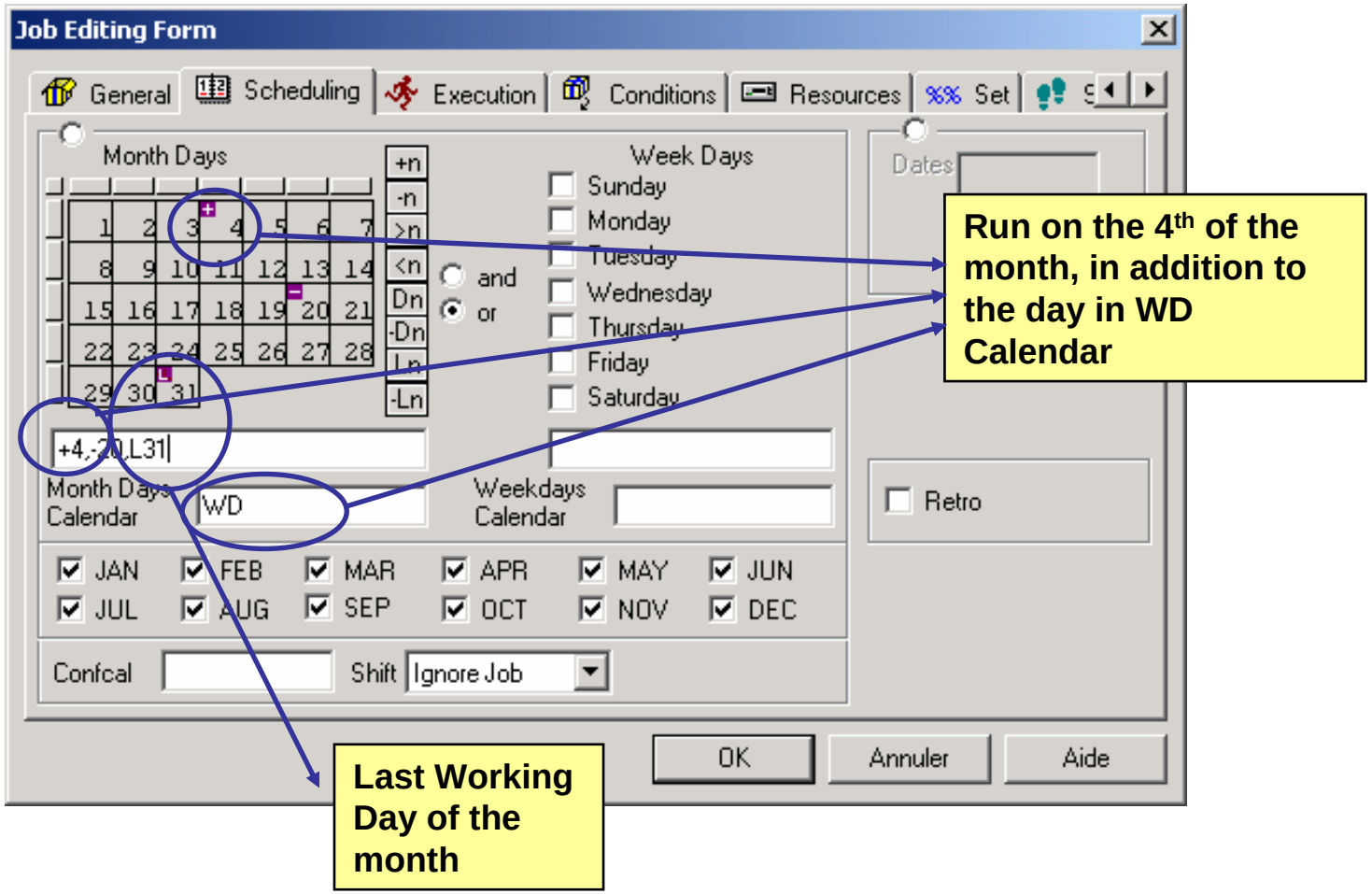




**UK Working Days Calendar for Year 2002**

**No Run : Bank Holidays**

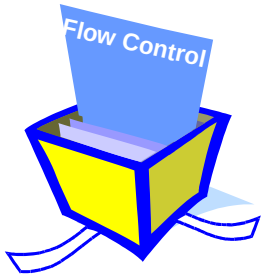
# When : Complex Dates

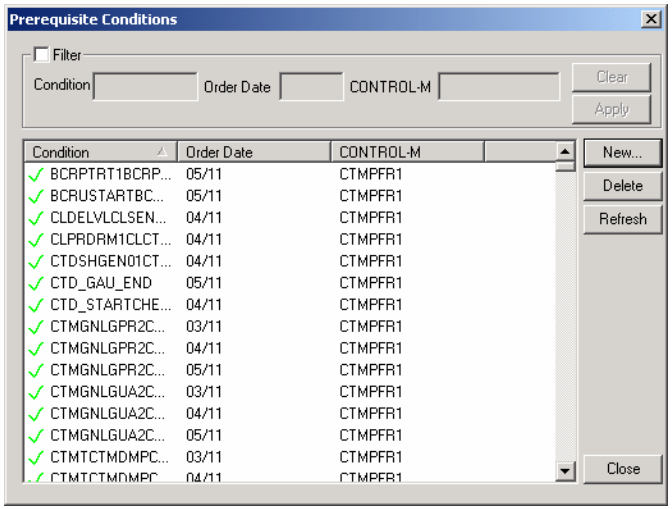


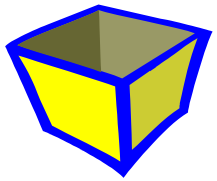



# What is a condition

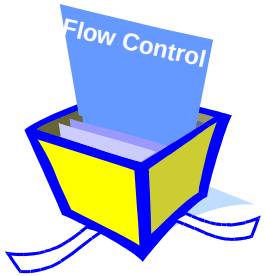
- Is a Flag sent in PREREQUISITE CONDITIONS BOX under Enterprise ControlStation
- This Flag can be expected by one or several other jobs.
- It is not a « goto » command
- A condition depends to the ODAT (Control-M Systeme Date)

