

Baxi.Agent XML Interface Specification

1 References

- [BAXI.Net Programmers Guide](#)
 - Baxi.net API documentation includes more detailed info about functionality and usage of the methods and parameters.

2 Revision Record

DATE	Doc VER.	Protocol ver.	COMMENTS	Author
13.12.2016	0.9.0.0	0	draft	Mikko Ahola
30.1.2017	0.9.0.1	1	draft	Mikko Ahola
3.2.2017	0.9.0.2	1	Added SendJson, JsonReceived	Mikko Ahola
6.3.2017	0.9.0.3	-	Removed outdated reference links	AKa
16.3.2017	0.9.1.0	1	Added descriptions to functions, filled missing parts	RSz
17.3.2017	1.0.0.0	1	Updated descriptions, replaced ClientID with TerminalID First full release version, draft removed	AKa
3.7.2017	1.0.0.1	1	Added Multiterminal configuration messages	RSz
31.10.2017	1.0.0.2	1	Added Get/Set Baxi properties messages	RSz
24.4.2018	1.0.0.3	1	Added TerminalReady	Unknown User (miaho)
10.7.2018	1.0.0.4	1	Updated TransferAmount description	Mikko Ahola

3 Overview

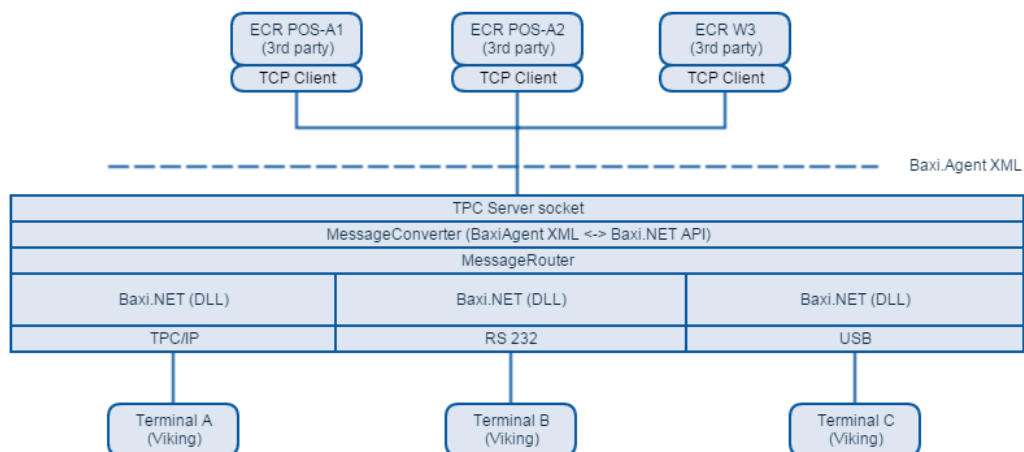
The Baxi Agent XML interface is designed to be integration layer between ECR and Baxi.Agent integration component. It enables many-to-many connections over generic TCP socket connection and service can be installed locally or remotely. Installation location depends on the connections used for terminals. USB and RS-232 connectivity requires local installation but ethernet interface allows Baxi.Agent to be run in the remote location.

The communication is based on TCP/IP. Message data is in XML format inside the communication frame. Please refer to the Baxi.net API documentation for more details regarding specific properties and methods. This document defines only how the XML formatted messages are handled.

3.1 Terms

Term	Description
ITU	Integrated Terminal Unit
ECR	Electronic Cash Register
POS	Point Of Sales
ECRID	ID of the ECR which is sending/receiving message
TerminalID	ID of the ITU where the message is send/where the message is received. Same ID as the physical terminal has.

3.2 System Overview



4 Message Data

All messages are framed by 4 bytes header which indicates the length of payload. The payload is in XML format. Every message has a MessageHeader which identifies the specific ECR and ITU sending/receiving message.

4.1 Message Frame

4 bytes length, big-endian byte order

4.2 Message Header

<MessageHeader ECRID="ECR1" TerminalID="Terminal1" VersionNumber="1" />

Attribute	Mandatory	Info
ECRID	Yes	Unique ID of the ECR sending the requests
TerminalID	Yes	Unique ID of the terminal
VersionNumber	Yes	Protocol version number. ECR sets the number for messages it is sending. Baxi.Agent sets the number for messages it is sending.

4.3 Special Characters

Special character in the XML should be coded according to recommendations of www.w3c.org.

