

Alcohol Interlock – Log Format

Transportstyrelsen

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1.1 Version history

The original of this document is handled in the document handling system of Transportstyrelsen (the Swedish transport agency). This document is a copy of the original in the document handling system. The latest version is always available in the electronic document handling system.

Version history of this document is handled in the document handling system.

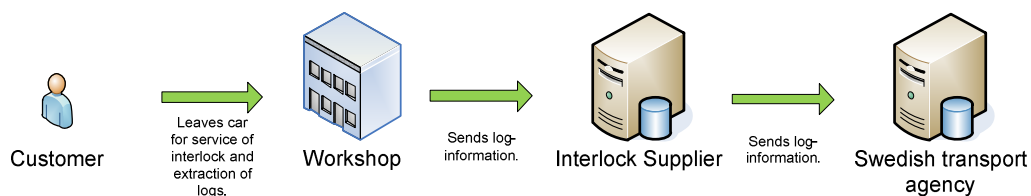
Ver	Date	Author	Reason
3.0	2011-09-26	Mattias Olgerfelt	
3.1	2011-11-23	Daniel Niklasson	
3.2	2016-09-14	Kent Grönholm	Logging of connecting or disconnecting handset from control unit are optional from October 1, 2016

2 Log handling

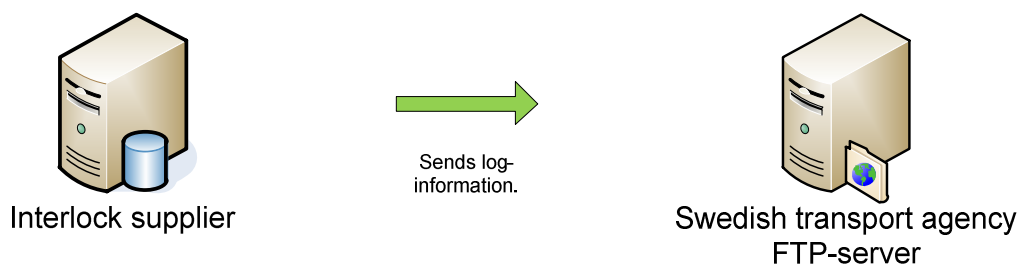
The suppliers of the alcohol interlock should send the logs from the customer's interlocks to Transportstyrelsen (the Swedish transport agency). It is the responsibility of the suppliers to make sure that the Swedish transport agency receives the logs.

2.1 Overview

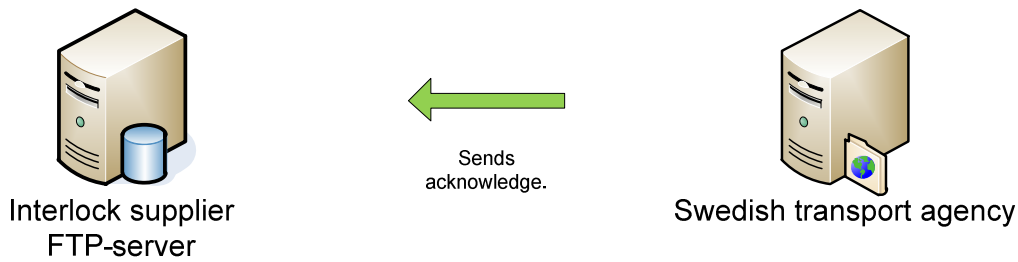
The process of the log transferring is according to figure below.



The customer visits a workshop for service. The workshop extracts the logs from the interlock and sends it to the supplier of the interlocks. The suppliers then send the logs to Transportstyrelsen (the Swedish transport agency). Transportstyrelsen then sends an message to the supplier of the interlocks that acknowledges that the information has been retrieved and includes status of what the data.



The logs are sent to Transportstyrelsen (the Swedish transport agency) using Secure FTP (SFTP) in the format of XML.



An answer is sent to the interlock supplier using FTP in the format of XML.

2.2 File names and file transferring

The logs in the format of XML are specified by an XML-schema, see chapter 2.4 Schema. All information about the XML-schema in this document is to clarify or the XML-schema.

The log file should be named according to the following standard:

`<Interlock supplier name>_<Unique Id>.xml`

The "Interlock supplier name" is the short name of the Interlock supplier. This short name is given by Transportstyrelsen (the Swedish transport agency).