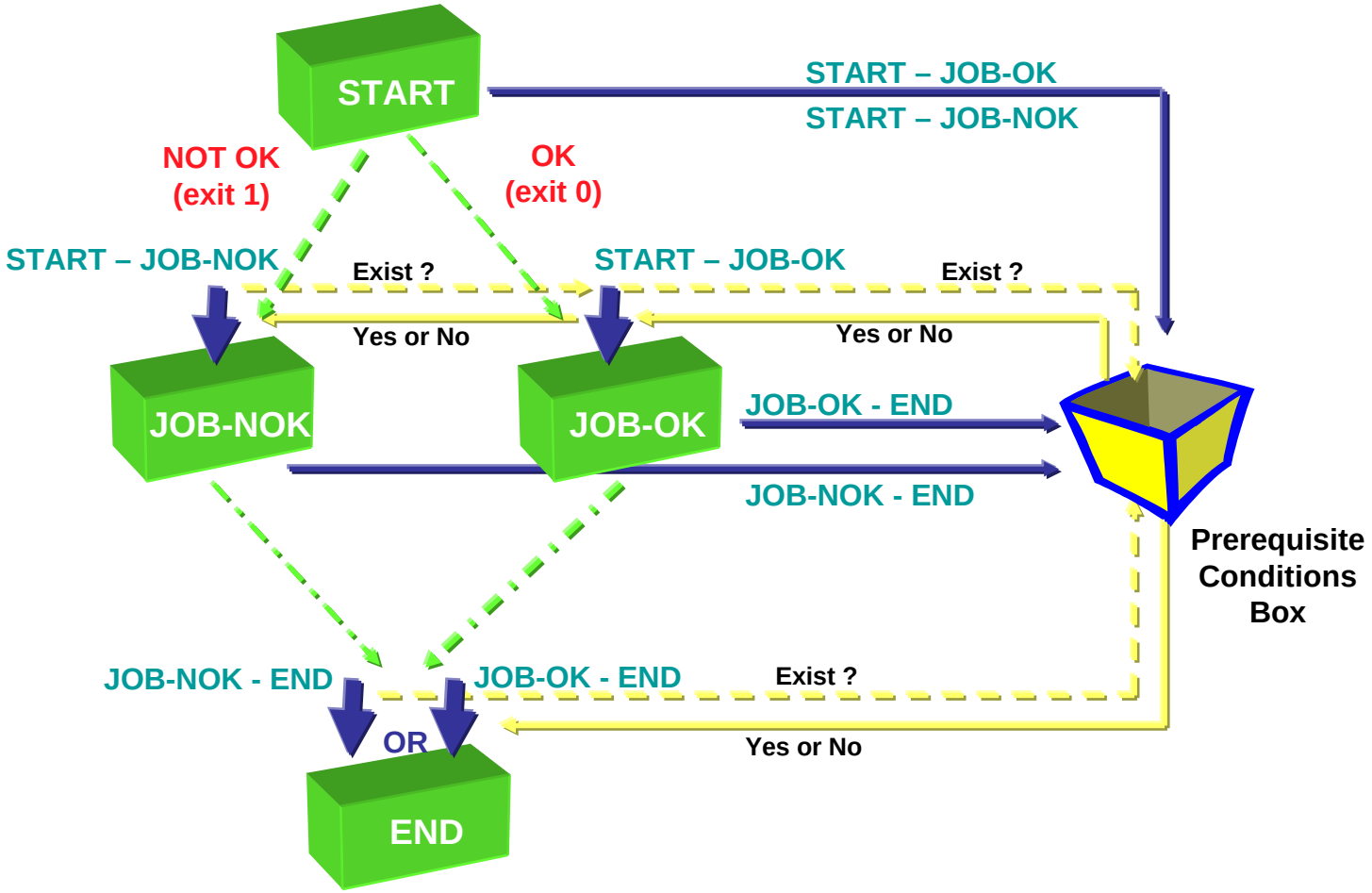


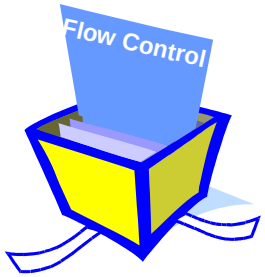



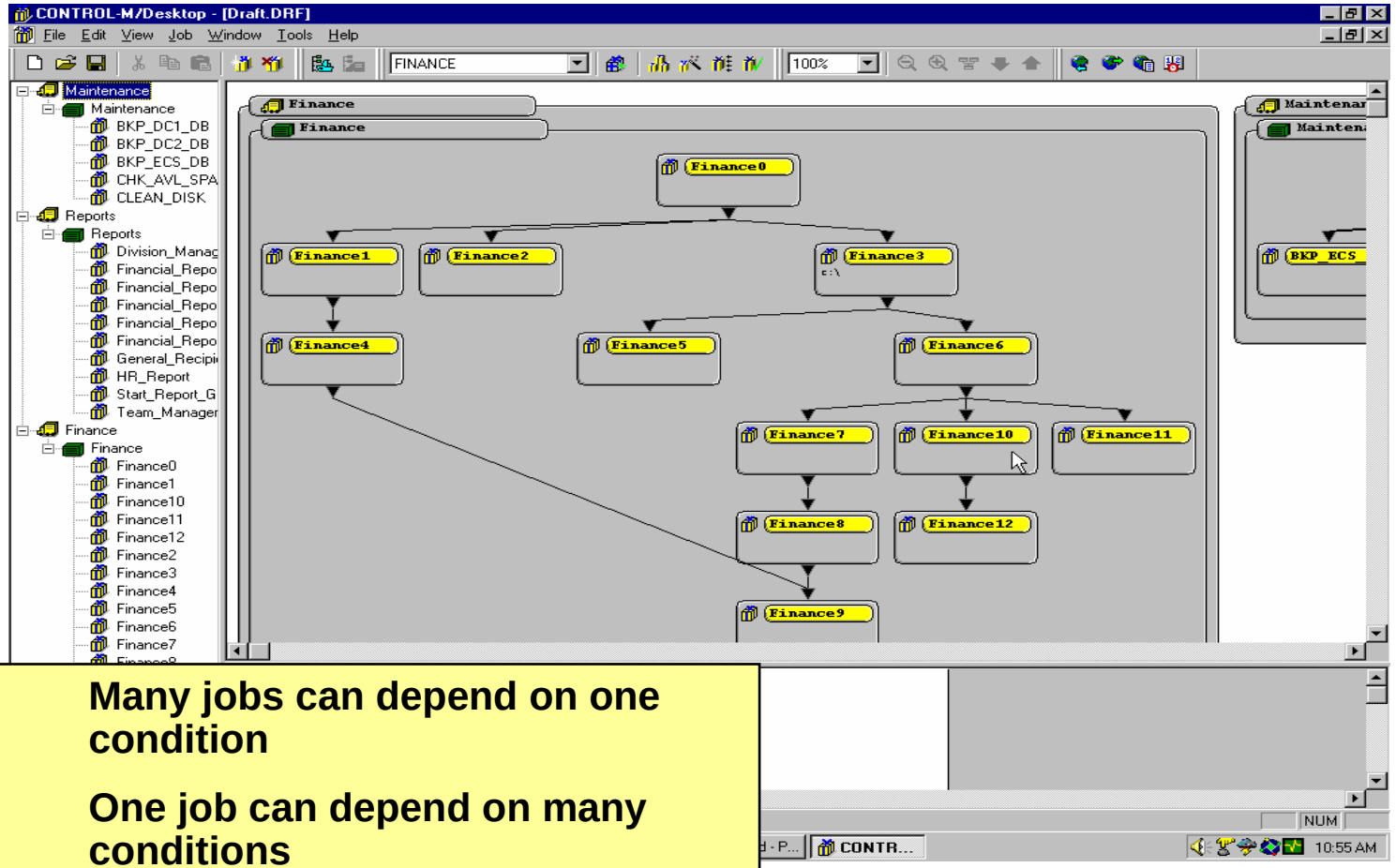
# Condition Process



# Complex Dependencies



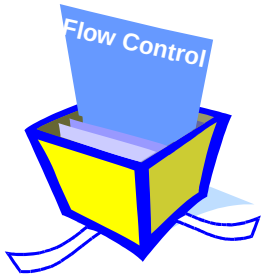

**Many jobs can depend on one condition**

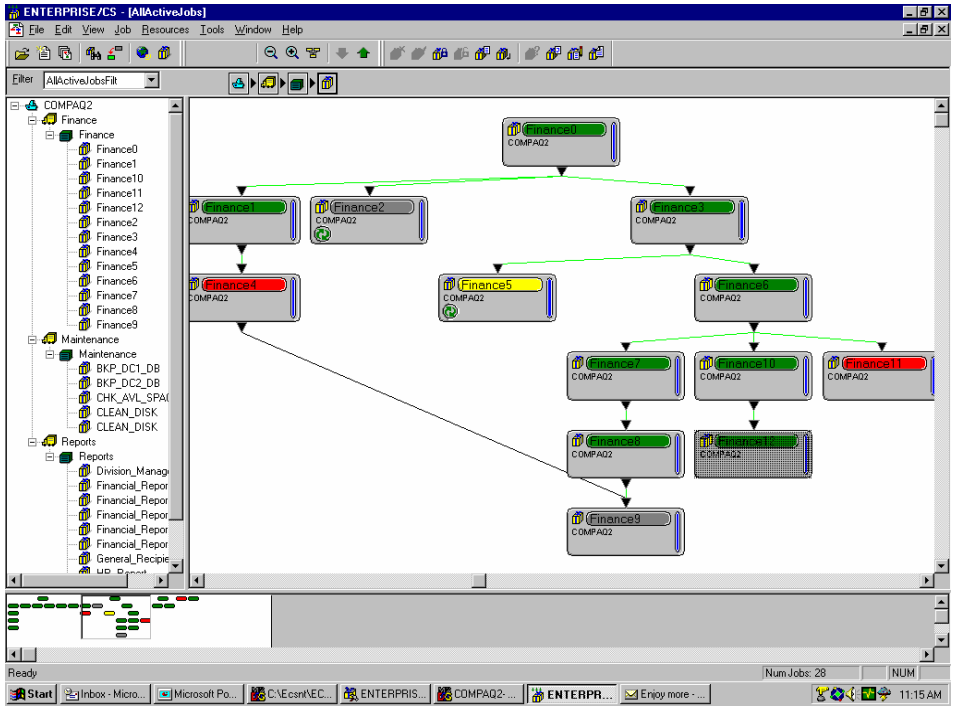
**One job can depend on many conditions**

**Combination of conditions - AND/OR**

# Benefits

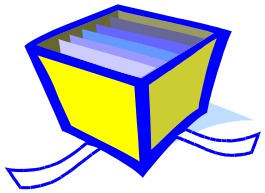
