



iai industrial systems  
part of HID Global

# Host Interface Description Personalisation Systems

Software

Confidential information

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## Introduction

This document describes the interface between IAI Personalisation Systems and the host environment providing the personal data. The structure of the document is as follows:

- Explanation of systems, which protocols, which applications each system supports and a guide to which chapters to read.
- Overview of the conceptual interfaces between system and host.
- Detailed explanation of the protocols.
- Description of data format's
- Error codes

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## Reading guide

For an overview of the interfaces and a choosing guide, read chapters:

- Conceptual overview of interfaces
- Systems
- Protocols

For the interface definition based upon a file share, read chapters:

- Conceptual overview of interfaces
- Systems
- File share
- Jobfiles
- Job processing
- Data File Structures
- Status files
- Error codes

For the interface definition based upon WebDav, read the chapters from the file share and:

- WebDav
- Encryption and authentication

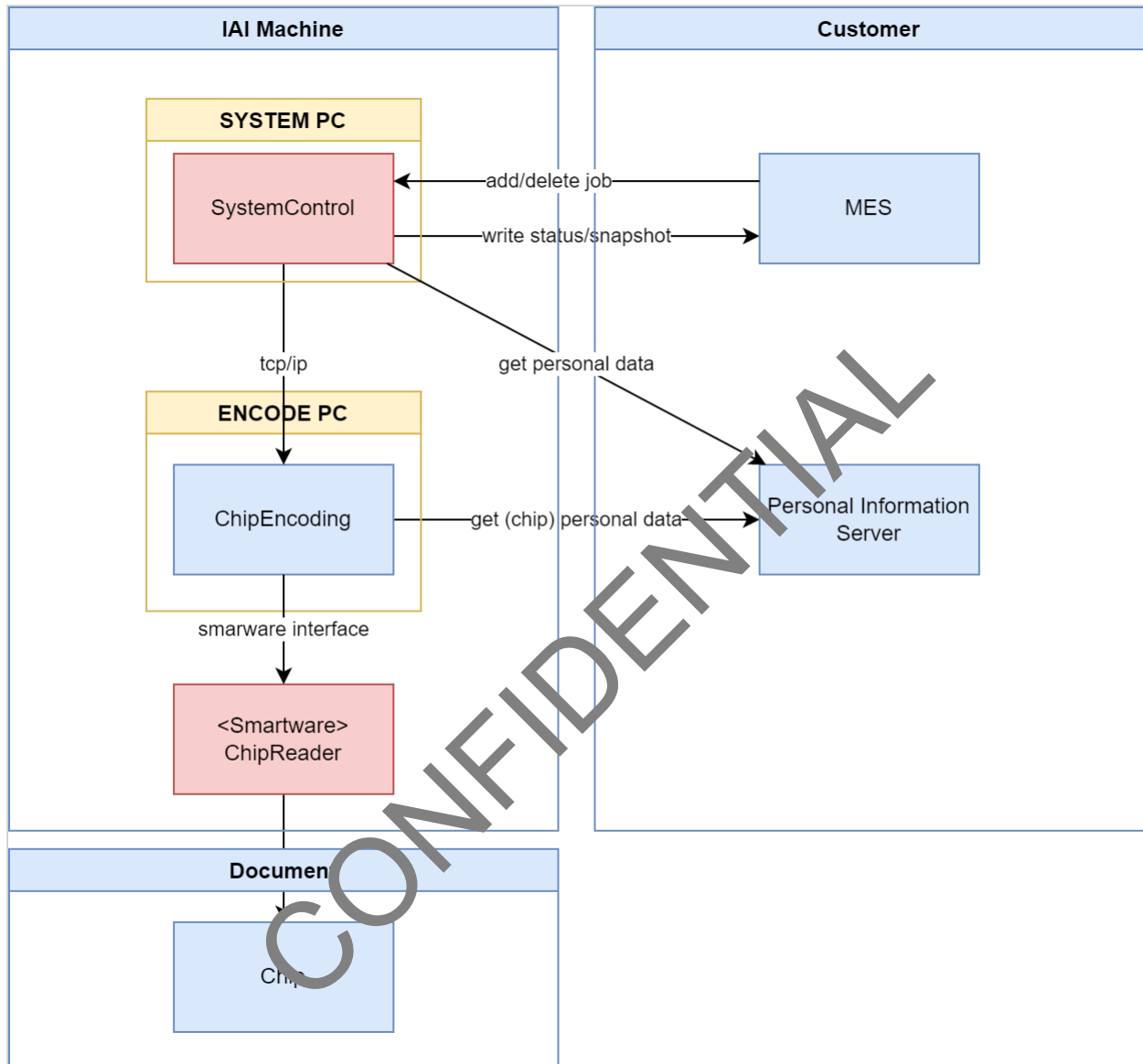
For the interface definition based upon Http, read chapters:

- Conceptual overview of interfaces
- Systems
- Http
- Jobfiles
- Data File Structures
- Error codes

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## Conceptual overview of interfaces

The diagram below describes the relevant interfaces and components for this document.



This document describes four interfaces:

1. **Job interface** which instructs the system which products to create with which recipe.
2. **Status interface** which allows the customer systems to observe the status of the machine, the jobs and of the products.
3. **Personal interface** which allows the system to access the personal information from the customer systems.
4. **Snapshot interface** which allows the customer system to retrieve verification results. As these may contain personal information it is separated from the status interface.

Out of scope are:

1. **Interface SystemControl – ChipServer - ChipReader** this interface is described in "Chip Encoding Interface Personalisation Systems".

2. **Chip & chip personal data** the IAI system does not handle the content of the chip encoding data.

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## Systems

There are five types of system for which this document is applicable. In the table below the systems are depicted, with their supported application, protocol and document type.

System Name	Supported Protocol	Document type	Application
BookMaster One	Http(s) WebDav File share	Passport	Electronic chip personalisation Laser Engraving Colour Inkjet Inkjet Labelling ImagePerf NumberPerf Verification
CardMaster One	WebDav File share	ID-1	Electronic chip personalisation Laser Engraving ImagePerf Verification Magstripe
BookMaster Pro	WebDav File share	Passport	Electronic chip personalisation Laser Engraving Verification Colour Inkjet
CardMaster Desk	WebDav File share	ID-1	Engrave
BookMaster Desk	WebDav File share	Passport	Engrave

**Table 1: Overview**



## Protocols

There are three different protocols supported by the systems.

- Http(s) – REST api
  - Support for encryption (requires handling of certificates by customer)
  - Authentication through client certificate (requires handling of certificates by customer)
  - Contains the most detailed information
  - Direct communication to the system
- File share
  - No encryption support
  - Windows share
  - Communication through files
- WebDav
  - Encrypted communication (requires handling of certificates by customer)
  - Authentication through client certificate (requires handling of certificates by customer)
  - Communication through files

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## Network requirements

Parameter	Value
Network	100/1000 Mbit/sec.
Physical connection	UTP
Host computer response time incl. all data transfer time over the network for one document	< 0.5 sec.
IP range	Configurable Range 192.168.1.x is not possible as it is reserved for the internals of the machine.

The network architecture of the BM- and CMOne systems is according the schedule below. Separate connections need to be made for encoding pc and IAI system.

### **figure to be added**

The users (operators, service-engineers, system-administrator) logging into the IAI system will be verified to the customer's Active Directory. Standardly we assume, the IT administrator of the network of the customer will create, on the customer's Active Directory, three groups named:

- IAI[MachineCode]Operators
- IAI[MachineCode]Administrators
- IAI[MachineCode]Service

and assign his own users to these groups. The standard machinecode will be provided by IAI. The groupnames and machinecode will be made configurable.

The users will be allowed to logon to the IAI machine by using these customer AD credentials. Rights will be provided based on AD group. The authorisations within the IAI system control application will be given based on the userconfiguration xml-file in the machine.

The systemcontrol/Internal Active Domain controller will provide logon to the customer network via customer owned credentials. The logged in user will have credentials that allow the machine to access the shared hostdatafolder.