The "Unique Id" is an Id specified by the supplier that makes traces back to the supplier possible if the file by some reason becomes corrupt. The id has to be unique for the supplier.

Eg: `SUPPLIER_12345678.xml`

In addition to the log, a flag-file is sent to the same FTP-adress with the same name as the log-file but with an other extension, flag.

`<Interlock supplier name>_<Unique Id>.done`

Eg: `SUPPLIER_12345678.done`

The flag file should include a text with an MD5 hash of the XML-file.

A sample of the code to create the hash-code in .NET C# is presented here.

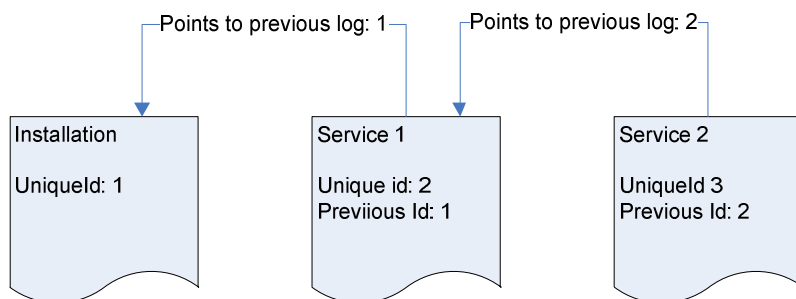
```
private static string ComputeMD5Hash(string xmlFile)
{
    using (MD5 md5 = new MD5CryptoServiceProvider())
    {
        using (var file = new FileStream(xmlFile, FileMode.Open))
        {
            var hash = md5.ComputeHash(file);
            return BitConverter.ToString(hash).Replace("-", "");
        }
    }
}
```

2.3 Error handling

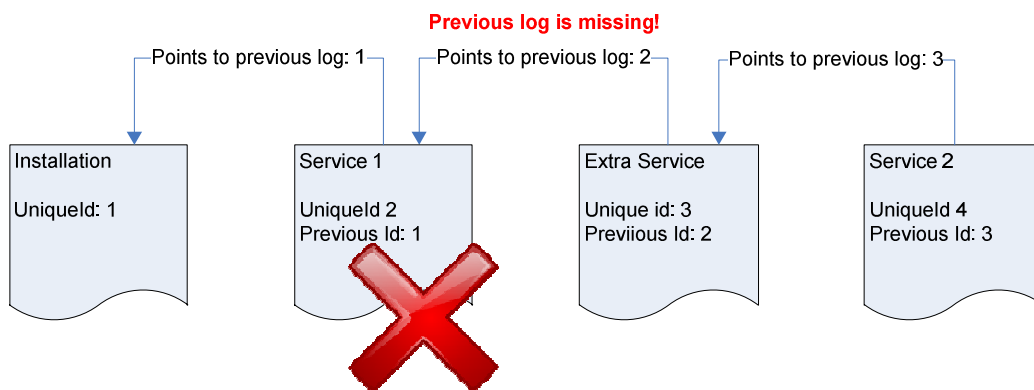
If an error occurs due to problem with the logs, the supplier will be notified using the acknowledge file. The supplier should have a support organization that takes care of and handles the errors and sends a new file.

Note! Se chapter 3, Acknowledgment for details about the errors that are handled in the acknowledge file.

To make sure that all files are received all log files points back to its previous log using the unique id of the log.



If a file is missing for some reason that will be detected when receiving the next log file.



2.4 Schema of the Logs

The schema is documented in Swedish and English in the schema-file. As noted before. The Schema is the major part of the the documentation. What is specified here is to clarify the XML-schema.

Each XML-file can only include one transaction. One transaction is the same thing as one extraction from an interlock, interlock installation, changes of interlock, or interlock removal. So the XML-file can be created so that either one file is created for each customer or several customers are added to one XML-file.

Some general things about the information in the schema.

For all fields that include date and time should include the time-zone in the following format:

`[-]CCYY-MM-DDThh:mm:ss[Z|(+|-)hh:mm]`

Example: 2001-10-26T21:32:52+01:00

Below are some clarifications of the schema.

2.4.1 Root element: Alkolas

Alkolas is the root element of the schema. Includes two attributes that has to be applied.