- Cross-platform automation flow
- No need for manual intervention
- Create a Business Process View
- Create a Focal Point of Control

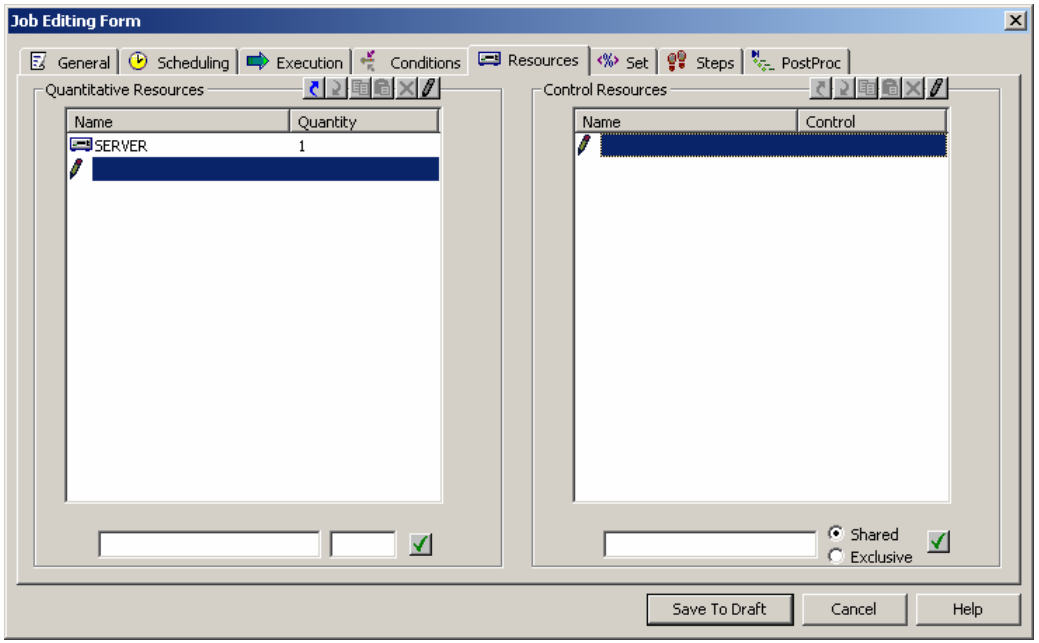


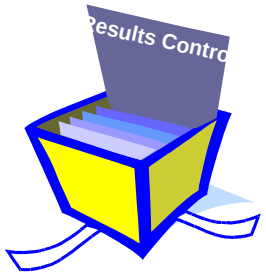
# Resource Requirement

- Prevents resource contentions between jobs
- Provides workload balancing
- Eliminates contention bottlenecks