The systemcontrol maintains a security log: major machine interactions are logged both to a logfile on the BookMaster system and on the customer network. A comparison can be made to evaluate possible breaches.

The internal IAI-domaincontroller needs to be NTP connected to the customer network, to be able to synchronize time. Credentials are not required but the source needs to be acknowledged. Exact specifications to be discussed.

The computers inside the IAI system will logon to the Internal Network using an IAI provided password.

If an encoding pc is provided by IAI, it will contain a standard windows IOT image, similar to the other computers in the system. The pc will not be accessible from the IAI-system. The encode software provided by the customer needs to be able to run as a windows service (and thus without UI).

## File share

The personalised data for the IAI personalisation system is available through a network share. The related data for each application or feature in the document is retrieved by the IAI software from this host network share (see below diagram).

Parameter	Value
Host computer Operating System	MS Networking e.g. WIN2000 Server or Unix with Samba
Network protocol	TCP/IP
Data location	On the host computer a separate network share is available for each IAI system on which the system has enough privileges to create, read, rename and delete files.  NOTE: It is configurable whether the data is stored in a folder per job, or all data is stored in the root of the specified network share (which can lead to huge amount of files in one folder)

**Table 2: Specification network**

The content of the files are described in chapters Jobfiles, Job processing, Data File Structures and Status files.

## WebDav

The IAI systems support WebDav by running a WebDav server. The WebDav server can be used as the equivalent of a file share, therefore all the chapters describing the file share interface are also applicable for the WebDav server. In addition to this, the WebDav server enables encryption and authentication.

## Http

The data is communicated with the machine over http. All interfaces can be modified to use https instead of http, to ensure encryption and authentication.

## Job interface

### Post job

Description	Make a job available to the machine. An operator has to schedule the job before it is executed.
Direction	Machine – server Host – client
URL	http://{MachineName}/Host/Jobs/ProJob0001.xml
Method	POST
Request content	See Jobfiles.
Reply content	<ul style="list-style-type: none"> <li>• Always empty</li> <li>• In case of OK: http status 200</li> <li>• In case of invalid job file: http status 400</li> </ul>

### Delete job

Description	Remove a job from the machine. All personal data and status information associated with the job is deleted as well.
Direction	Machine – server Host – client
URL	http://{MachineName}/Host/Jobs/ProJob0001.xml
Method	DELETE
Request content	Empty

Reply content	<ul style="list-style-type: none"> <li>• Always empty</li> <li>• In case of OK: http status 200</li> <li>• In case of job not allowed to be removed: http status 400</li> <li>• In case of job not found: http status 400</li> </ul>
---------------	--

## Delete all jobs

Description	Removes all job from the machine that are not active. All personal data and status information associated with the job is deleted as well.
Direction	Machine – server Host – client
URL	http://{MachineName}/Host/Jobs/
Method	DELETE
Request content	Empty
Reply content	<ul style="list-style-type: none"> <li>• Always empty</li> <li>• http status 200</li> </ul>

## Abort job

Description	Abort a job from the machine. This is only allowed when the job is active. No new products will be picked for the job, but the products in the machine will be finished.
Direction	Machine – server Host – client
URL	http://{MachineName}/Host/Jobs/Abort?{JobName}
Method	POST
Request content	Empty
Reply content	<ul style="list-style-type: none"> <li>• Always empty</li> <li>• In case of OK: http status 200</li> <li>• In case of job not allowed to be aborted: http status 400</li> <li>• In case of job not found: http status 400</li> </ul>

## Status interface

### Job list

Description	Request all the jobs that are posted to the machine.
Direction	Machine – server Host – client
URL	http://{MachineName}/Host/Jobs/
Method	GET
Request content	Empty
Reply content	<ul style="list-style-type: none"> <li>• See below</li> <li>• Http status 200</li> </ul>

### Reply content

Parameter	Value
Job	List of jobs in the machine
Job.Name	The unique name of the job
Job.Status	The status of the job (see next chapter for detailed information)

```
<?xml version="1.0" encoding="utf-8"?>
<HostJobOverview>
  <Job>
    <Name>Test</Name>
    <Status>Queued</Status>
  </Job>
</HostJobOverview>
```

## Job and product Status

Description	Request the status of a job on the machine. Note that multiple products are in the machine at the same time, so multiple products can have overlapping states (in progress, but not encoded for instance).
Direction	Machine – server Host – client
URL	http://{MachineName}/Host/Jobs/{JobID}.xml
Method	GET
Request content	Empty
Reply content	<ul style="list-style-type: none"> <li>• See below</li> <li>• In case of OK: http status 200</li> <li>• In case of job not found: http status 400</li> </ul>

## Reply content

Parameter	Value
Job.Name	The unique name of the job
Job.RecipeName	The recipe used for this job
Job.Status	The current state of the job, can be: <ul style="list-style-type: none"> <li>• Available</li> <li>• Queued</li> <li>• Active</li> <li>• Finished</li> <li>• Aborted</li> <li>• AbortedFinished</li> </ul>
Job.StartTime	Start time of the job according to the date/time format (see below). As long as the job is not started, the element will be unavailable.
Job.EndTime	End time of the job according to the date/time format (see below). As long as the job is not finished, the element will be unavailable.
Job.StartedBy	The name of the operator who started the job

Job.Product	A list of all products in the job.
Job.Product.JobDefinedNumber	The number as defined in the job.
Job.Product.DocumentNumber	Optional. The number read from the physical document (either by barcode/chip/ocr).
Job.Product.ErrorCode	Optional. The error code for this product as described in the error code chapter.
Job.Product.Status	<p>The current status of the product:</p> <ul style="list-style-type: none"> <li>• Idle</li> <li>• InProgress</li> <li>• OK</li> <li>• Suspect</li> <li>• Rework</li> <li>• Reject</li> </ul>
Job.Product.StartTime	Time the product entered the machine according to the date/time format (see below). As long as the product is not started, the element will be unavailable.
Job.Product.EndTime	Time the product left the machine according to the date/time format (see below). As long as the product is still in the machine, the element will be unavailable.
Job.Product.Operation	A list of all operations for the product. Will be empty when the product has not entered the machine yet.
Job.Product.Operation.Name	<p>The name of the operation, possible values are:</p> <ul style="list-style-type: none"> <li>• ContactEncode</li> <li>• ContactLessEncode</li> <li>• Inkjet</li> <li>• Engrave</li> <li>• ImagePerf</li> <li>• NumberPerf</li> <li>• LabelPrint</li> <li>• Vision</li> <li>• EngraveBack</li> </ul>