2.4.1.1 *schemaVersion*

SchemaVersion has to be set to the current version of the schema. This has to be given so that the user of the schema is aware of that the latest version of the schema is used. This is mandatory and only one value is allowed, the latest version of the schema.

2.4.1.2 *interlockSupplierCode*

This is a unique code that the supplier gets from Transportstyrelsen when they are accredited as supplier to the program. This code should be used in:

1. In the schema (in attribute: `interlockSupplierCode` in element `Alkolas`)
2. In the filenames when uploading files, see chapter 2.2, File names and file transferring.

2.4.2 Header

The header part of the transaction includes the following information:

Element	Description (en/sv)	Mandatory
TransactionDate	SV: Datum och tid transaktionen genomfördes EN: Date and Time when transaction was executed. When information was extracted from the Interlock.	X

Element	Description (en/sv)	Mandatory
TransactionNumber	<p>SV: Unikt nummer på transaktionen (utläsning från låsen). Används för att identifiera en utläsning från låsen. Numret används även som id vid kontakt med alkolåsleverantören. Numret används även för referens mellan tidigare inskickade alkolåsloggar, se även PreviousServiceTransactionNumber.</p> <p>EN: Unique number for the actual transaction (extraction from the interlock). Used to uniquely identify an extraction from the Interlock. Also used as a reference in case of contact with supplier. The id is also used as reference to previously uploaded logs, see also PreviousServiceTransactionNumber.</p>	X
ActionId	<p>SV: Typ av transaktion, 1= Installation, 2=Service, 3=avinstallation, 4=Låsbyte Notera!</p> <ul style="list-style-type: none"> - Om ActionId=4 så får ProgramId inte ändras. - Om ActionId=1 så måste ProgramId vara nytt för den användaren av alkolåset. - Alla transaktionstyperna, utom ActionId=1, kan innehålla händelser i loggen. ActionId=1 får inte ha några händelser. <p>EN: Type of action performed on the interlock. 1= Installation, 2=Service, 3=Removed, 4=Interlock changed Note!</p> <ul style="list-style-type: none"> - If ActionId=4 then the ProgramId must not be changed. - If ActionId=1 then the ProgramId has to be unique (new) for the interlock user. - All transaction types, except for ActionId=1, can include events in the log. ActionId=1 cannot contain events 	X
PersonalIdentityNumber	<p>SV: Personnummer på personen som är registrerad för avläst alkolås (format YYYYMMDDNNNN).</p> <p>EN: Swedish formally used "personal number" containing date of birth followed by a four digit control number (format YYYYMMDDNNNN) of the user of the interlock.</p>	X

Element	Description (en/sv)	Mandatory
ServiceCompany	<p>SV: Verkstad som utfört handlingen. Verkstad består av unikt id, organisationsnummer, namn och adress. Det unika Id:t är ett av leverantören unikt nummer för verkstaden. Det skall alltid vara samma id för samma verkstad och kan även användas i dialog med leverantören om vilken verkstad det var som läst av informationen. (se XML-schemat för detaljinformation)</p> <p>Notera!</p> <ul style="list-style-type: none"> - Även om organisationsnummer är obligatoriskt enl. XML-schemat så är det tillåtet att ange endast nollor som nummer. <p>EN: Workshop/Garage that has performed the action. Workshop/Garage consists of Unique Id, organization number, name and Address of the company. The unique id defined by the interlock supplier as a unique number for the workshop. The id should always be the same for the same workshop and can also be used in dialog with the supplier to identify the workshop. (See XML-schema for details).</p> <p>Note!</p> <ul style="list-style-type: none"> - Even though the organization number is mandatory it is allowed to add only zeroes for the number. 	X
ProgramId	<p>SV: Programnummer för den aktuella användaren. Om en person har flera lås (i flera fordon) så ingår varje lås i ett program. Id:t används för att kunna ha koll på vilket program ett lås tillhör även om man byter lås.</p> <p>EN: Interlock program identification number for the actual customer. Used to manage if a customer has more than one alcohol interlocks (ex several cars). Example, SUPPLIER-1 or SUPPLIER-2</p>	X
PerviousTransactionNumber	<p>SV: Det unika id:t för den föregående transaktionen för ett specifikt PersonallIdentityNumber and ProgramId. Används för att verifiera att inte transaktioner (loggutläsningar) saknas. Vid installation så utelämnas detta. Obligatoriskt för alla andra transaktionstyper.</p> <p>EN: The unique number for the previous transaction, for a PersonallIdentityNumber and ProgramId. Used to make sure we don't miss any transactions (logs). When Installation then leave field blank. Mandatory for all other transaction types.</p>	(X)

