RcWare DB – API documentation

brief version with examples

RcWare DB is a connector between SoftPLC, MiniPLC controllers, and RcWare Vision on one end, and SQL database on the other end.

It reads and saves values of those types: Double, Boolean, Integer, DateTime, String, and Blob. Each value is saved together with its time stamp, or with a ”Good Through” value, which is date and time, by which the value has not changed and is still valid. (This saves database space.) The client should also provide information about the saving interval with each saved value. The basis of API are methods **GetData** and **SaveData**, together with a special method **GetParticularData**.

1 Basics

- When processing any text strings, letters are case-sensitive.
- Time stamps, Good Through, and time parameters of functions are always given in UTC.
- The complete API description is in the attached WSDL.

2 Variables identification

Each client which saves data using the **SaveData** method has to select how to identify the value, or its binding to a given variable.

A **Variable** is identified by a set of keys and values, where there is a set of keys which represents an unique combination which identifies a variable unambiguously.

Example:

ValueA

- key1: value1, isKey: **true**
- key2: value2, isKey: false
- key3: value3: isKey: **true**
- value: 200
- time stamp: UTC 12.01.2009 10:00:00

ValueB

- key1: value10, isKey: **true**
- key2: value20, isKey: false
- key3: value30, isKey: **true**
- time stamp: UTC 12.01.2009 10:00:00

ValueC

- key1: value10, isKey: **true**
- key2: value60, isKey: false
- key3: value30, isKey: **true**
- time stamp: UTC 12.01.2009 11:00:00

In this example, the recorded values belong to 2 different variables. Values B and C belong to the same variable, because the ”key” keys (isKey = true) have the same values (key1 = 10, key3 = 30).

3 Reading of data

As there may be many millions of values saved for a particular variable in RcWare DB, the requests for values are limited by size and they can be enlarged by increasing of the offset parameter (as returned in the reply of the server) to read more data.

It is possible to request for more variables at the same time, so for iteration ”over the variables” there is another offset parameter, too.

ValueItem class description

- "Hvt"–HistoryValueType– type of value (Double, Blob, String, Int64, NotDefined, ISODateTime, Boolean)
- "Ivl"–Interval – interval in which the value was saved
- "Ts"–UtcTimeStamp – time at which the value was valid
- "Gt" – GoodThrough – time by which the value is valid
- "Bv" – BooleanValue
- "Dv" – DoubleValue
- "Iv" - Int64Value
- "Sv" – StringValue
- "BinV" – BlobValue
- "Dtv" - DateTimeValue

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Example in PHP:

```
<?php /*Example showing values readout from RcWare DB over API v2.0.*/
ini_set("soap.wsdl_cache_enabled", "1"); //caching of wsdl – better set in php.ini

try
{//URL – copy from RcWare and add ?wsdl
//if we use file wsdl – replace all strings db.rcware.eu:9877 by real address
  // and port of the application
  $soapClient = new SoapClient('./wsdl/RcWareDbAccess.wsdl.xml', array('trace' => 1,
'features' => SOAP_SINGLE_ELEMENT_ARRAYS));//trace = 1 - for debug

  $credentials = array('Name'=>'username', 'Password'=>'password'); //Copy from RcWare

  $utcTZ = new DateTimezone('UTC'); //all time stamps should be in UTC

  $utcFrom =  new DateTime('-6months', $utcTZ ); //starting point of the data we want
  $utcTo =  new DateTime('now', $utcTZ ); //ending point of the requested period
  $valOffset = 0; //let us start from the first value
  $valCount = 10; //and step by XX values (optimum value is about 3000)
  $varOffset = 0;
  $varCount = 10;

//RcWare DB identifies each variable by a set of keys and values.
//The complete set must be unique for each variable (necessary when saving data),
// but when reading data, the values can be requested also by a non-unique subset of keys and values.
//Then, all values of all variables which meet the specification, are returned.
//Therefore I can ask for more variables at the same time, they just must be specified here
//DPGuid is enough for identification – it is unique within a RcWare project
  $variablesKey = array(array(array('IsKey'=>true, 'Key'=>'DPGuid',
'Value'=>"2C7F333A-85BA-465B-A7AD-8858B4EBB2F2")));

  echo "We ask for values from: {$utcFrom->format('c')} until: {$utcTo->format('c')}\n\n";

do//readout of data from the server
  {
    $response = null;
do
    {
//the other party unfortunately does not interpret the time zones correctly if only the 'c' parameter
is used...
      $response = $soapClient->GetData(array('credentials'=>$credentials,
'variablesKey'=>$variablesKey,
'utcFrom'=>$utcFrom->format('Y-m-d\TH:i:s\Z'),
'utcTo'=>$utcTo->format('Y-m-d\TH:i:s\Z'),
'valueOffset'=>$valOffset,
'valueCount'=>$valCount,
'variableCount'=>$varCount,
'variableOffset'=>$varOffset));
      $valOffset = $response->nextValueOffset;

      foreach($response->GetDataResult->Mvr as $varArray)
      {
       foreach($varArray->Vals->I as $val)
        {
          echo print_r($val);
        }
      }
    } while($response->nextValueOffset != -1);

    $varOffset = $response->nextVariableOffset;

  } while ($response->nextVariableOffset != -1);
}
catch (Exception $e)
{
//print_r($soapClient->__getLastRequest()); //needs "trace = 1"
  print_r($e);
}
?>
```