Job.Product.Operation.Status	<p>The status of the operation, possible values:</p> <ul style="list-style-type: none"> <li>• Pending (operation is not executed yet)</li> <li>• Busy (operation is being executed)</li> <li>• Done (operation has been finished successfully)</li> <li>• Failed (operation has been finished with a failure)</li> <li>• Suspect (operation has been finished with a suspected failure)</li> </ul>
Job.Product.Operation.StartTime	Time the operation on this product started according to the date/time format (see below). As long as the operation is not started, the element will be unavailable.
Job.Product.Operation.EndTime	Time the operation on this product finished according to the date/time format (see below). As long as the operation is not finished, the element will be unavailable.
Job.Product.Operation.ErrorCode	Optional. The error code for this product as described in the error code chapter. Only set if this operation has failed or is suspect.
Job.Product.Operation.Location	The location of the unit the operation is executed, only available after the operation has started. This is a number counting from 1 up till the number of units in the machine. In case of chip encoding, the location will also contain the readerboard on which the chip was programmed. The format will be <i>unitpos.readerboard</i> .
Job.Product.Operation.SubLocation	Optional. The sub location of the unit indicates in which (buffered) location within the unit the product was processed. For example Parallel Engrave Side A or Side B. Or for an Encode unit, location 1..4
Job.Product.Operation.FullLocation	<p>The combination of location and sub location concatenated as "<b>Location. SubPosition</b>"</p> <p>Example #1: a product which was encoded on encode2 (e.g. unit position 6) in slot 3, this field would contain the text "6.3"</p> <p>Example #2: a product which engraved on parallel engrave 2 (e.g. unit position 18) on the B side of the rotating holder, this field would contain the text "18.B"</p>
Job.Product.Operation.ChipResultData	Optional. The customer dependent chip result information communicated via the chip result file will be communicated back through this xml element. Only present on operation ContactEncode or ContactLessEncode.

```
<?xml version="1.0" encoding="utf-8"?>
```

```

<Job xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance" xmlns:xsd="http://
www.w3.org/2001/XMLSchema">
  <Name>Test</Name>
  <RecipeName>recipe</RecipeName>
  <Status>Finished</Status>
  <StartTime xsi:nil="true" />
  <EndTime xsi:nil="true" />
  <Product>
    <JobDefinedNumber>0</JobDefinedNumber>
    <ErrorCode />
    <Status>OK</Status>
    <StartTime>2020-04-17T17:04:02.0229955+02:00</StartTime>
    <EndTime>2020-04-17T17:04:50.8781769+02:00</EndTime>
    <Operation>
      <Name>Engrave</Name>
      <Status>Done</Status>
      <StartTime>2020-04-17T17:04:22.1471817+02:00</StartTime>
      <EndTime>2020-04-17T17:04:22.1522129+02:00</EndTime>
      <Location>10</Location>
      <SubLocation>A</SubLocation>
      <ChipResultData>customer dependent...</ChipResultData>
    </Operation>
  </Product>
</Job>

```

## Job activation

Description	<p>Send the job status to the host when the job is started. When an error occurs the job is not started and production is paused.</p> <p>Note: the machine will wait for this call to complete, slow handling of this call can affect the performance of the machine.</p>
Direction	<p>Machine – client</p> <p>Host – server</p>
URL	Configurable
Method	POST
Request content	See "Reply Content" of "Job and product status"
Reply content	<ul style="list-style-type: none"> <li>• Always empty</li> <li>• In case of OK: http status 200</li> <li>• In case of not OK: job will not start.</li> </ul>

## Job end

Description	Send the job status to the host when the job is finished. Errors are ignored.
Direction	Machine – server Host – client
URL	Configurable
Method	POST
Request content	See "Reply Content" of "Job and product status"
Reply content	<ul style="list-style-type: none"> <li>• Always empty</li> <li>• Errors are ignored</li> </ul>

## Snapshots

Description	<p>Request all verification snapshots for a job. Verification snapshots become available as soon as a product has been finished.</p> <p>Optionally the reduceResolutionPercentage can be set to indicate a resolution reduction. For example: when this value is set to 50, a snapshot of 1000x1000 will be send as 500x500.</p> <p>Another option is the filtering based upon jobDefinedNumber and/or documentNumber. This allows to retrieve only the snapshots for one product. Filtering on both numbers is possible, the product will have to match both numbers in that case.</p> <p>Arguments have to be separated by the '&amp;' character.</p>
Direction	Machine – server Host – client
URL	<p>http://{MachineName}/Host/Snapshots/{JobID}.xml</p> <p>http://{MachineName}/Host/Snapshots/{JobID}.xml?reduceResolutionPercentage=50</p> <p>http://{MachineName}/Host/Snapshots/{JobID}.xml?jobDefinedNumber={value}</p> <p>http://{MachineName}/Host/Snapshots/{JobID}.xml?documentNumber={value}</p>
Method	GET

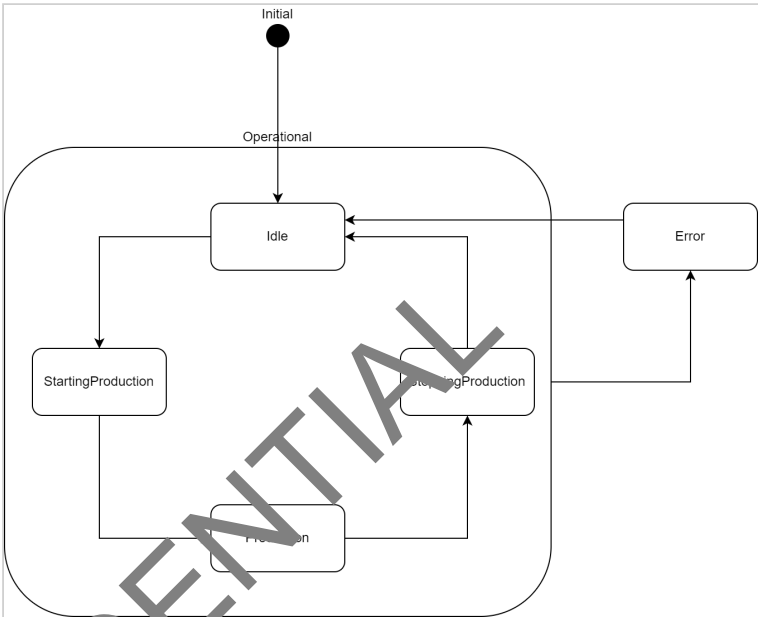
Request content	Empty
Reply content	<ul style="list-style-type: none"> <li>• See below</li> <li>• In case of OK: http status 200</li> <li>• In case of job or document not found: http status 400</li> </ul>

## Reply Content

Parameter	Value
Job.Name	The unique name of the job
Job.Product	A list of all finished products in the job.
Job.Product.JobDefinedNumber	The number as defined in the job.
Job.Product.DocumentNumber	Optional. The number read from the physical document (either by barcode/chip/cdr).
Job.Product.Snapshot	A list of all available snapshots for the product.
Job.Product.Snapshot.Id	The unique name of the snapshot.
Job.Product.Snapshot.Content	Base64 encoded content of the snapshot.

```
<?xml version="1.0" encoding="utf-8"?>
<SnapshotOverview xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance" xmlns:xsd="http://www.w3.org/2001/XMLSchema">
  <JobName>Test</JobName>
  <Product>
    <JobDefinedNumber>0</JobDefinedNumber>
    <Snapshot Id="snap.jpg">/9j/4AAQSA</Snapshot>
  </Product>
  <Product>
    <JobDefinedNumber>1</JobDefinedNumber>
    <Snapshot Id="snap.jpg">/9j/4AAQSkZJR</Snapshot>
  </Product>
</SnapshotOverview>
```

Machine status

Description	<p>Requests the status of the machine. The status follows this state diagram:</p> 
Direction	Machine – server Host – client
URL	http://{MachineName}/Host/machinestatus/
Method	GET
Request content	Empty
Reply content	<ul style="list-style-type: none"><li>• See below</li><li>• http status 200</li></ul>

Reply Content

Parameter	Value
-----------	-------

Status	<ul style="list-style-type: none"> <li>• Idle</li> <li>• StartingProduction</li> <li>• Production</li> <li>• StoppingProduction</li> <li>• Error</li> </ul>
--------	---

```
<?xml version="1.0" encoding="utf-8"?>
<MachineStatusData>
<Status>Idle</Status>
</MachineStatusData>
```

## Machine Status push

Description	Send the machine status to the host upon change. Errors are ignored
Direction	Machine – client Host – server
URL	Configurable
Method	POST
Request content	See "Reply Content" of "Machine status"
Reply content	<ul style="list-style-type: none"> <li>• Always empty</li> <li>• Errors are ignored</li> </ul>

## Alarms

Description	Requests all the occurred alarms on the machine. Alarms are reset when the machine is restarted and a maximum of 100 alarms is cached. As part of the URL the date/time from which the alarms should be shown can be given, providing a way to filter out alarms that have already been detected.
Direction	Machine – server Host – client
URL	<a href="http://{MachineName}/Host/alarms/">http://{MachineName}/Host/alarms/</a> <a href="http://{MachineName}/Host/alarms/?2020-04-23T12:35:56.6020589+02:00">http://{MachineName}/Host/alarms/?2020-04-23T12:35:56.6020589+02:00</a>