Element	Description (en/sv)	Mandatory
PreviousTransactionDate	<p>SV: Datum då den föregående transaktionen genomfördes som refereras av PreviousTransactionNumber. Vid installation så utelämnas detta. Obligatoriskt för alla andra transaktionstyper.</p> <p>EN: Date and Time when the previous transaction was executed referred by PreviousTransactionNumber. When Installation then leave field blank. Mandatory for all other transaction types.</p>	(X)
HandsetId	<p>SV: Leverantörens id på handenhet, den enskilda handenhetens unika nummer. Även kallat serienummer.</p> <p>EN: By the supplier, unique id for the individual handset. Aka Serial number.</p>	X
ControlUnitId	<p>SV: Leverantörens id på kontrollenhet, den enskilda kontrollenhetens unika nummer. Även kallat serienummer.</p> <p>EN: By the supplier, unique id for the individual control unit. Aka Serial number</p>	X
HandsetArticleNumber	<p>SV: Artikelnummer, text-nummer-kombination på handenhet, Talar om typ och version på handenhetens hårdvara.</p> <p>EN: Article number, Text-Number-combination identifying the type and version of the handset hardware.</p>	X
ControlUnitArticleNumber	<p>SV: Artikelnummer, text-nummer-kombination på kontrollenhet, Talar om typ och version på kontrollenhetens hårdvara.</p> <p>EN: Article number, Text-Number-combination identifying the type and version of the control unit hardware.</p>	X
HandsetSoftwareVersion	<p>SV: Leverantörens benämning på den aktuella versionen av mjukvara i handenheten.</p> <p>EN: By the supplier, actual software version on the handset.</p>	X
ControlUnitSoftwareVersion	<p>SV: Leverantörens benämning på den aktuella versionen av mjukvara i kontrollenheten.</p> <p>EN: By the supplier, actual software version on control unit.</p>	X
Comment	<p>SV: Kommentarfält för övriga upplysningar som tex verkstaden eller leverantören vill kunna lämna.</p> <p>EN: Comment field for other information that the workshop or the supplier may want to leave.</p>	

Each event in the interlock includes the following information:

Element	Description (en/sv)	Mandatory
LogId	SV: Unikt id för ursprungsid. Används för referens vi kontakt med alkoholleverantör. EN: Unique number for the actual log id. Used as a reference in case of contact with supplier.	X
EventDate	SV: Datum och klockslag när händelsen inträffade. EN: Date and time of event.	X
EventTypeld	SV: Typ av händelse. EN: Identifies the types of event.	X
AlcoholConcentration	SV: Alkoholkoncentration (mg/l). Används vid EventTypeld = 1, 11, 12 och vid vissa EventTypeld = 10. Obligatorisk för Eventtyp 1, 11 och 12 EN: Concentration of alcohol (mg/l). Used when EventTypeld = 1, 11, 12, and, when appropriate EventTypeld = 10 Mandatory for EventTypeld = 1, 11 and 12	(X)
Comment	SV: Detaljinformation vid händelsetyp 10 (EventTypeld = 10) och 12 samt när det tillför värde på andra händelser. obligatoriskt vid händelsetyp 10 och 12. EN: Detailed description for EventTypeld = 10, 12 and when appropriate, other events. Mandatory for EventTypeld = 10 and 12.	(X)

About the eventTypeId, The list of available events are presented below.

It is mandatory that the supplier can send those events, except for event 6 and 7 which are optional from October 1, 2016. If the description of the event not matches any of the event the supplier has or if there are any confusions about what events that can be matched from the supplier. The supplier is encouraged to contact Transportstyrelsen (the Swedish transport agency) for clarification.

Note! Some events below may be matched to several events from the interlocks. To separate those events, the comment field in the Event should be used for clarification of the meaning of the actual event. A typical event is the tampering attempt that can be one of several, e.g. "Electronic tampering", "motion start", "tampering", "breathing" and "Breathing test calibration"

2.4.3 Event Types

The following event types are defined.