Character	Coding
&	&
"	"
<	<
>	>
%	%
€	€

Character	Coding
Å	Å
Ä	Ä
Ö	Ö
å	å
ä	ä
ö	ö

4.4 Message Data Example

MessageData	MessageFrame	Message in Hex
-------------	--------------	----------------

<div><NetsRequest> <MessageHeader ECRID="ECR1" TerminalID="Terminal1" VersionNumber="1" /> <Open /> </NetsRequest></div>	<div>00 00 00 6f</div>	<div>3c 4e 65 74 73 52 65 71 75 65 73 74 3e 0d 0a 20 20 3c 4d 65 73 73 61 67 65 48 65 61 64 65 72 45 43 52 49 44 3d 22 45 43 52 31 22 54 65 72 6d 69 6e 61 6c 49 44 3d 22 54 65 72 6d 69 6e 61 6c 31 22 56 65 72 73 69 6f 6e 4e 75 6d 62 65 72 3d 22 31 22 2f 3e 0d 0a 20 20 3c 4f 70 65 6e 2f 3e 0d 0a 3c 2f 4e 65 74 73 52 65 71 75 65 73 74 3e</div>
--	------------------------	--

5 Request Messages from ECR to ITU

5.1 Open

This message opens the communication between the ECR and the terminal. After sending this message wait for LocalMode, MethodReject or Error response. It is not mandatory to call Open/Close functions each time the transaction is made because Baxi.Agent handles opening the connection to terminals automatically.

Determine if the Open request was successful based on the result of LocalMode message.

MethodReject message will occur when the connection between Baxi Agent and the terminal is already opened.

The details of the Error message can be read from the ErrorMessage tag.

Example:

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

  <MessageHeader ECRID="ECR1" TerminalID="Terminal1" VersionNumber="1" />

  <Open />

</NetsRequest>
```

5.2 TransferAmount

The TransferAmount message transfers the specified amount, transaction type and the other details to the ITU. Please refer to Baxi.net developers guide for detailed information about usage.

As response to this request the ECR will receive DisplayText, PrintText, LocalMode or Error messages. Note that several DisplayText and PrintText message could occur.

TransactionType is decimal value of Baxi.NET TransferAmount.Type

Transaction type	Baxi.NET	Baxi.Agent
Purchase	hex 30	dec 48
Return Of Goods	hex 31	dec 49
Reversal	hex 32	dec 50
...

Example

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

  <MessageHeader ECRID="ECR1" TerminalID="Terminal1" VersionNumber="1" />

  <Dfs13TransferAmount>

    <TransactionType>48</TransactionType>
    <OperId>4321</OperId>
    <Amount1>123</Amount1>
    <Amount2>0</Amount2>
    <Amount3>0</Amount3>
    <Type2>48</Type2>
    <Type3>48</Type3>
    <HostData></HostData>
    <ArticleNumber></ArticleNumber>
    <PCC></PCC>
    <AuthorisationCode></AuthorisationCode>
    <OptionalData></OptionalData>

  </Dfs13TransferAmount>

</NetsRequest>
```

5.3 Administrative commands

Administration messages are used to perform actions like cancelling a card payment from the ECR, get End of day report, get the last financial receipt, etc.

The AdmCode parameter determines the action that will be performed on the ECR.

Example:

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

  <MessageHeader ECRID="ECR1" TerminalID="Terminal1" VersionNumber="1" />

  <Dfs13Administration>

    <OperId>0000</OperId>
    <AdmCode>12592</AdmCode>
    <OptionalData></OptionalData>

  </Dfs13Administration>

</NetsRequest>
```

5.4 SendJson

The SendJson messages trigger different responses from the ITU. The request data has to be in JSON format.

Example:

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

  <MessageHeader ECRID="ECR1" TerminalID="Terminal1" VersionNumber="1" />

  <Dfs13SendJson>

    <Data>{
      "cardinfo": {
        "ver": "1.00",
        "alltags": "?"
      },
      "o": {
        "ver": "1.00",
        "merch": 733300
      }
    }

  </Data>

</Dfs13SendJson>

</NetsRequest>
```

5.5 BaxiProperties

This message inquires the Baxi properties from Baxi Agent.

Example:

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

  <MessageHeader ECRID="ECR1" TerminalID="Terminal1" VersionNumber="1"/>

  <BaxiProperties />

</NetsRequest>
```

5.6 SetBaxiProperties Request

This message contains all the new values for the properties that were changed. Several properties can be set at once.

Example:

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

  <MessageHeader ECRID="ECR1" TerminalID="Terminal1" VersionNumber="1"/>

  <SetBaxiProperties>

    <Use2KBuffer>1</Use2KBuffer>
    <SocketListener>1</SocketListener>
    <SocketListenerPort>6002</SocketListenerPort>

  </SetWPProperties>

</NetsRequest>
```

5.7 Close

This message closes the connection between the ECR and the terminal. After the Close message the ECR should not expect any response from Baxi Agent.