Method	GET
Request content	Empty
Reply content	<ul style="list-style-type: none"> <li>• See below</li> <li>• In case of OK: http status 200</li> <li>• In case of job not found: http status 400</li> </ul>

## Reply Content

Parameter	Value
Alarm	A list of alarms
Alarm.Time	The date/time this alarm has occurred.
Alarm.Type	Error – error will cause the machine to stop and it will not be available for production until resolved Warning – an event occurred which requires attention, but it does not block production.
Alarm.Message	The English message as shown to the user.
Alarm.ErrorCode	A code which represents the error. Starts with E for error, W for warning, followed by a unique identifier.

```

<?xml version="1.0" encoding="utf-8"?>
<Alarms>
  <Alarm>
    <Time>2020-04-23T12:30:36.5850044+02:00</Time>
    <Type>Error</Type>
    <Message>Could not activate job Test</Message>
    <ErrorCode>E74.1685</ErrorCode>
  </Alarm>
</Alarms>

```

## Alarms push

Description	Send the machine alarm to the host upon occurrence. Errors are ignored
-------------	--

Direction	Machine – client Host – server
URL	Configurable
Method	POST
Request content	See "Reply Content" of "Alarms"
Reply content	<ul style="list-style-type: none"> <li>• Always empty</li> <li>• Errors are ignored</li> </ul>

## Message to operator

Description	Pushes a message from the host to the machine to notify the operator.
Direction	Machine – server Host – client
URL	http://{machine Name}/Host/Messages/
Method	POST
Request content	Raw string to be displayed to operator.
Reply content	<ul style="list-style-type: none"> <li>• Empty</li> <li>• Http status 200</li> </ul>



## Personal data

Description	<p>Requests the personal information from the system of the customer. The url is configurable in the IAI system. Three parameters can be added that depend on product parameters:</p> <ul style="list-style-type: none"> <li>• JobName</li> <li>• JobDefinedNumber (the number of the product in the job)</li> <li>• DocumentNumber (the number read from the product)</li> </ul> <p>The IAI system will request the information once all data is available to do the request and before it is required by one of the processes in the machine.</p>
Direction	<p>Machine – client Host – server</p>
URL	Configurable. Example: http://host/{JobName}/{JobDefinedNumber}{DocumentNumber}.xml
Method	GET
Request content	Empty
Reply content	<ul style="list-style-type: none"> <li>• See below</li> <li>• Errors will be logged and the associated product will be marked as network by the IAI machine.</li> </ul>

## Reply content

The system uses separate data files for each operation (e.g. ImagePerf, NumberPerf, Laser-Engraving, etc). The exact naming and content of these files are described in next chapter. Thus, depending on the configuration of the machine the required data files can be different. The data structures and formats, which the system(s) uses for their operations, are given separately in an overview below. The content of file is expected to be base64 encoded data. When the same file should be used for multiple inputs a reference can be made. In this case the content needs to be empty and the reference needs to be equal to the ID of the referenced file. Aspect-ratio, file type and required minimal resolution should be compatible between referenced files.

```
<?xml version="1.0" encoding="utf-8"?>
<Files xmlns:xsd="http://www.w3.org/2001/XMLSchema" xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance" xsi:noNamespaceSchemaLocation="../../../Schemas/Files.xsd">
  <File Id="_CINK.txt">AQJLZg==</File>
  <File Id="..." Reference="_CINK.txt" />
  <File Id="...">AQJLZg==</File>
</Files>
```

## Jobfiles

Jobfiles are used to tell the system which processes, layouts and data to use.

### JobFile BMO 2.x specification

Parameter	Value
Format	XML encoding UTF-8
Filename	<name>.job e.g. 123E456.job
Postfix	Not Applicable
Extension	Job
Name	Letters (A..Z) & digits (0..9) max 25 characters

### Contents

The XML file contains the following elements:

#### **RecipeName**

Name of machine recipe file which defines which operations are applied, e.g. RegularPassport.rcp. The customer can define the desired names for the different types of products, and IAI will supply these recipe files preinstalled on the system.

#### **UseNumberReading**

Boolean (true/false) that defines if the machine should read a number from the document. The NumberReadingType defines what kind of number reading is applicable (e.g. barcode).

#### **NumberReadingType**

Can be Barcode or Chip, defaults to Barcode. Barcode means in this case, depending on the recipe/machineconfiguration to read a visible identification of the document, not only a barcode itself.

#### **JobScenario**

Defines the data files reference number scenario. Data files will be collected from the host according to the numbers created by the scenario. The following values are available:

##### JobDefinedNumber

When this scenario is chosen the product numbers that must be processed for the given job, are prescribed in the job file itself (in the element <ProductNumbers>). The value of each element must be unique and will be used as data file reference. Hence it should only contain valid filename characters. Space character is not allowed.

##### ReadNumber

The number will be read from the product, e.g. by a barcode reader installed in the machine.

### ProductNumbers

If JobData.JobScenario is set to JobDefinedNumber, the products that must be processed by this job are specified in this section.

### ReadNumbersInFixedOrder

When this value is set to true, the product number is read from the product, and the order of the products that are entered into the machine is prescribed by the list of product numbers in the (in the element <ProductNumbers>).

### DeleteHostDataOnOutput

If set to true, the data files of a product are removed when a product is taken out of the system (either to the output tray, the reject/rework bins or when a product is taken out of the system manually).

### DataLocation

Optional path that defines the data file location per job. If this element is not filled in, then the path from the CustomerConfiguration.xml is used to determine the location of the job.

Note: in the CustomerConfiguration it is also possible to define the data to be stored per job, this is done using the \$JobName tag in the path name (e.g. <DataLocationOnHost>S:\LocalHost\PersonalData\JobName</DataLocationOnHost>)

### AutoQueue

Optional, if true the job will be added to the queue automatically.

### Priority

Optional for use when AutoQueue is enabled. A higher priority will be executed before jobs in the queue with a lower priority.

### Inputs/Outputs

Optional for use when AutoQueue is enabled. Selects the index for the inputs/outputs to use.

#### Example

```
<?xml version="1.0" encoding="utf-8" ?>
<JobData xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance" xmlns:xsd="http://
www.w3.org/2001/XMLSchema">
  <Description>Example</Description>
  <RecipeName>ExamplePassport.rcp</RecipeName>
  <UseNumberReading>>false</UseNumberReading>
  <JobScenario>JobDefinedNumber</JobScenario>
  <ReadNumbersInFixedOrder>>false</ReadNumbersInFixedOrder>
  <ProductNumbers>001</ProductNumbers>
  <ProductNumbers>002</ProductNumbers>
</JobData>
```

## Production scenarios

Below the supported scenario's, with their corresponding properties in the job file.

	<b>JobData. UseNumber Reading</b>	<b>JobData. JobScenario</b>	<b>JobData. ReadNumber sInFixedOrder</b>	<b>JobData. NumberOfProducts</b>	<b>File checking</b>
Product number in job, no number reading	False	JobDefined Number	N/A	N/A	All files for all defined products should be present when loading job
Product number in job, with number reading, fixed order	True	ReadNumber	true	N/A	All files for all defined products should be present when loading job
Product number in job, with number reading, no fixed order	True	ReadNumber	false	N/A	All files for all defined products should be present when loading job
No product number in job, with number reading	True	ReadNumber	N/A	Number of products in job	For each product the files are copied (thus must be present) after a specified operation

## JobFile CMO 3.x specification

<b>Parameter</b>	<b>Value</b>
Format	XML encoding UTF-8
Filename	<name>.job e.g. 123E456.job
Postfix	Not Applicable
Extension	Job
Name	Letters (A..Z) & digits (0..9)Max 25 characters

<b>ReadNumber</b>	Optional <b>Element</b>	Whether the machine should read a number from a card	true/false
<b>NumberReadingType</b>	This <b>Element</b> is only mandatory in case <b>ReadNumber</b> is set to true.	Defines the media used to read the number	Barcode Vision ContactChip ContactlessChip
<b>ReadNumberAsProductNumber</b>	This <b>Element</b> only is used when <b>ReadNumber</b> is set to true	When set to true, the read number is used as product number, which means that the SystemControl will use the number as reference to find the product data	Numbers and characters. E.g. ABC123456
<b>SuspectDestination</b>	Optional <b>Element</b>	The output destination used for suspect products	Internal reject bin: 0 Cassettes: 1-8
<b>ReworkDestination</b>	Optional <b>Element</b>	The output destination used for rework products	Internal reject bin: 0 Cassettes: 1-8
<b>RejectDestination</b>	Optional <b>Element</b>	The output destination used for reject products	Internal reject bin: 0 Cassettes: 1-8
<b>Products</b>	Mandatory <b>Element</b>	The list of products that are used in the job. The next section defines the product element.	