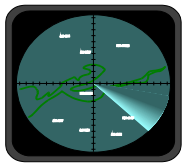


# Results Control

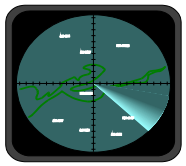


- Capture Standard OUTPUT in Sysout
- Sysout contain and Error Code will be tested
- Shout Message can be sent to User Mail, Distribution List, Console ...
- Rerun Facility
  - Runs same job « n » times
  - Runs another job
  - Stop a Cyclic Job

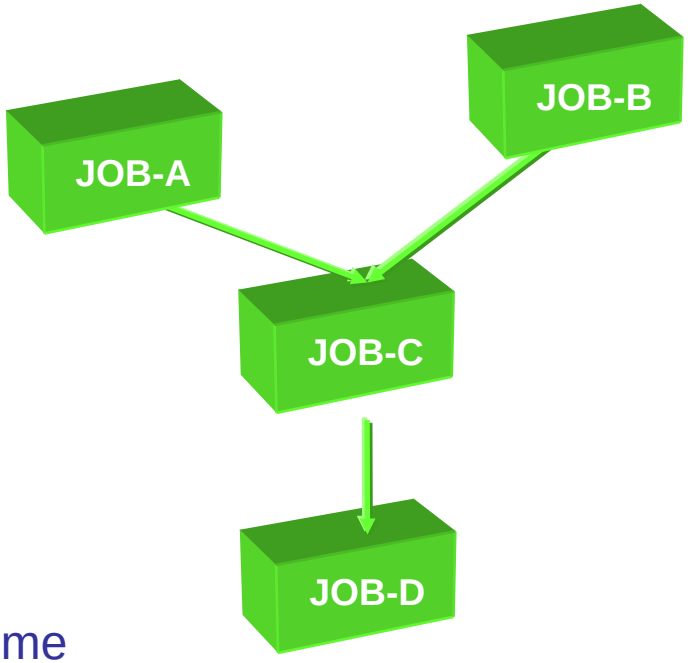
# Job Process



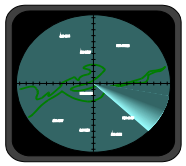
# Dynamic Scheduling



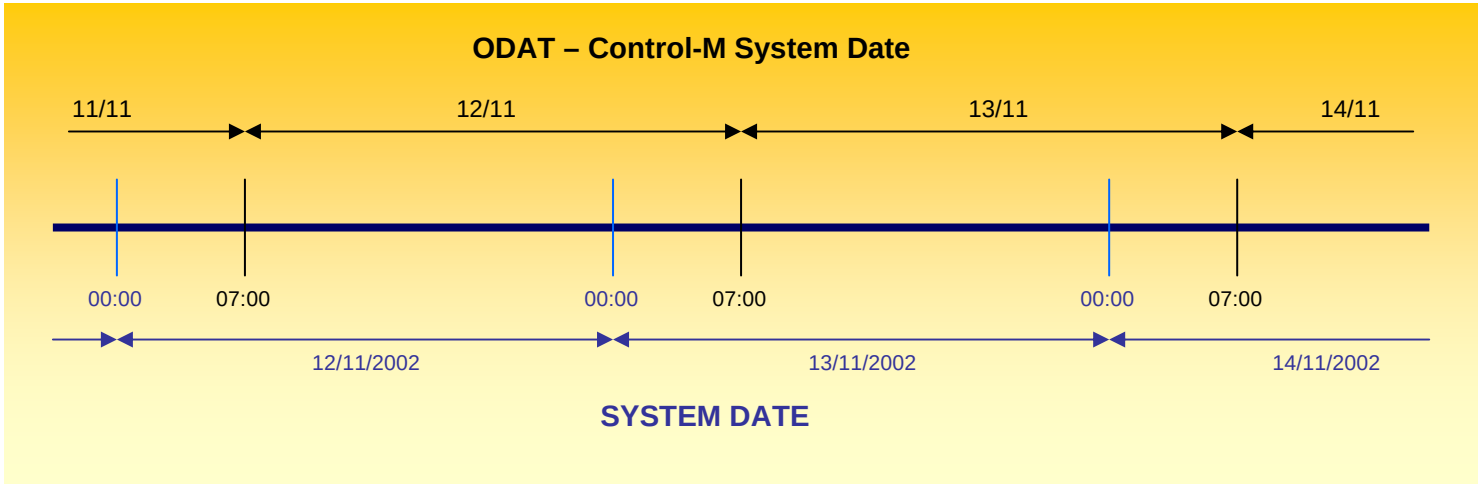
- We can accumulate
  - Conditions
  - Schedule Date and Time
  - Quantitative Resource