Example:

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

  <MessageHeader ECRID="ECR1" TerminalID="Terminal1" VersionNumber="1"/>

  <Close/>

</NetsRequest>
```

6 Response messages from ITU to ECR

6.1 LocalMode

The LocalMode response message indicates that a transaction or an administrative action is complete. The result from the message determines whether the action completed successfully or not.

Example:

```
<?xml version="1.0" encoding="UTF-8"?>
<NetsResponse>
  <MessageHeader ECRID="ECR1" TerminalID="Terminal1" VersionNumber="1" />
  <Dfs13LocalMode>
    <Result>1</Result>
    <ResultData>D 0</ResultData>
    <Accumulator>48</Accumulator>
    <IssuerID>0</IssuerID>
    <TruncatedPAN></TruncatedPAN>
    <TimeStamp></TimeStamp>
    <CVM>-1</CVM>
    <SessionNumber></SessionNumber>
    <StanAuth></StanAuth>
    <SequenceNumber></SequenceNumber>
    <TotalAmount>0</TotalAmount>
    <RejectionSource>0</RejectionSource>
    <RejectionReason></RejectionReason>
    <TipAmount>0</TipAmount>
    <SurchargeAmount>0</SurchargeAmount>
    <TerminalID></TerminalID>
    <SiteID></SiteID>
    <CardIssuerName></CardIssuerName>
    <ResponseCode></ResponseCode>
    <TCC></TCC>
    <AID></AID>
    <TVR></TVR>
    <TSI></TSI>
    <ATC></ATC>
    <AED></AED>
    <IAC></IAC>
    <OrganisationNumber></OrganisationNumber>
    <BankAgent></BankAgent>
    <EncryptedPAN>DATA REMOVED</EncryptedPAN>
    <AccountType></AccountType>
    <OptionalData></OptionalData>
  </Dfs13LocalMode>
</NetsResponse>
```

6.2 DisplayText

DisplayText messages are received from the ITU, containing the message that is displayed on the ITU screen.

Example:

```
<?xml version="1.0" encoding="UTF-8"?>
<NetsResponse>
  <MessageHeader ECRID="ECR1" TerminalID="Terminal1" VersionNumber="1" />
  <Dfs13DisplayText>
    <Text Source="0" TextID="0">Awaiting card</Text>
  </Dfs13DisplayText>
</NetsResponse>
```


6.3 PrintText

The PrintText message contains the receipt that comes formatted from the terminal.

Example:

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

  <MessageHeader ECRID="ECR1" TerminalID="Terminal1" VersionNumber="1" />

  <Dfs13PrintText>

    <Text>Term: 70073300-700730

    17/03/2017 09:13


    DEBIT MASTERCARD

    *****0963-1

    AID: A0000000041010
    ATC: 00588  AED: 130901
    TVR: 0840008000
    TSI: E800
    Ref.: 629040 015170 IB1
    Resp.: 00
    Session: 744


    PURCHASE

    EUR          25,00
    TAPAHT. OK


    CUSTOMER COPY


    ----Tear here----

  </Text>
</Dfs13PrintText>
</NetsResponse>
```

6.4 Error

The Error message signals that an error occurred. The details of the ErrorCode can be read from the ErrorString tag.

Example:

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

  <MessageHeader ECRID="ECR1" TerminalID="Terminal1" VersionNumber="1" />

  <Dfs13Error>

    <ErrorCode>7012</ErrorCode>
    <ErrorString>ERR_UNEXPECTED_TERMINAL_FRAME</ErrorString>

  </Dfs13Error>
```

```
</NetsResponse>
```

6.5 MethodRejected

This message is sent as a response when an action failed. The reason of the failure can be found in the Info tag.

Example:

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

  <MessageHeader ECRID="ECR1" TerminalID="Terminal1" VersionNumber="1"/>

  <MethodRejected>

    <Code>7102</Code>
    <Info>ALREADY_OPEN</Info>

  </MethodRejected>

</NetsResponse>
```

6.6 JsonRecieved

JsonReceived message occurs when a SendJson request message is sent to the ITU. The Data tag contains the details that were queried in the request message

Example:

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

  <MessageHeader ECRID="ECR1" TerminalID="Terminal1" VersionNumber="1" />

  <Dfs13JsonReceived>

    <Data>{"cardinfo":{"ver":"1.00","iccgripid":"","pan":"492017*****0311","issid":"3","countrycode":"246","restrictions":"-","fee":"-","track2":"","tcc":"K___","bankagent":"","track3":"","loyaltyinfo":""}};</Data>

