EMS (EngelMonitoringSystem) E63 Fileinterface

Example for process data recording with a sample installation:

When you have installed the EMS file interface (EMS basic module) in the directory:
"C:\Program Files\engel\ems\" you will find the file MACHINE.INI there.
Each machine has his own directory. A part of the directory name is the fabrication
number of the machine (number between 1 and 65535).

Example of a MACHINE.INI:

[MACHINES]
1=29831
2=38746
3=

[29831]
NAME=TECH1
SESSIONPATH=MACHINES\29831\E63_JOBS

[38746]
NAME=MS1
SESSIONPATH=MACHINES\38746\E63_JOBS

The session path for each machine is relative to the position of the machine.ini
file.
The full path name for a machine with the fabrication number 38746 is in this
example:
"C:\Program Files\engel\ems\MACHINES\38746\E63_JOBS".
All request/response/session files are in this directory when you insert no other
path
in this files (UNC path oder drive letters, relative or absolute).

Example of a report job (Presentation request) for machine 38746:

1) Create the job file in "C:\Program Files\engel\ems\MACHINES\38746\E63_JOBS".

Contents:
JOB ReportCyclicShot RESPONSE "ReportCyclicShot.log";

REPORT ReportCyclicShot APPEND "ReportCyclicShot.dat"

START IMMEDIATE
STOP NEVER
CYCLIC SHOT 3
PARAMETERS
DATE,
TIME,
COUNT,
@10007,
@24003,
@24009,
@24007,
@24014,
@24015,
@24016
;

Description:

Each 3rd cycle will be recorded (append mode) in the file ReportCyclicShot.dat.
Each parameter has a unique identifier.
In this example we use engel specific parameter identifiers. If we have mapped euromap
symbols then you can also use this symbol names. For mapped symbols we have
a table (ems2E63.txt). With the getid command you have to evaluate which parameter
identifiers (E63 symbols) we will support for each machine.

2) Write file SESS0001.REQ into session path.

Contents:

00000001 EXECUTE "ReportCyclicShot.job";

3) Wait for SESS0001.RSP and analyze contents.

Example contents:

00000001 PROCESSED "The command is processed";

4) Result file (Application response file) ReportCyclicShot.dat:
DATE,TIME,COUNT,@10007,@24003,@24009,@24007,@24014,@24015,@24016
20001018,14:49:17,1,00002,265425,10.5,2.12,154,233,153
20001018,14:49:40,2,00002,265428,10.2,2.04,156,235,136
20001018,14:50:12,3,00002,265431,9.4,2.12,153,227,157
20001018,14:50:42,4,00002,265434,10.4,2.03,146,219,153
20001018,14:51:14,5,00002,265437,10.5,2.18,164,220,154
20001018,14:51:45,6,00002,265440,10.2,1.9,163,232,163
.
.
.
For each job file you have a log file.
COMMAND 1 PROCESSED "JOB command" 20001018 14:48:40;
or for example:
COMMAND 1 PROCESSED "JOB command" 20010122 07:25:45;
COMMAND 2 ERROR 06 00000033 "REPORT with the same name and type is already running."
20010122 07:25:46;

The application should read and evaluate this files. This files are also called
"Presentation response files" and the error messages as "Presentation layer error
codes".

5)
With the Getid command you have to evaluate the parameters the machine supports.

Contents:
JOB GetId RESPONSE "GetId.log";

GETID "GetId.dat";

Result file GetId.dat:

.
.
.
@24003   ,N,0008,00,0,"","host:shot counter"
@24004   ,N,0005,00,0,"","host:rejects counter"
@24005   ,N,0005,00,0,"","host:rejects total counter"
@03074   ,N,0005,00,0,"","host:clamping force stored"
@24006   ,N,0002,02,0,"","host:mould protection time"
@24007   ,N,0003,02,0,"","host:injection time"
@24009   ,N,0004,01,0,"","host:cycle time peak value"

```
@24010              ,N,0004,01,0,"mm","host:cushion actual value"
@24011              ,N,0004,01,0,"mm","host:metering stroke"
@24012              ,N,0004,01,0,"mm","host:decompression after plasticizing"
@24013              ,N,0004,01,0,"mm","host:screw position switchover point"
@24014              ,N,0003,01,0,"°C","host:temperature zone 1"
@24015              ,N,0003,01,0,"°C","host:temperature zone 2"
@24016              ,N,0003,01,0,"°C","host:temperature zone 3"
@24017              ,N,0003,01,0,"°C","host:temperature zone 4"
@24018              ,N,0003,01,0,"°C","host:temperature zone 5"
@24019              ,N,0003,01,0,"°C","host:temperature zone 6"
@24020              ,N,0003,01,0,"°C","host:temperature zone 7"
@24021              ,N,0003,01,0,"°C","host: temperature zone 8"
@24022              ,N,0003,01,0,"°C","host:temperature zone 9"
@24023              ,N,0003,01,0,"°C","host:temperature zone 10"
@24024              ,N,0003,01,0,"°C","host:temperature zone 11"
@24025              ,N,0003,01,0,"°C","host:temperature zone 12"
@24026              ,N,0003,01,0,"°C","host:temperature zone 13"
@24027              ,N,0003,01,0,"°C","host:oil temperature"
@24028              ,N,0004,01,0,"bar","host:pfs-mould cavity pressure peak value"
@24029              ,N,0004,01,0,"bar","host:pfu-mould cavity pressure switchover
value"
@24030              ,N,0003,01,0,"bar","host:phs-hydraulic pressure peak value"
@24031              ,N,0003,01,0,"bar","host:phu-hydraulic pressure switchover value"
@24032              ,N,0003,00,0,"","host:dzx-screw speed actual value"
@24033              ,N,0003,01,0,"","host:fzx-flow number actual value"
@24034              ,N,0003,01,0,"bar","host:holding pressure correction positive"
@24035              ,N,0003,01,0,"bar","host:holding pressure correction negative"
@01601              ,N,0003,01,0,"bar","host:hydraulic pressure peak value via holding
pressure"
@01602              ,N,0003,01,0,"bar","host:back pressure peak value"
@01603              ,N,0004,01,0,"","host:cooling time running along"
@24008              ,N,0003,02,0,"","host:plasticizing time last cycle"
.
.
.
```

In this example i have listet only the process data of a standard machine.
As you can see we use engel like parameter symbols (also called machine
function numbers @XXXXX between 0 and 65535).
This symbol names are unique like the euromap symbol names for all machine
controller
generations we support.
Example tables from a standard machine with machine function numbers including a
description text you will find in the doc directory (mftxxx.txt).

Some mapped euromap symbols we support (additional to the machine function numbers):

```
ActStsMach          ,A,0005,00,0,"","actual machine status"
SetTimMach          ,N,0014,00,1,"","machine date/time"
SetDescMld          ,A,0016,00,1,"","mould number"
SetDescPrt          ,A,0016,00,1,"","injection moulded part number"
SetDescMat[1,1]     ,A,0016,00,1,"","material number unit 1"
SetDescJob          ,A,0016,00,1,"","order number"
SetCntCyc           ,N,0008,00,1,"","shot set value"
ActCntCyc           ,N,0008,00,1,"","shot actual value"
SetCntPrt           ,N,0008,00,1,"","piece set value"
ActCntPrt           ,N,0008,00,1,"","piece actual value"
ActTimCyc           ,N,0004,01,0,"","cycle time actual value"
ActCntMld           ,N,0005,00,1,"","number of cavities"
SetTimCyc           ,N,0004,01,1,"","cycle time for bde"
ActCntPrtRej        ,N,0005,00,1,"","rejects total counter actual value"
.
.
```

```
@22001                        ,N,0005,00,1,"","downtime code for bde 0-99"
@32038                        ,N,0001,00,0,"","machine runs automatically=1 , machine stops
= 0"
```

6)
With the Connect command (a application should repeat this session request cyclic) a

application should evaluate the state of the euromap 63 file interface communication
program. If the communication program is not running the application will receive
no answer (session response).
If the communication program is running the session response file can include
different answers:

Example for a session request file for Connect:
Filename: SESS0002.REQ
00000002 CONNECT;

Examples for session response file answers:
Filename SESS0002.RSP
00000002 PROCESSED "The command is processed";
All is OK ... the application can continue processing the files.

00000002 ERROR 05 00000004 "Interface was started ";
The communication program was restartet.
The application must restart all job files.

00000002 ERROR 05 00000006 "Machine is offline or access denied";
No communication with the machine. No actual data for the application.
In case of EXECUTE new presentation request files will be rejected.
Its not possible to start new jobs until machine is online.

7)
When you want to abort a job file you have to create a job with a Abort command.
.
.
.
You will find additional job examples in the "doc" directory under
"e63_jobexamples".

When you want to Upload/Download a machine setup with our E63 Fileinterface:

Each machine has a PARTS directory and each setup is stored in a sub folder of this
directory.
Example of a job:
UPLOAD "..\PARTS\TEST" ACTIVE
The setup with the name TEST will be stored in the location:
C:\PROGRAMME\ENGEL\EMS\MACHINES\42425\PARTS\TEST

How we come to this path:
You will find the basic configuration file MACHINE.INI in the EMS installation path.
For a local installation on a german PC the default installation path
is for example: C:\PROGRAMME\ENGEL\EMS .
The machine in this example has the serial number 42425 .
You will find the SESSIONPATH for this machine in the file MACHINE.INI
"SESSIONPATH=MACHINES\42425\E63_JOBS".
In this path you have to create your job and session files and in the PARTS
directory
of each machine you have to store the setups when you want to be compatible

with our system.