# Schedule PLAN

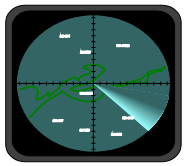


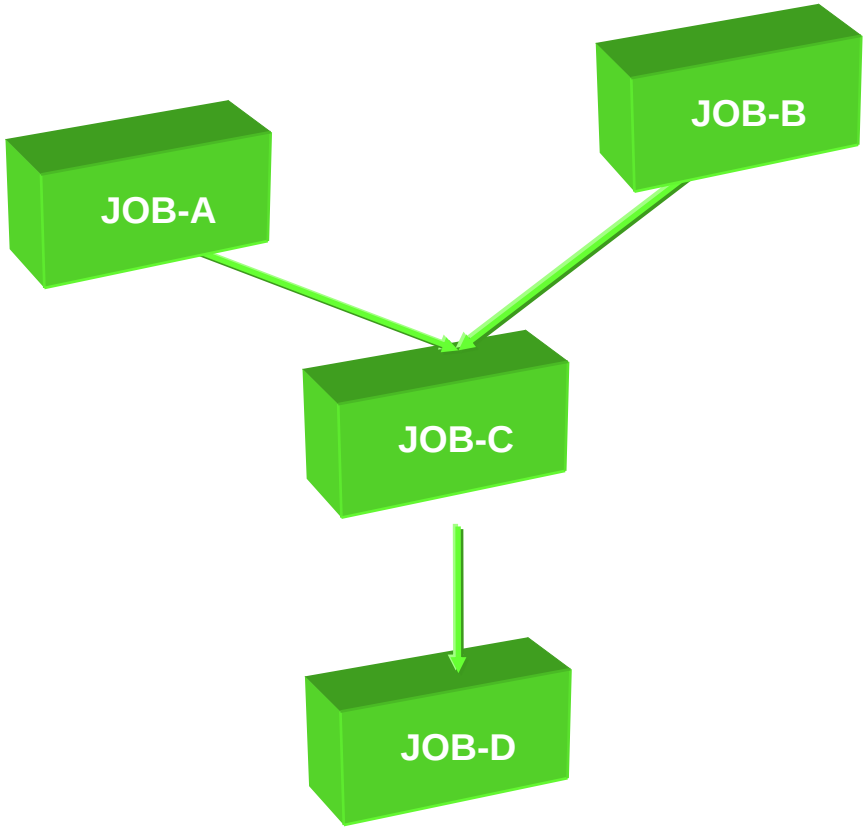
- To be executed, a job should be up to plan.
- A plan is a period of 24 hours
- The plan begins at 7:00 AM (for that example)
- The plan stops at 6h59 AM the following day
- The Control-M System Date isn't a System Date