  </Dfs13JsonReceived>

</NetsResponse>
```

6.7 BaxiProperties

This is the response message for the BaxiProperties request and contains all Baxi properties.

Example:

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

  <MessageHeader ECRID="ECR1" TerminalID="Terminal1" VersionNumber="1" />

  <BaxiProperties>

    <Version>BAXI.net - Version 1.6.1.0 *LESS*C*MORE* Nets</Version>
    <TerminalType>3225</TerminalType>
    <TerminalID>77177309</TerminalID>
    <TerminalSwVersion>4614</TerminalSwVersion>
    <MethodRejectInfo>ALREADY_OPEN</MethodRejectInfo>
    <TerminalDeviceData_TLD>1000*US*0001*US* *RS*1001*US*0001*US*
    *RS*1002*US*0008*US*77177309*RS*1003*US*0006*US*771773*RS*1004*US*0004*US*3225*RS*1010*US*0008*US*70248
    937*RS*1005*US*0004*US*4614*RS*1006*US*0014*US*20171025235920*RS*1007*US*0014*US*20171025235920*RS*</Te
    rminalDeviceData_TLD>
    <MethodRejectCode>7102</MethodRejectCode>
    <LogFilePrefix>baxilog</LogFilePrefix>
    <LogFilePath>C:\baxi\logfiles</LogFilePath>
    <HostIpAddress>91.102.24.111</HostIpAddress>
    <VendorInfoExtended>BBS;Retail;02.13.01;57807343803;</VendorInfoExtended>
    <DeviceString>SAGEM Telium</DeviceString>
    <MultiInstanceConfigFile>C:\baxi\multi\multi.config</MultiInstanceConfigFile>
    <ClientID>ECR1</ClientID>
    <TraceLevel>3</TraceLevel>
```

```

<BaudRate>57600</BaudRate>
<ComPort>1</ComPort>
<HostPort>9670</HostPort>
<IndicateEotTransaction>1</IndicateEotTransaction>
<CutterSupport>0</CutterSupport>
<PrinterWidth>24</PrinterWidth>
<DisplayWidth>20</DisplayWidth>
<PowerCycleCheck>0</PowerCycleCheck>
<TidSupervision>0</TidSupervision>
<AutoGetCustomerInfo>0</AutoGetCustomerInfo>
<TerminalReady>1</TerminalReady>
<UseDisplayTextID>0</UseDisplayTextID>
<UseExtendedLocalMode>0</UseExtendedLocalMode>
<SerialDriver>Nets</SerialDriver>
<MsgRouterOn>0</MsgRouterOn>
<MsgRouterIpAddress>127.0.0.1</MsgRouterIpAddress>
<MsgRouterPort>6000</MsgRouterPort>
<UseSplitDisplayText>0</UseSplitDisplayText>
<Use2KBuffer>0</Use2KBuffer>
<SocketListener>1</SocketListener>
<SocketListenerAddress></SocketListenerAddress>
<SocketListenerPort>6005</SocketListenerPort>
<LogAutoDeleteDays>14</LogAutoDeleteDays>
<AlwaysUseTotalAmountInExtendedLM>0</AlwaysUseTotalAmountInExtendedLM>
<UseMultiInstance>0</UseMultiInstance>
<BluetoothTunnel>0</BluetoothTunnel>
<PreventLoyaltyFromPurchase>0</PreventLoyaltyFromPurchase>
<EnableEcrForm>0</EnableEcrForm>
<EcrFormLanguage>EN</EcrFormLanguage>
<PinByPass>0</PinByPass>

```

```

</BaxiProperties>

```

```

</NetsResponse>

```

6.8 SetBaxiProperties Response

This message sent as a response to the SetBaxiProperties request after the properties are saved and the connection is closed and reopened automatically.

Example:

```

<?xml version="1.0" encoding="UTF-8" ?>
<NetsResponse>

  <MessageHeader ECRID="ECR1" TerminalID="Terminal1" VersionNumber="1" />

  <SetBaxiProperties />

</NetsResponse>

```

6.9 TerminalReady

TerminalReady message occurs when terminal is ready to handle new function

Example:

```

<?xml version="1.0" encoding="UTF-8" ?>

<NetsResponse>
<MessageHeader ECRID="ECR1" TerminalID="Terminal1" VersionNumber="1" />
<Dfs13TerminalReady />
</NetsResponse>

```

6.10 BarcodeReader

This function is started from the ITU to transfer/send barcode reader data in JSON format to ECR.

```

<NetsResponse>
<MessageHeader ECRID="" TerminalID="" VersionNumber="" />
<Dfs13BarcodeReader>

```

```
<Data/>  
</Dfs13BarcodeReader>  
</NetsResponse>
```

7 Link Control/Keep Alive

Keep Alive messages are sent between ECR and Baxi Agent in order to keep the connection open. Nets strongly recommends to implement the link control to know the connection status.