## Products

<b>Product</b>	Mandatory <b>Element</b>	Represents a product, a card.	
<b>Number</b>	Optional <b>Attribute</b> When reading product numbers. Mandatory otherwise	The product number for this product. An alpha-numerical reference to the product data required for the product	e.g. XA00001, XA00002 etc
<b>Recipe</b>	Mandatory <b>Attribute</b>	A reference to the recipe used to create this product	A relative path to the recipe. E.g. IAI_Card\IAI.rcp
<b>Inputs</b>	Mandatory <b>Element</b>	A definition of list of input cassettes	See the cassette definition below
<b>Outputs</b>	Mandatory <b>Element</b>	A definition of list of output cassettes	See the cassette definition below

## Inputs

<b>Cassette</b>	Mandatory <b>Element</b>	A definition of the cassette	
<b>Index</b>	Mandatory <b>Attribute</b>	An index of the cassette	1-8

## CMO 3.x Job example

The example below defines two products. All products are defined **without** product numbers, as they are read from the card.

```

<?xml version="1.0"?>
<Job xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance" xmlns:xsd="http://
www.w3.org/2001/XMLSchema">
  <SuspectDestination>7</SuspectDestination>
  <ReworkDestination>8</ReworkDestination>
  <RejectDestination>0</RejectDestination>
  <ReadNumber>true</ReadNumber>
  <NumberReadingType>ContactChip</NumberReadingType>
  <ReadNumberAsProductNumber>true</ReadNumberAsProductNumber>
  <Products>
    <Product Number="XA0001" Recipe="IAI_Card\U10_ID_Card.rcp">
      <Inputs>
        <Cassette Index="1" />
        <Cassette Index="2" />
        <Cassette Index="3" />
        <Cassette Index="4" />
      </Inputs>
      <Outputs>
        <Cassette Index="1" />
        <Cassette Index="2" />
        <Cassette Index="3" />
      </Outputs>
    </Product>
    <Product Number="XA0002" Recipe="IAI_Card\U10_ID_Card.rcp">
      <Inputs>
        <Cassette Index="1" />
        <Cassette Index="2" />
        <Cassette Index="3" />
        <Cassette Index="4" />
      </Inputs>
      <Outputs>
        <Cassette Index="1" />
        <Cassette Index="2" />
        <Cassette Index="3" />
      </Outputs>
    </Product>
  </Products>
</Job>

```

```

</Product>
</Products>
</Job>

```

### Job processing

The operator selects the appropriate job file from a list of job files on the display of the System. This list is a result of searching on the designated share on the host computer for all job files (\*.job). The operator can select more than one job via the job selection screen. A job can have the following status reflected in the extension:

State	Extension
New	.job
Active	.active
Done	Job file is removed

When a job is queued, the system verifies if all the related operation files are available on the host computer. Only when all files are available, the system will accept the job. A started job can either be completed, or aborted at any time after the job was started.

#### Completing a job:

When a job is completed the job file is deleted on the host. A job will be completed when all products for that job are taken in from the input hopper, and are either transported to the output bins (output tray/rework/reject) or taken out of the machine manually due to an error.

#### Aborting a job:

When a job is aborted, the job file will be deleted on the host. Additionally the documents that are not already in production will be marked as remake (audit file on host will be renamed to \*.RMK0\_0). Products which were already in the machine at the time of the job abort, will be finished as normal.

## Encryption and authentication

Both the http and the WebDav interfaces support encryption using SSL. These mechanisms rely on the certificates for both encryption and authentication. The customer is responsible for providing the certificate and keys and thus for the certificate and key infrastructure. The machine can run in the following modes:

Description	Http	WebDav	Certificates on machine
No encryption	Supported	Not supported	None
Encryption Machine authentication – host validates machine	Supported	Not supported	Root certificate Machine certificate Machine private key

Encryption Machine authentication Client authentication by root – machine validates host by checking if certificate is signed by correct root	Supported	Not supported	Root certificate Machine certificate Machine private key
Encryption Machine authentication Client authentication by host – machine validates host by checking if certificate is the expected host certificate	Supported	Supported	Root certificate Machine certificate Machine private key Host certificate

The following key formats are supported:

Description	Format
Machine certificate + private key	p12
Root certificate	cer
Host certificate	cer

## Versioning

With software updates or new machines a newer version of interface can become available. The following strategy is followed:

- Any communication that is received from the host system will remain compatible with the same functionality. Any modifications will be additions which do not modify the existing behaviour.
- Any communication that is sent by the machine might contain extra information, but existing fields will not be removed or changed behaviour.

If for whatever reason the interface cannot be kept compatible, the customer will be informed.



## Data File Structures

The system uses separate data files for each operation (e.g. ImagePerf, NumberPerf, Laser-Engraving, etc). The exact naming and content of these files are described in next chapter. Thus, depending on the configuration of the machine the required data files can be different. The data structures and formats, which the system(s) uses for their operations, are given separately in an overview below.

## Laser engraving, document data personalisation

The personalised data for laser engraving will meet the following specifications:

Parameter	Value
Format	<b>UNICODE</b> format (UCS-2 Little Endian) 2 bytes per character, files starts with Unicode file specifier 0xFFFE
Filename	<data file reference identification>_<postfix>.<extension> e.g. A1234567_LET.txt
Postfix filename	LET (Laser Engraved Text)
Extension	Txt
Contents	Personalised data like surname, given name, place of birth, etc by means of <data element>=<content> defined in section LET_Data. Quotes are not engraved and no length checking will be performed! E.g. [LET_Data] state = "UTO" nationality = "Utopian" surname = "IAI" given_names = "IAI" date_of_birth = "680513" place_of_birth = "ANYWHERE" address = "De Run" residence = "VILLAGE" authority = "You" date_of_issue = "040909" date_of_expiry = "090909" sex = "M" length = "1,78 m" personal_no = "12345682" MRZ1 = "P<UTOVON<UTOPIA<<UTONIS<<<<<<<<<<<<<<<<<<<" MRZ2 = "AB123456<4UTO5711185M1210222123456789<<<<<70" MRZ3 = "<<<<" (only for id cards)

**Table 3: Specification laser-engraved personalised data**

## Laser Engraving, document photograph personalisation

The document photograph data for laser-engraving will meet the following specifications:

Parameter	Value
Format	<b>JPEG</b> format: <ul style="list-style-type: none"> <li>• Compression quality 80</li> </ul>
Postfix filename	LEI1 (Laser Engraving Image 1)
Filename	< data file reference identification >_<postfix>.<extension>e.g. A1234567_LEI1.jpg
Extension	Jpg
Resolution	To be defined by IAI
Ratio	To be defined by IAI
Size	To be defined by IAI
Background colour of the photograph	To be defined by IAI
Contents	Document photograph

**Table 4: Specification document photograph data for laser-engraving**

## Laser Engraving, document signature personalisation

The document signature data for laser-engraving will meet the following specifications:

Parameter	Value
Format	<b>JPEG</b> format: <ul style="list-style-type: none"> <li>• Compression quality 80</li> </ul>
Postfix filename	LEI2 (Laser Engraving Image 2)
Filename	< data file reference identification >_<postfix>.<extension>e.g. A1234567_LEI2.jpg