# Dynamic Scheduling

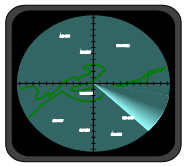
***If all goes well ...***

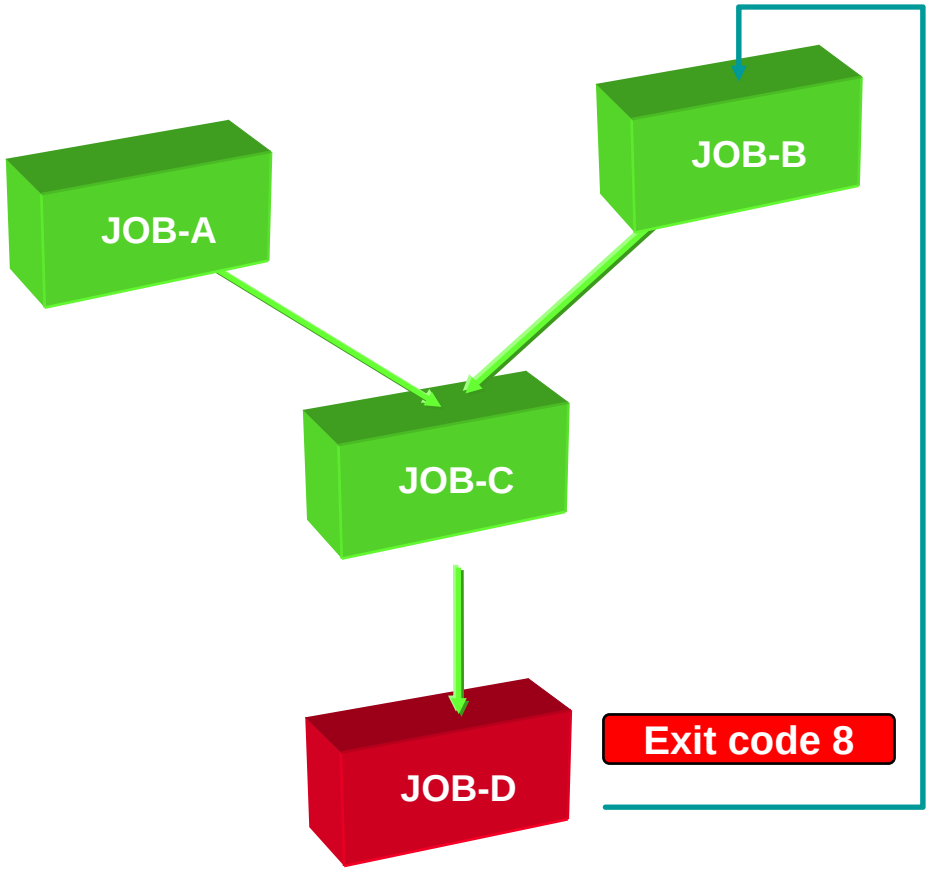




# Dynamic Scheduling

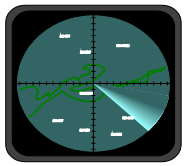
***Problem ...***

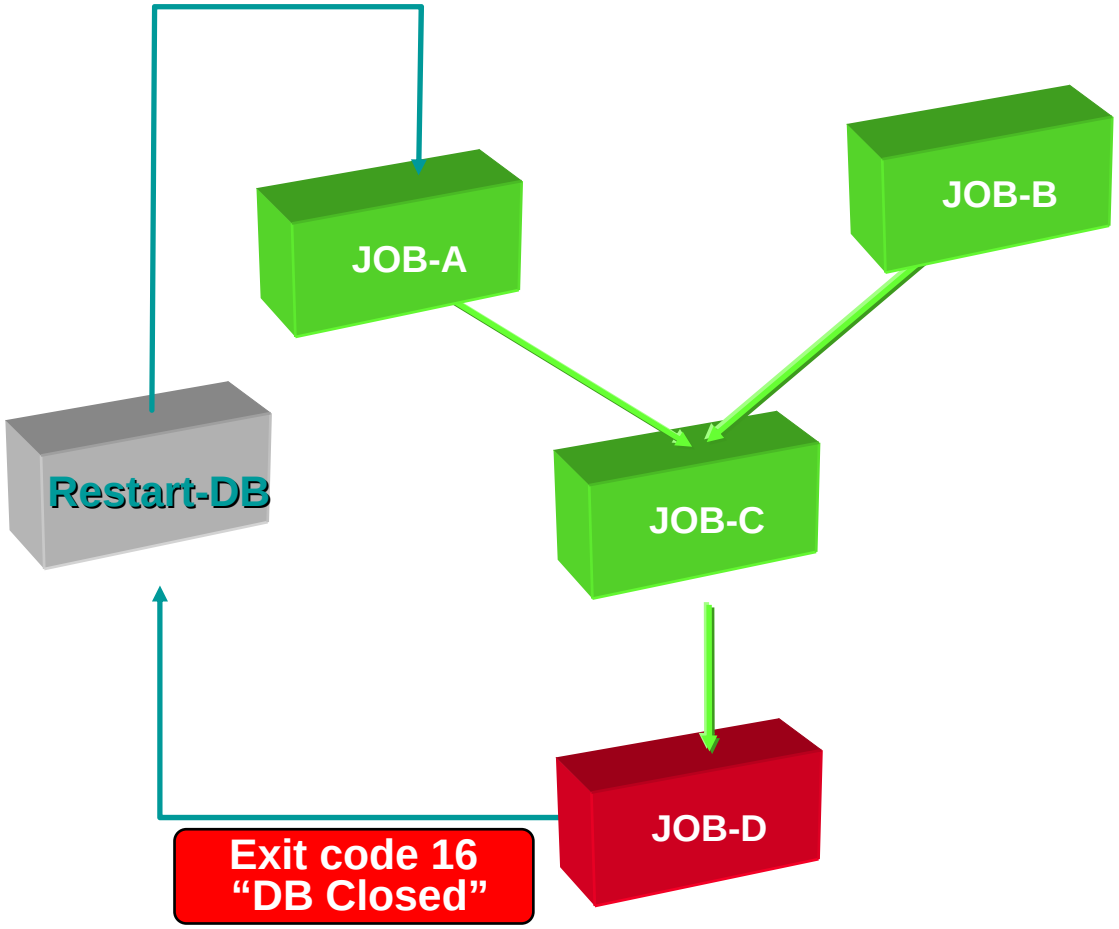




# Dynamic Scheduling

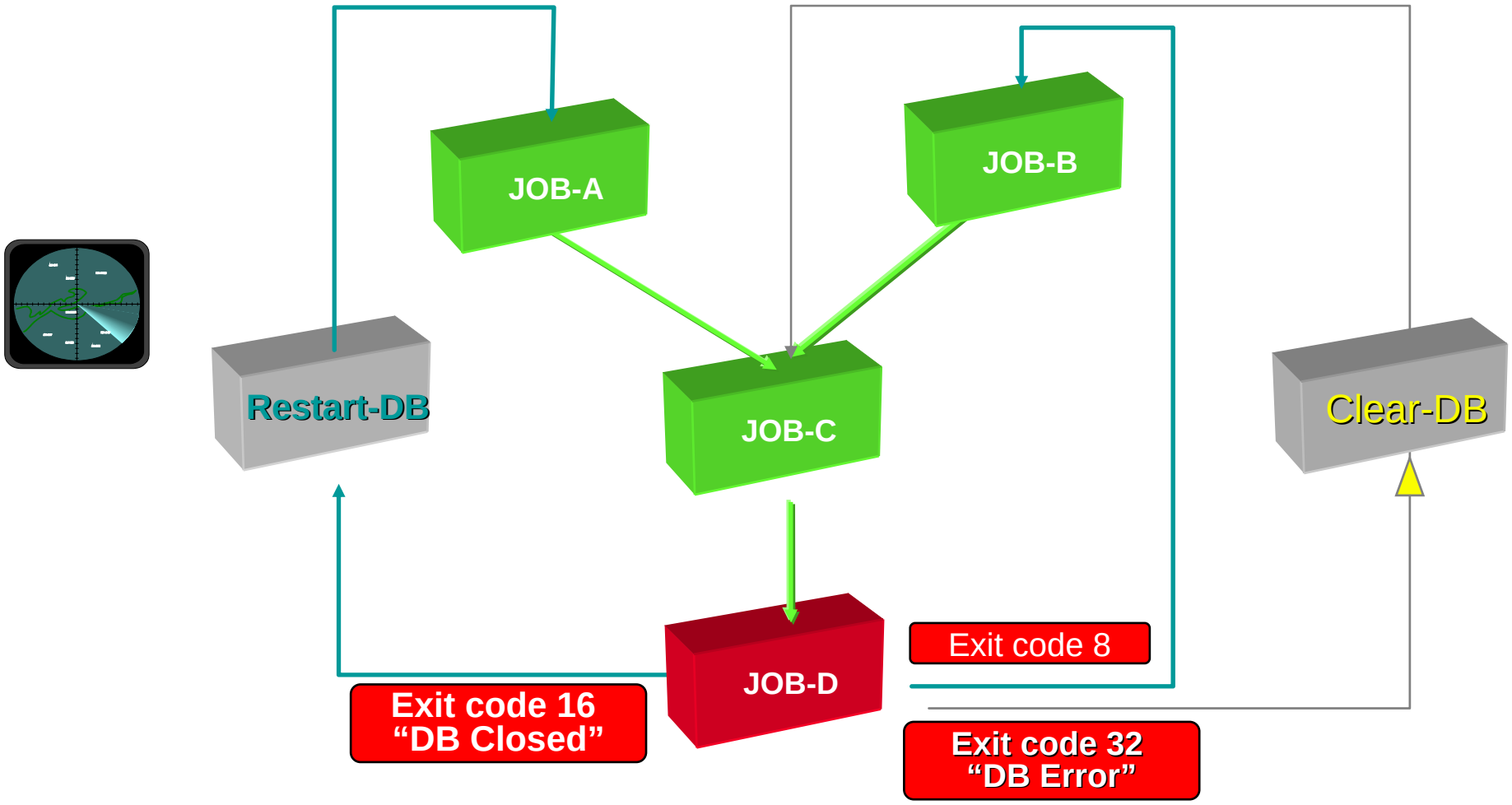
***Other Problems ...***



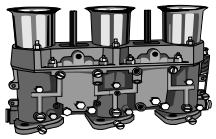


# Dynamic Scheduling

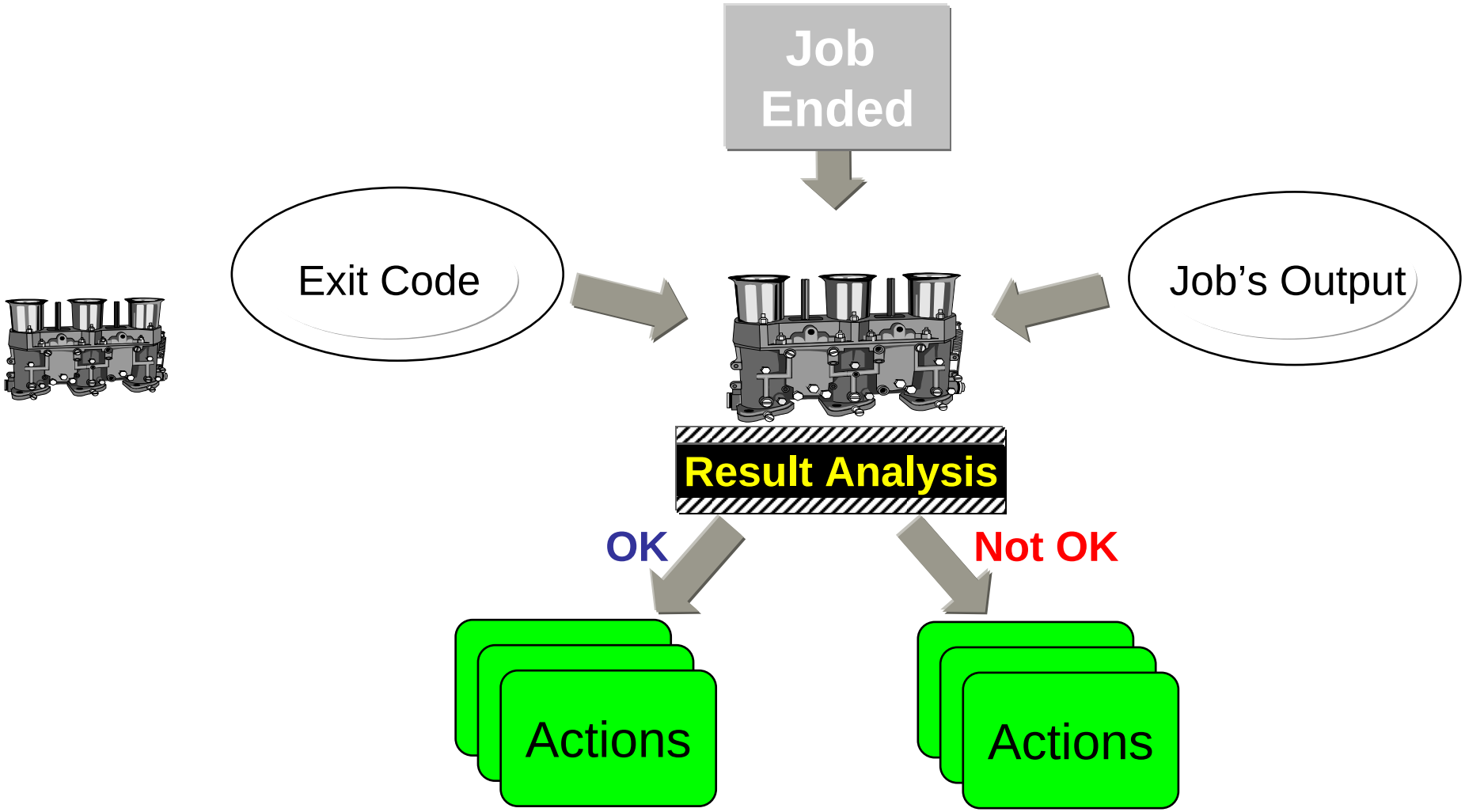
***Many Problems ...***



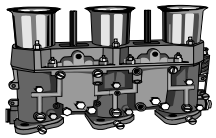
# Result Analysis



# Error Recovery Process

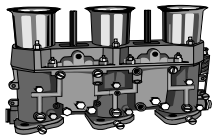


# Result Analysis



- CONTROL-M is capable of detecting errors and react to them dynamically
- Analyze contents of the Job Log
- Match Line of statement with statement ouput and errors (contain of sysout)
- Actions :
  - Set completion status to Ok or NOTOK
  - Set a parameter value (counter)
  - Create or delete a condition
  - Force a job to run
  - Notify a user or console message
  - Rerun the job
  - Stop Cyclic