Example:

```
<?xml version="1.0" encoding="UTF-8" ?>
<NetsRequest>
  <MessageHeader ECRID="ECR1" TerminalID="Terminal1" VersionNumber="1" />
  <KeepAlive/>
</NetsRequest>
```

8 Multiterminal Configuration messages

This section is not applicable for the Baxi.Agent version 1.1.x and below.

8.1 AddNewTerminal

The AddNewTerminal request adds a new terminal to the terminal list. The configuration for the new terminal are set in the attributes.

Example:

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

  <MessageHeader ECRID="MultiterminalConfig" TerminalID="NA" VersionNumber="" />

  <MultiterminalConfigRequest>

    <AddNewTerminal Id="70073300" Name="Shop" PosId="" ConnectionType="TCP" SocketListener="1"
      SocketListenerPort="6001" ComPort="1" BaudRate="" />

  </MultiterminalConfigRequest>

</NetsRequest>
```

8.2 EditTerminal

The EditTerminal request is editing the configuration of an already configured terminal from the list. The new configurations are set through the attributes.

Example:

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

  <MessageHeader ECRID="MultiterminalConfig" TerminalID="NA" VersionNumber="" />

  <MultiterminalConfigRequest>

    <EditTerminal Id="70073300" Name="Shop" PosId="" ConnectionType="USB" SocketListener="0" SocketListenerPort="6001"
      ComPort="3" BaudRate="" />

  </MultiterminalConfigRequest>

</NetsRequest>
```

8.3 RemoveTerminal

The RemoveTerminal request is deleting a terminal from the list.

Example:

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

  <MessageHeader ECRID="MultiterminalConfig" TerminalID="NA" VersionNumber="" />

  <MultiterminalConfigRequest>

    <RemoveTerminal Id="70073300" Name="Shop" PosId="" ConnectionType="USB" />

  </MultiterminalConfigRequest>

</NetsRequest>
```

8.4 TestConnection request

The TestConnection request is testing if the connection is open between Baxi Agent and the selected terminal.

Example:

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

  <MessageHeader ECRID="MultiterminalConfig" TerminalID="NA" VersionNumber="" />

  <MultiterminalConfigRequest>

    <TestConnectionTerminal Id="70073300" />

  </MultiterminalConfigRequest>

</NetsRequest>
```

8.5 TestConnection response

The TestConnection response indicates whether the connection between the terminal and Baxi Agent is opened or not. The "Status" property can have 3 values:

- Connected
- NotConnected
- InBankMode (when there is an ongoing transaction on the terminal)

Example:

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

  <MessageHeader ECRID="MultiterminalConfig" TerminalID="NA" VersionNumber="" />

  <MultiterminalConfigResponse>

    <TestConnectionTerminal Id="70073300" Status="Connected" />

  </MultiterminalConfigResponse>

</NetsResponse>
```

8.6 GetListOfTerminalsFromXmlConfig request

The GetListOfTerminalsFromXmlConfig request is retrieving the list of terminals that are already configured in the Baxi Agent.

Example:

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

  <MessageHeader ECRID="MultiterminalConfig" TerminalID="NA" VersionNumber="" />

  <MultiterminalConfigRequest>

    <GetListOfTerminalsFromXmlConfig />

  </MultiterminalConfigRequest>

</NetsRequest>
```

8.7 GetListOfTerminalsFromXmlConfig response

The GetListOfTerminalsFromXmlConfig response contains the list of terminals that are already configured in the Baxi Agent.

Example:

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

  <MessageHeader ECRID="MultiterminalConfig" TerminalID="NA" VersionNumber="" />

  <MultiterminalConfigResponse>

    <GetListOfTerminalsFromXmlConfig>

      <Terminal Id="70073200" Name="Restaurant" PosId="" ConnectionType="TCP" IsTerminalInBankMode="False"
        IsTerminalConnected="False" />
      <Terminal Id="74351100" Name="Shop" PosId="" ConnectionType="USB" IsTerminalInBankMode="False"
        IsTerminalConnected="True" />

    </GetListOfTerminalsFromXmlConfig>

  </MultiterminalConfigResponse>

</NetsResponse>
```

```
</GetListOfTerminalsFromXmlConfig>
```

```
</MultiterminalConfigResponse>
```

```
</NetsResponse>
```


9 Appendices