Extension	Jpg
Resolution	To be defined by IAI
Ratio	To be defined by IAI
Size	To be defined by IAI
Background colour of the photograph	To be defined by IAI
Contents	Document signature

**Table 5: Specification document signature data for laser-engraving**  
**Laser Engraving, document MLI image personalisation**

The document MLI image data for laser-engraving will meet the following specifications:

Parameter	Value
Format	<b>JPEG</b> format <ul style="list-style-type: none"> <li>• Compression quality 80</li> </ul>
Postfix filename	LEI3 (Laser Engraving Image 3)
Filename	< data file reference identification >_<postfix>.<extension>e.g. 1234567_LEI3.jpg
Extension	Jpg
Resolution	To be defined by IAI
Ratio	To be defined by IAI
Size	To be defined by IAI
Contents	MLI image

**Table 6: Specification document MLI image data for laser-engraving**

## Laser Engraving, document CLI image personalisation

The document CLI image data for laser-engraving will meet the following specifications:

Parameter	Value
Format	<b>JPEG</b> format: <ul style="list-style-type: none"> <li>• Compression quality 80</li> </ul>
Postfix filename	LEI4 (Laser Engraving Image 4)
Filename	< data file reference identification >_<postfix>.<extension>e.g. A1234567_LEI4.jpg
Extension	Jpg
Resolution	To be defined by IAI
Ratio	To be defined by IAI
Size	To be defined by IAI
Contents	CLI image

**Table 7: Specification document CLI image data for laser-engraving**

## Laser Engraving, document SLI images (4x) personalisation

The document SLI images data for laser-engraving will meet the following specifications:

Parameter	Value
Format	<b>JPEG</b> format: <ul style="list-style-type: none"> <li>• Compression quality 80</li> </ul>
Postfix filename	LEI5 (Laser Engraving Image 5) LEI6 (Laser Engraving Image 6) LEI7 (Laser Engraving Image 7) LEI8 (Laser Engraving Image 8)
Filename	< data file reference identification >_<postfix>.<extension>e.g. A1234567_LEI5.jpg, A1234567_LEI6.jpg, A1234567_LEI6.jpg, A1234567_LEI8.jpg
Extension	Jpg
Resolution	To be defined by IAI

Ratio	To be defined by IAI
Size	To be defined by IAI
Contents	SLI images(4x)

**Table 8: Specification document SLI images (4x) data for laser-engraving**

## ImagePerf, document photograph personalisation

The document photograph data for ImagePerf will meet the following specifications:

Param	Value
Format	<b>JPEG</b> format: <ul style="list-style-type: none"> <li>• Compression quality 80</li> </ul>
Postfix filename	IP (ImagePerf)
Filename	< data file reference identification >_<postfix>.<extension> e.g. A1234567_IP.jpg
Extension	jpg
Resolution	300 x 400 pixels
Ratio	3:4
Size	Approximately 16 Kbytes
Background colour of photograph	Uni-coloured, max. 18% grey
Contents	Document photograph

**Table 9: Specification document photograph data for ImagePerf**

## Tilted Laser Number

The document data for Tilted Laser Number will meet the following specifications:

Parameter	Value
Format	<b>ASCII</b> format

Postfix filename	TLN
Filename	<data file reference identification>_<postfix>.<extension> e.g. A1234567_TLN.txt
Postfix filename	TLN
Extension	Txt
Contents	Date of birth in format: mmyyyy. E.g. 061962

**Table 10: Specification TLN Data**

## NumberPerf, document number personalisation

The document number data for NumberPerf will meet the following specifications:

Parameter	Value
Format	<b>ASCII</b> format
Postfix	NP (NumberPerf)
Filename	< data file reference identification >_<postfix>.<extension> e.g. A1234567_NP.txt
Extension	Txt
Size	Document number length.
Contents	Document number.

**Table 11: Specification NumberPerf data**

## Inkjet-printing, document special notes personalisation

The Special Notes data for inkjet-printing will meet the following specifications:

Parameter	Value
Format	<b>UNICODE</b> format (UCS-2 Little Endian) 2 bytes per character, files starts with Unicode file specifier 0xFFFE
Postfix	INK (Inkjet)

Filename	< data file reference identification >_<postfix>.<extension>e.g. A1234567_INK.txt
Extension	Txt
Minimum length	0 bytes
Contents	<Text><LF> All lines must end with a Linefeed character. The maximum number of lines is to be defined by IAI.
<text>	Special Notes.E.g. The bearer was registered at birth as: John Smith

**Table 12: Specification inkjet-printed Special Notes data**

## Label printing, document label text personalisation

The Label text data for label-printing will meet the following specifications:

Parameter	Value
Format	<b>UNICODE</b> format (UCS-2 Little Endian) 2 bytes per character, files starts with Unicode file specifier 0xFFFE
Filename	< data file reference identification >_<postfix>.<extension> e.g. A1234567_LAB.txt
Postfix filename	LAB (Label Text)
Extension	Txt
Contents	Personalised data by means of <data element>=<content> defined in section LAB_Data. Quotes are not printed! E.g. [LAB_Data] Personal_no = "1234567" surname = "IAI" given_names = "IAI" authority = "You" personal_no = "12345682"

Supported characters	ABCDEFGHIJKLMNOPQRSTUVWXYZ abcdefghijklmnopqrstuvwxyz 1234567890 /+ -= \ * _ < > " ' ` ?   ( ) & ^ % \$ # @ ! ~ , . ; : À Á Â Ã Ä Å Æ Ç È É Ê Ë Ì Í Î Ï Ñ Ò Ó Ô Õ Ö Ø Ù Ú Û Ü Ý Þ ß à á â ã ä å æ ç è é ê ë ì í î ï ñ ò ó ô õ ö ø ù ú û ü ý þ ß ù ú û ü ý þ ß ù ú û ü ý þ ß ù ú û ü ý þ ß ù ú û ü ý þ ß ù ú û ü ý þ ß ù ú û ü ý þ ß ù ú û ü ý þ ß ù ú û ü ý þ ß ù ú û ü ý þ ß ù ú û ü ý þ ß ù ú û ü ý þ ß ù ú û ü ý þ ß
Machine generated values <b>BookMasterOne only</b>	<p>Some values cannot be generated in advance by the host software, because they will only be known by the machine at production time. The following:</p> <p><i>fieldName</i> = %BOOKNUMBER%          with booknumber 123 will produce          fieldName = 123</p> <p>The %BOOKNUMBER% will be replaced by the value known at by the machine at production time. Multiple replacements, references to other fields and fixed texts can be combined:</p> <p><i>randomTextProducedByHostSystem</i> = RandomText  <i>generatedFields</i> = %BOOKNUMBER% fixedtext          %randomTextProducedByHostSystem%          with booknumber 123 will produce:          randomTextProducedByHostSystem = RandomText          generatedFields = 123fixedtextRandomText</p> <p><b>Available replacements by machine</b></p> <ul style="list-style-type: none"> <li>• BookNumber - the number read from the physical document</li> <li>• Status - the status of the document (OK, Reject, Rework, Suspect)</li> <li>• ErrorCode - the error code as defined in the chapter Error Codes in the form MajorErrorCode.MinorErrorCode</li> <li>• ErrorText - a detailed error description</li> <li>• ShortErrorText1 - first line of a abbreviated error description format</li> <li>• ShortErrorText2 - first line of a abbreviated error description format</li> <li>• JobName - name of the job this document belongs to</li> <li>• CreationDate - date the product is entered in the machine</li> <li>• Unit_Number - machine identifier</li> <li>• Day_Of_Month - day of the month (fixed to 2 digits)</li> <li>• Personalized_Product_Number - day counter of products excluding rework products</li> </ul>

Table 13: Specification label printing personalised data



## Colour Inkjet printing, document data personalisation

The personalised data for colour inkjet printing will meet the following specifications:

Parameter	Value
Format	<b>UNICODE</b> format (UCS-2 Little Endian) 2 bytes per character, files starts with Unicode file specifier 0xFFFE
Filename	< data file reference identification >_<postfix>.<extension> e.g. A1234567_CINK.txt
Postfix filename	CINK (Colour INKjet)
Extension	txt

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<b>Contents</b>	<p>Personalised data like surname, given name, place of birth, etc by means of &lt;data element&gt;=&lt;content&gt; defined in section CINK_Data. Quotes are not engraved and no length checking will be performed! Images are added by filename. A '*' can be used in the filename to refer to the product number, the software will replace the * with the product number of the book.</p> <p>E.g. (passport systems that deploy Colour Inkjet on the data page). [CINK_Data] state = "UTO" nationality = "Utopian" photo = "*_CINK1.JPG" signature = "*_CINK2.JPG" surname = "IAI" given_names = "IAI" date_of_birth = "680513" place_of_birth = "ANYWHERE" address = "De Run" residence = "VILLAGE" authority = "You" date_of_issue = "040909" date_of_expiry = "090909" sex = "M" length = "1,78 m" personal_no = "12345682" MRZ1 = "P&lt;UTOMON&lt;UTOPIA&lt;&lt;UTONIS&lt;" MRZ2 = "A&lt;123456&lt;4UTO05711185M1210222123456789&lt;&lt;&lt;&lt;&lt;70"</p> <p>E.g. (passport systems that deploy Colour Inkjet on page 3) [CINK_Data] height = 1.72 m eye_color = blue residence = Utopia City</p>
-----------------	--

Table 14: Specification printing personalised data

Document Colour inkjet printing, document photograph personalisation

In case of passport systems that deploy colour inkjet on the page 3 this data is optional. The document photograph data for colour inkjet printing will meet the following specifications:

Parameter	Value
Format	<b>JPEG</b> format: <ul style="list-style-type: none"> <li>• Compression quality 80</li> <li>• Colour image</li> </ul>
Postfix filename	CINK1 (Colour INKjet)

Filename	< data file reference identification >_<postfix>.<extension>e.g. A1234567_CINK1.jpg
Extension	Jpg
Resolution	720 DPI
Ratio	To be defined
Contents	Document photograph

**Table 15: Specification document photograph data for printing**

## Colour Inkjet printing, document signature personalisation

In case of passport systems that deploy colour inkjet on the page 3 this data is optional. The document data for inkjet printing will meet the following specifications:

Parameter	Value
Format	<b>JPEG</b> format <ul style="list-style-type: none"> <li>• Compression quality 80</li> <li>• Black and white image</li> </ul>
Postfix filename	CINK2 (Color INKjet)
Filename	< data file reference identification >_<postfix>.<extension>e.g. A1234567_CINK2.jpg
Extension	jpg
Resolution	720DPI
Ratio	To be defined
Contents	Document signature

**Table 16: Specification document signature data for printing**

## Visual Inspection, document MRZ information

MRZ information is used for visual inspection of laser engraved or colour inkjet printed MRZ data and meets with the following specification:

<b>Parameter</b>	<b>Value</b>
Format	<b>ASCII</b> format
Postfix filename	MRZ (Machine Readable Zone)
Filename	< data file reference identification >_<postfix>.<extension> e.g. A1234567_MRZ.txt
Extension	Txt
Size	Passport: 88 bytes, bytes 1 to 44 containing the upper MRZ line, bytes 45 to 88 containing the lower MRZ line. The file contains no LF.
	ID: 90 bytes, bytes 1 to 30, containing upper MRZ line, bytes 31 to 60, containing middle MRZ line, bytes 61 to 90, containing lower MRZ line.
Contents	MRZ-data  E.g. (passports) P<UTOVON<UTOPM<UTONIS<<<<<<<<<<<<<<<<<<<<< AB123456<4UTO<711185M1210222123456789<<<<<70  E.g. (ID) I<UOS1234567<2A0000000<<<<<<7 80513<M090814OUTO<<<<<<<<<<4 VAN<DEN<AKKEREN<<JOHANNES<<<<<

**Table 17: Specification MRZ data**

## Electronic chip inspection, document MRZ information

ICAO Data Group 1 information is used for electronic chip inspection of personalised documents and meets with the following specification:

Parameter	Value
Data Group number	DG 1
Format	<b>BINARY</b> -format
Postfix	DG1

Filename	< data file reference identification >_<postfix>.<extension> e.g. A1234567_DG1.bin
Extension	Bin
Contents	MRZ data

**Table 18: Specification microchip programmable Data Group 1**

## Magstripe

The personalised data for magstripe will meet the following specifications:

Parameter	Value
Format	<b>UNICODE</b> format (UCS-2 Little Endian) 2 bytes per character, files starts with unicode file specifier 0xFFFE
Filename	<data file reference identification>_<postfix>.<extension> e.g. A1234567_magstripe.txt
Postfix filename	magstripe
Extension	Txt

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Contents	<p>According to ISO/IEC 7811-6. Content does not include sentinel characters, and is enclosed in double quotes (") or single quotes ('). No text after the closing quote.</p> <p>[Data]</p> <p>Track1 = "ABCDEF"</p> <p>Track2 = "0123456789"</p> <p>Track3 = "0123456789"</p> <p>All tracks are optional, in case a track is omitted from the personalised data, this track will be untouched on the card.</p> <p>Tracks can be cleared by including the track in the personalised data, but defining it empty, the next example will clear all data from the card.</p> <p>[Data]</p> <p>Track1 = ""</p> <p>Track2 = ""</p> <p>Track3 = ""</p>
----------	---

Table 19: Specification magstripe personalized data

## Status files

The extension of a status file is used to give the status of a product in the system. The status file will either be provided by the host environment, and when it is not provided it will be created by the IAI software on the host share.

- When a product is inserted, a status with extension <product\_number>sts.txt will be created.
- When the first operation is applied, the file is renamed to <product\_number>sts.**IBW**.
- When the document is successfully processed by the personalisation system, the file is renamed to <product\_number>sts.**OK**.
- When an error occurred during the processing of the document, the file is renamed to <product\_number>sts.**REJ[errorcode]**.
- When the product is not physically touched by any process, the file is renamed into <product\_number>sts.**RMK[errorcode]**.
- When the product is marked as suspect (e.g. by verification), the file is renamed into <product\_number>sts.**SUS[errorcode]**. There is also an option in the customer configuration, SuspectStateOnHost, to mark suspect products either as reject or as OK.
- When the operator aborts a job, all host files of the unused numbers are deleted. The extension is renamed into <product\_number>sts.**RMK**.

The error code is represented by a global error and a specific error (GLOBALERROR\_SPECIFICERROR, e.g. 3\_32). Thus the filename of a rejected product will be e.g. <productnumber>sts.**REJ\_13\_32**. In the next section the meaning of the known error codes.

## Additional Status files

### CSV Audit File

In addition to the current status files there is a possibility to extend the information.

Every time a booklet is leaving the machine a CSV file is created providing the following information:

- JobName
- ProductNumber
- Barcode
- ChipResultData
  - Every time a passport is processed by the encode unit and is done successfully the integrator application gives a Chip Result Data back. The integrator can define a custom key to store the data.
- Date
- Time
- UserName
- MachineNumber
- GlobalDocStatus
  - Decimal number, existing error code major number
  - In case product has not been touched, this value is -1 to indicate a rework
  - In the special case that an unknown error has occurred, the GlobalDocStatus will be -2 indicating it has been rejected and the DetailedDocStatus will be 0.
- DetailedDocStatus
  - Decimal number, existing error code minor number
- RecipeName, (BMO only)
- EncodeLocation (BMO only)

- According to the format *location-sublocation*, where the location is the unit number within the machine and the sublocation is the location within the encode unit itself (1-4)
- For example: 6-1.
- Will be empty for aborted products.
- EngraveLocation (BMO only)
  - According to the format *location.side*, where the location is the unit number within the machine and the side is the side of the exchanger on which the product was (A or B)
  - For example: 17-A.
  - Will be empty for aborted products.