# Result Analysis – Control-M Logs

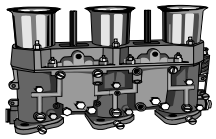


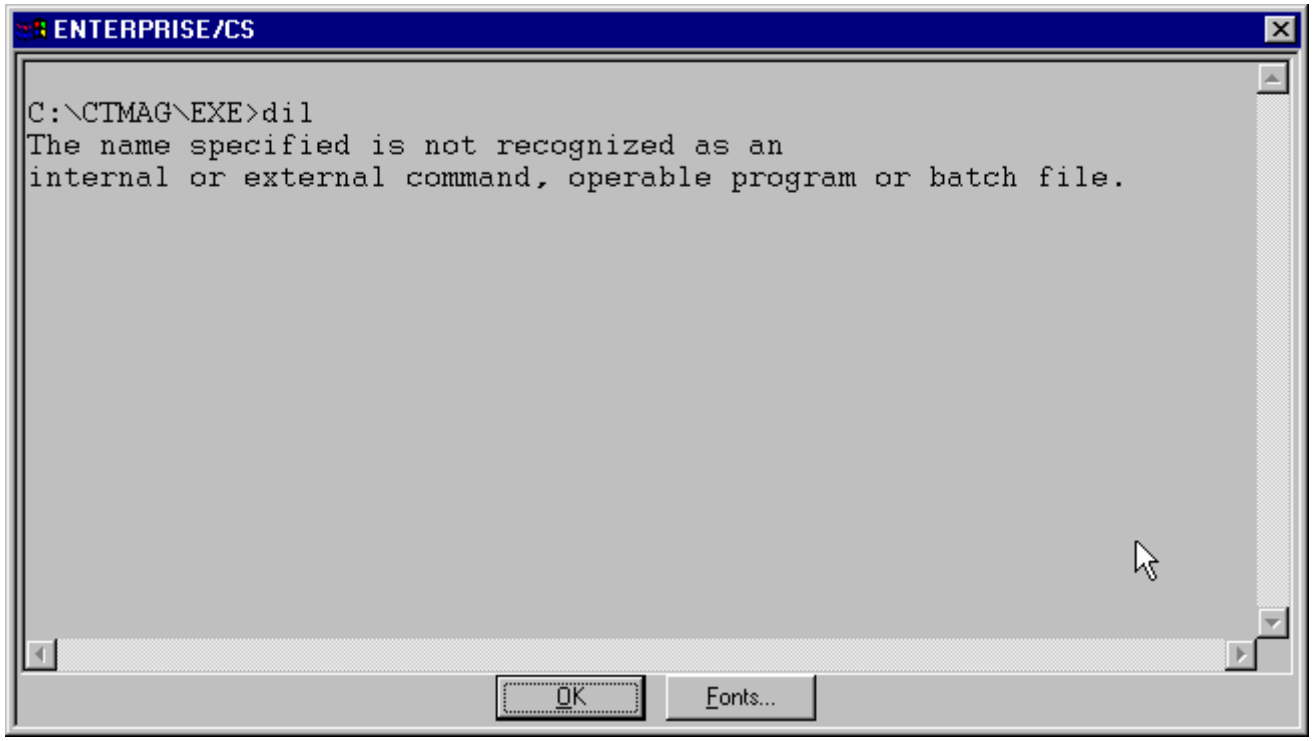
ENTERPRISE/CS

| Date | Time | Code | Job Name | Job Id | ----- Message ----- |
|---|---|---|---|---|---|
| 11/05/99 | 19:25:54 | CS5065 | | | ORDERED JOB:245; DAILY FORCED, ODATE 19990511 |
| 11/05/99 | 19:26:04 | SL5120 | | | JOB STATE CHANGED TO Wait Condition |
| 11/05/99 | 19:26:47 | SL5105 | | | SUBMITTED AT 19990511192647 TO compaq2 |
| 11/05/99 | 19:26:58 | TR5080 | | | FAILED TO SUBMIT JOB Finance3. Message from Ag |
| 11/05/99 | 19:26:58 | TR5103 | | | No such file or directory: ""c:\\Finance3"" |
| 11/05/99 | 19:26:58 | TR5134 | | | ENDED NOTOK |
| 11/05/99 | 19:26:59 | TR5120 | | | JOB STATE CHANGED TO Analyzed |
| 11/05/99 | 19:27:03 | SL5120 | | | JOB STATE CHANGED TO Post processed |

OK Fonts...

# Result Analysis – Job Sysout

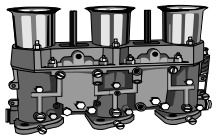




# Result Analysis - Unix

- Unix

```
$ cp /etc/passwd /tmp
$ cp /etc/passwdx /tmp
cp /etc/passwdx: No such file or directory
$ cp /etc/passwd /usr/kvm/xyzzy
cp: /usr/kvm/xyzzy: Permission denied
$ exit 12
```



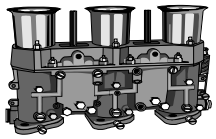
**On Statement/Code examples for this job:**

| | |
|---|---|
| **On Stmt** | **cp /etc/passwdx/tmp** |
| **Code** | **No such file or directory (the string 'no*file‘ will also work - see wild card characters above)** |
| **On Stmt** | **cp /etc/passwd/usr/kvm/xyzzy** |
| **Code** | **cp *: Permission denied** |

# Result Analysis - NT/2000

- NT

```
E:\fcopy -recover -context_file="fccf_00007"
FCOPY-I-CMD_LINE - Original command was :
fcopy "E:\\fastcopy\\*.doc" "\\\\nt-tlv2\\tmp" -report -user="fctest" -
password=PASSWORD -replace -context_file="fccf_00007"
FCOPY-E-CONNECTREF, could not connect to node nt-tlv2
 -SYS-E-ERRMSG, Connection refused
```



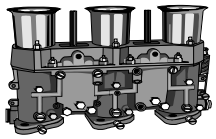
**On Statement/Code examples for this job:**

**On Stmt** **fcopy***

**Code** ***could not connect to node nt-tlv2***

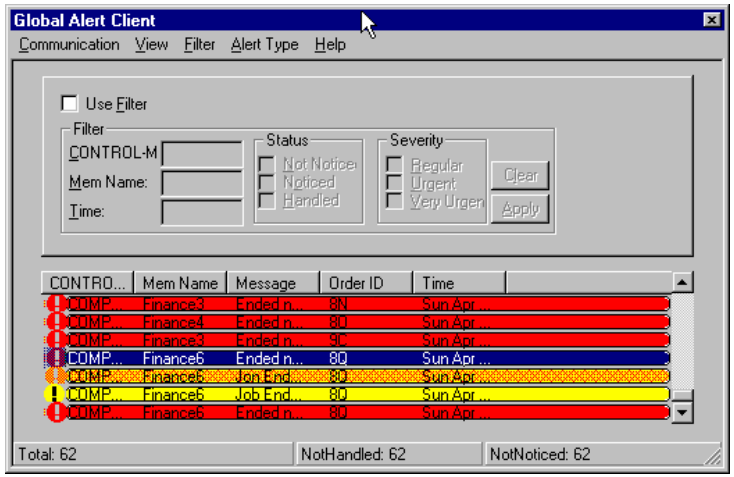
# Error Message

- Regular (Green)
  - Message for information
  - Use to keep log information
  - No Pilote Action



- Urgent (Orange)
  - Warning Message
  - Need Pilote acknowledgement
  - Not a Critical Problem

- Very Urgent (Red)
  - Critical Message
  - Need Pilote acknowledgement
  - Critical Problem, need immediate action



# What do we need

- For the Control-M Diagram
  - A Organization Chart of the treatments
  - An Application Architecture Diagram
- For Each Job Definitions
  - External parameters and processes
  - Command Line or Executable
  - User Login
  - Scheduling Criteria (Date, Time, Calendar...)
  - Error code and Error Message Received and To be Sent
  - Actions List, Order for each error