EventTypeld	Description (sv)	Description (en)
1	Utandningsprov	Breathing test
2	Fordonsstart tillåten	Start of vehicle allowed
3	Fordonsstart ej tillåten	Start of vehicle not allowed
4	Start av motor alternativt Fordon i rörelse	Start of engine or Vehicle in motion.
5	Missat återkommande utandningsprov	Missing recurring breathing test
6	Frånkoppling av handenhet från kontrollenhet	Disconnecting handset from control unit
7	Anslutning av handenhet till kontrollenhet	Connecting handset to control unit
8	Anslutning av strömförsörjning	Connection of power supply
9	Frånkoppling av strömförsörjning	Disconnection of power supply
10	Manipulation eller kringgåendeförsök	Tampering attempt or bypass attempt
11	Återutandningsprov	Recurring breathing test
12	Kalibrering av utandningsprov	Breathing test calibration

Note! Logging of event type 6 and 7 are optional from October 1, 2016.

For event type 12 the expected value should be noted in the comment field.

Event type 12 is used both for the calibration and for the test of the calibration after the calibration.

For event type 12 we want both the **reason** for why the event is logged and the **expected alcohol concentration** in the comment field.

For example:

- “calibration using this and this gas, expecting 0,2 mg/l alcohol concentration”
- “test of calibration, expecting 0.0 mg/l alcohol concentration”.

3 Acknowledgment

When a log file sent to Transportstyrelsen has been processed an acknowledgment file is created and sent back to the interlock vendor. The acknowledgment will be sent within 3 hours from receiving the logfile file.

3.1 Schema

3.1.1 Root element: Acknowledgment - Attributes

Acknowledgment is the root element of the schema. Includes one attribute that has to apply.

3.1.1.1 *schemaVersion*

SchemaVersion has to be set to the current version of the schema. This has to be given so that the user of the schema is aware of that the latest version of the schema is used. This is mandatory and only one value is allowed, the latest version of the schema.

3.1.2 Child elements

Element	Description (en/sv)	Mandatory
AcknowledgmentDate	Date when acknowledgment was created	X
ErrorNumber	0 = No errors. 1 = Previous log is missing according to referenceinformation. 2 = Hash in done file doesn't match logfile (resend transaction). 3 = Unknown vendor code (resend transaction). 4 = Logfile doesn't follow xml schema (resend transaction). 5 = Either XML file or done file is missing (resend transaction). 6 = Events of type 1 or 11 must have an alcoholconcentration specified. 7 = ProgramId is reused on a closed program. 8 = Information about previous log is missing 9 = Only recieved a .done file, missing the .xml file 10 = Only recieved a .xml file, missing the .done file	X
TransactionNumber	Transactionnumber from the logfile (if available)	
ErrorDescription	If an error occurs more details about the error can be found here.	

3.2 File names and file transferring

Filename on the acknowledgment will be the following:

ack_<filename of indata log file>

There will also be another “.done” file containing the hash for the acknowledgment. More information in 2.2 about how to create this file for the supplier to compare with the sent file. If the done-file in the acknowledge message is not correct the supplier should contact Transportstyrelsen to ask for resend the acknowledge message.

4 Sending the files (How to connect to Transportstyrelsen)

Files are sent to Transportstyrelsen in the way Transportstyrelsen specifies at the time.

Currently the files are sent by Secure FTP using SSH.

The current form used for application is:

”BESTÄLLNING AV KOMMUNIKATION (filöverföring) TILL/FRÅN EXTERN KUND”

(“Ordering of communication (file transferring) to/from external customer”)

To be able to send files, the supplier has to send an application to apply for sending test-data that includes the technical information and technical contact at the supplier to be able to test to send the log files and receive the acknowledge files.

The application is a form that can be ordered from Transportstyrelsen and should after being filled in be sent back to Transportstyrelsen.

After approval and installation the Supplier and Transportstyrelsen in dialog will make sure the connection is working and the tests can be begin.

In the application the supplier should be ready to add information about:

- Company information including **Swedish** organization number.
- Contact person for the site.
- Technical contact persons.
- Description of reason for the application.
- Type of protocol (SFTP)
- IP-address to send files from and to.
- Port-information.

In addition to this the supplier should be ready to create and send a public key file used when setting up the SSH-connection.