Some examples for Upload/Download you will find in the directory
E63_JOBS and E63_JOBEXAMPLES.

If you want to transfer a setup please follow this steps:

1) Is the fileinterface running (check with the connect command)?
2) Is the setup path existing (you have to create the sub folder for a new setup) ?
   (please don't use long file names ... only use "DOS 8.3 FORMAT" when possible)
3) Machine must be in manual or setup status when you want to download a setup
   (please check "ActStsMach" before you start the transfer).
4) Transfer PROCESSED or was a ERROR ?
   (please check the Log file and show the message in case of a ERROR)

Error (error message list you will find in e63 spec.) :
COMMAND 2 ERROR 06 00000037 "Error during command processing. (
REQ_COMMUNICATION(Written dataset not complete. Some parameters not
found(DRV_OK(CMP_ERROR)))) " 20010824 08:56:50;

Success:
COMMAND 2 PROCESSED "UPLOAD command" 20010123 13:31:38;

Setup files for a machine are binary files. When you want to view or change values
you have
to call our screen viewer program.

SV c:\programme\engel\ems\ 42425 2 TEST
or for newer machines:
SCVIEW EMS c:\programme\engel\ems\ 42425 2 TEST

Value 2 is the access level (0=read only, 1=read/write , 2 = extended read/write).

When you call the screen viewer without a setup name like TEST in this example
then you start him in Passthru Mode.
Passthru = online with the machine .... you can view actual values and with the
right access level
you can change values online.

Each newer machine (ec88.a02/cc90.a02 and newer) has a special central computer
screen page.
On this page the user has a dialog to request a transfer (download from host to
machine).

Variables:
@32004 = Downloadstate (will be shown on this machine page with colored marks)
        Possible values:
        9900 = Ready
        9901 = Start
        9902 = Error
        9906 = Error and Code = Setup path not exist on harddisk

@32005 = Downloadrequest
        Possible values:
        0 = no Downloadrequest
        1 = Downloadrequest

@32007 = Code alias Mould code alias Download number alias Part name alias Setup
alias ...
        Value: 4-12 Digits (possible to expand it to 16 Digits)

Program process for one machine:

```
JOBSTART = TRUE                               ' Jobstart Flag

DO

        DO

                REQUEST Connect               ' Connection Verfication Command
                IF Connect = ERROR_4 THEN     ' Fileinterface is (re)started when
                        JOBSTART = TRUE        ' Session Layer Error Code =
00000004
                END IF
                IF Connect = ERROR_6 THEN     ' Machine is offline when
                        JOBSTART = TRUE        ' Session Layer Error Code =
00000006
                END IF

                .                             ' Error handling for other Session
                .                             ' Layer Error Codes in Response File
                .

                IF Connect <> PROCESSED THEN
                        SLEEP X               ' Free the process for x seconds
                END IF

        LOOP UNTIL Connect = PROCESSED         ' PROCESSED=PROCESSED completion
message
                                               ' and no Session Layer Errors

        IF JOBSTART THEN
                START REPORT JOB               ' Report
ActStsMach,@32004,@32005,@32007
                JOBSTART = FALSE               ' Reset Jobstart Flag
        END IF

        SLEEP X                                ' Free the process for x seconds

        READ    ActStsMach       ' Operation mode (Download only im manual mode or
setup mode)
        READ    @32005           ' Downloadrequest (Switch = 1 if Downloadrequest)
        READ    @32007           ' Code (Entry's are on central computer page)

        IF @32005 = 1 AND (ActStsMach=0M??? OR ActStsMach=0S???) THEN
                SET @32005 0                                   ' SET Switch for
Downloadrequest to 0
                IF EXIST "../PARTS/"+ @32007 +"/*.*" THEN      ' Check the Setup
path
                        SET @32004 9901                        ' SET Downloadstate
to "Start"
                        START DOWNLOAD JOB                     ' Start the Download
Job
                ELSE
                        SET @32004 9906                        ' SET Downloadstate
to "Error and Code"
                END IF
        END IF

        SLEEP 5                                ' Free the process for 5 seconds
        READ    @32004                         ' Read the Downloadstate

        IF @32004 = 9901 THEN
                CHECK DOWNLOAD LOG             ' Check the LOG file
                IF DOWNLOAD = ERROR THEN
```

```
                SET @32004 9902          ' SET Downloadstate to "Error"
        END IF
        IF DOWNLOAD = PROCESSED THEN     ' PROCESSED = PROCESSED "DOWNLOAD
Command"
                SET @32004 9900          ' SET Downloadstate to "Ready"
        END IF
    END IF

LOOP
```