## XML Audit File

XML Audit Files give an insight where all the different products has been produced. Once the job has finished a file is generated showing which operations has been executed on the different products in the job. See example below:  
[Http Description](#)

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## Error codes

The personalisation system knows the following global reject codes:

Global reject code	Name	Meaning
0	UNKNOWN_ERROR	An error has been generated where no other error code is defined for, the detailed error code will always be 0.
1	HOST_ERROR	Errors that occur when reading or writing files on the host
2	INSPECTION_ERROR	Process verification errors (vision and encoding)
3	SYSTEM_ERROR1	System failure errors during processing a document
4	SYSTEM_ERROR2	System failure errors during processing a document
5	MEASUREMENT_ERROR	Measurement error (fiducial, barcode, etc)
6	DOC_MISSING_ERROR	Document is manually removed from the system

**Table 20: Global reject codes**

Detailed reject	Name	Meaning
1	HOST_FILE_MISSING	Host file was removed after job loading and validating or bad or no network connection
2	HOST_FILE_ERROR	Host file reading error due to incorrect file content or bad network connection
4	HOST_FILE_CREATE	Host file creation error due to bad or no connection. This code can only be regained in the system loggings.
8	NP_MRZ_MISMATCH	Host file NP and MRZ have different document number
16	NUMBER_JOB_LOOKUP	Number is not available in the job file
32	Reserved for future use	

**Table 21: Host error codes**

Detailed reject code	Name	Meaning
1	NUMBER_ERROR	Pre-applied number could not be read by the number reader
2	FIDUCIAL_ERROR	Fiducial marker on document could not be measured by the vision system

**Table 22: Measurement error codes**

Detailed reject code	Name	Meaning
1	INSPECTION_FAIL_IP	Vision inspection failure on ImagePerf (holder page)
2	INSPECTION_FAIL_NP	Vision inspection failure on NumberPerf
4	INSPECTION_FAIL_PHOTOENGR AVE	Vision inspection failure on engraved Photo (holder page)
8	INSPECTION_FAIL_MRZENGRAVE	Vision inspection failure on engraved MRZ (holder page)
16	INSPECTION_FAIL_PRINT1	Vision inspection failure on Notes Printing
32	INSPECTION_FAIL_TEXT	Vision inspection failure on Text
64	INSPECTION_FAIL_TLN	Vision inspection failure on TLN
128	INSPECTION_FAIL_CHIP	Chip inspection (DG1) failure
256	INSPECTION_FAIL_MRZCINKJET	Vision inspection failure on printed MRZ
512	INSPECTION_FAIL_PHOTOCINKJET	Vision inspection failure on printed photo
1024	INSPECTION_FAIL_MRZ	
2048	INSPECTION_FAIL_FEATURE	Vision inspection failure on Feature Image
4096	INSPECTION_FAIL_SIGNATURE	Vision inspection failure on Signature Image

8192	INSPECTION_FAIL_BACKTEXT	Vision inspection failure on backside engraving text
16384	INSPECTION_FAIL_BACKCHIP	Chip inspection (DG1) failure
32768	INSPECTION_FAIL_DATA	Failure of inspection of crosscheck between printed/engraved data and the MRZ
65536	Reserved for future use	
131072	INSPECTION_FAIL_UV	Vision inspection failure of UV print
262144	INSPECTION_FAIL_PHOTO	

**Table 23: Inspection Errors**

Detailed reject code	Name	Meaning
1	IP_CREATION	System failure preparing data for ImagePerf
2	NP_CREATION	System failure preparing data for NumberPerf
4	PHOTO_CREATION	System failure preparing data for Photo Engraving
8	DATA_CREATION	System failure preparing data for Data/MRZ Engraving
16	PRINT_CREATION	System failure preparing data for Notes Printing
32	VISION_CREATION	System failure preparing data for Vision Inspection
64	LABEL_CREATION	System failure preparing data for Label Printing
128	FATAL_ERROR	System failure status of document is indefinite

256	ENCODING_CREATION	System failure, preparing data for encoding chip
512	ENCODING_TIMEOUT	System failure, timeout encoding chip
1024	MLI_CREATION	System failure preparing data for MLI Engraving
2048	Reserved for future use	
4096	CINK_CREATION	System failure preparing data for Colour Inkjet

**Table 24: System Errors 1**

Detailed reject code	Name	Meaning
1	CHIP_ENCODING_PROCESS_ERROR	Chip encoding station, processing error
2	MACHINE_PROCESS_ERROR	A reason why the transport system rejects a product
4	LASER_ENGRAVING_1_PROCESS_ERROR	Laser engraving station 1, processing error
8	LASER_ENGRAVING_2_PROCESS_ERROR	Laser engraving station 2, processing error
16	LASER_ENGRAVING_3_PROCESS_ERROR	Laser engraving station 3, processing error
32	LASER_ENGRAVING_4_PROCESS_ERROR	Laser engraving station 4, processing error
64	IMAGEPERF_1_PROCESS_ERROR	ImagePerf station 1, processing error
128	NUMBERPERF_PROCESS_ERROR	NumberPerf station, processing error
256	IMAGEPERF_2_PROCESS_ERROR	ImagePerf station 2, processing error
512	CINKJET_PRINTING_PROCESS_ERROR	Colour Inkjet printer station, processing error

1024	INKJET_PRINTING_PROCESS_ERROR	B&W Inkjet printer station, processing error
2048	LABEL_PRINTING_PROCESS_ERROR	Label printer station, processing error
4096	LASER_ENGRAVING_5_PROCESS_ERROR	Laser engraving station 5, processing error
8192	LASER_ENGRAVING_6_PROCESS_ERROR	Laser engraving station 6, processing error
16384	ENCODING_READER_1_PROCESS_ERROR	Reader 1
32768	ENCODING_READER_2_PROCESS_ERROR	Reader 2
65536	ENCODING_READER_3_PROCESS_ERROR	Reader 3
131072	ENCODING_READER_4_PROCESS_ERROR	Reader 4
262144	ENCODING_READER_5_PROCESS_ERROR	Reader 5
524288	ENCODING_READER_6_PROCESS_ERROR	Reader 6
1048576	ENCODING_READER_7_PROCESS_ERROR	Reader 7
2097152	ENCODING_READER_8_PROCESS_ERROR	Reader 8
4194304	ENCODING_READER_9_PROCESS_ERROR	Reader 9
8388608	ENCODING_READER_10_PROCESS_ERROR	Reader 10
16777216	ENCODING_READER_11_PROCESS_ERROR	Reader 11

33554432	ENCODING_READER_12_PROCESS_ERROR	Reader 12
67108864	ENCODING_READER_13_PROCESS_ERROR	Reader 13
134217728	ENCODING_READER_14_PROCESS_ERROR	Reader 14
268435456	ENCODING_READER_15_PROCESS_ERROR	Reader 15
536870912	ENCODING_READER_16_PROCESS_ERROR	Reader 16
1073741824	MAGSTRIPE_PROCESS_ERROR	Magstripe processing error
2147483648	LEFI1_PROCESS_ERROR	LEFI engraving station 1, processing error
4294967296	LEFI2_PROCESS_ERROR	LEFI engraving station 2, processing error
8589934592	BACK_ENGRAVING_1_PROCESS_ERROR	Laser engraving station 1, back side, processing error  Note: available from BMO version 2.21.x and higher
17179869184	BACK_ENGRAVING_2_PROCESS_ERROR	Laser engraving station 2, back side, processing error  Note: available from BMO version 2.21.x and higher

**Table 25: System Errors 2**

Detailed reject code	Name	Meaning
1	MISSING_AT_STARTUP	Document present, according to system administration is not detected by the document sensor at system start-up.

2	MISSING_BY_OPERATOR	While system is in standby, the operator removes a document and confirms removal to the system administration.
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**Table 25: Document missing errors**

As an example when a document has the following extension A1234567\_STS.REJ2\_3, this means that the Inspection unit has detected an error on the ImagePerf and NumberPerf.

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