# API Instruction

## --How to use MentorAPI.dll

This API is used to communicate Salcomp MES database with supplier test equipment on Windows platform, it is compatible with MES system version 11 and 12, it is a DLL file developed by C#.NET with Framework 4

You may need to put this DLL file and the corresponding configuration file MentorConfig.xml into your executable file identical folder.

It provides below functions and properties to be invoked by 3<sup>rd</sup> applications.

**Function/Method:**
bool CheckRouteForSerialNumber(string serialNumber)
bool CheckRouteWithAliasOutput(string serialNumber)
bool SaveResult(string strXML)

**Property:**
string Message
string SerialNumberAlias
string OutputString

## Function/Method explanation

1. **bool CheckRouteForSerialNumber(string serialNumber)**
   This function is used to check a unit's routing status, return result can be true or false, A true indicates the unit barcode successfully passing the current station, A false indicates routing violation or other errors, also property Message will attach some helpful information for reference.

2. **bool CheckRouteWithAliasOutput(string serialNumber)**
   This function includes the functionality of CheckRouteForSerialNumber, in addition it will provide a Serial Number named property of SerialNumberAlias for reference, in general this function is dedicated to apply on laser machine application.

3. **bool SaveResult(string strXML)**
   This function is usually used to save test result into database, also it will return a result indicating data handling status. Parameter strXML is a standard XML structure string.

4. **bool GetBlocksByPanel(string panel)**
   This function is used to get all block list with an array from a panel ID. Firstly it checks route and then try to output the block list. When you get a return value of TRUE, you can further get the block list of Blocks from its property.

## Property explanation

5. **Message**
   This property is an output string to be invoked. In general the abovementioned function invoked, if return result is false, a useful message can be captured from this property, but for a true return result, it is empty.

6. **SerialNumberAlias**
   This property is only for the function CheckRouteWithAliasOutput invoked, also it is an output string. When getting this property, it means a database field SerialNumberAlias will be updated.

7. **OutputString**
   This is a reserved property in the API, also it is an output string, in the future if necessary it can provide a string for outer application reference.

8. **Blocks[]**
   This is an output string array for block list. When succeeding to call the function GetBlocksByPanel and the return value is true, you can use this string array to get all block list orderly.

Usage sample:
SaveResult(string strXML)
String strXML may be like below:

```xml
<?xml version="1.0" encoding="UTF-8"?>
- <vCheckTester xmlns="Valor.vCheckTester.xsd" Version="4.0" xmlns:xsd="http://www.w3.org/2001/XMLSchema" xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance">
    - <Unit StatusCode="PASS" SerialNumber="B26517008248S" Timestamp="2016-12-18T02:03:20.1227789+08:00">
        <Measurement StatusCode="PASS" Name="Weld Time" ValueUnit="Double" UpperLimit="2" LowerLimit="0" MeasurementUnit="S" Value="0.32" DateTime="2016-12-18T02:03:20.1227789+08:00"/>
        <Measurement StatusCode="PASS" Name="Energy" ValueUnit="Double" UpperLimit="1000" LowerLimit="20" MeasurementUnit="J" Value="45.5" DateTime="2016-12-18T02:03:20.1227789+08:00"/>
        <Header TestFixtureNumber="F87651" TestHeadNumber="614A-H4123"/>
    </Unit>
</vCheckTester>
```

## Acceptable XML structure string explanation

1. Top level element: vCheckTester, it can include below attributes.

| Element | Level | Attribute | Required | Memo |
|---|---|---|---|---|
| vCheckTester | 1 | Version | Yes | default value: 4.0 |
| vCheckTester | 1 | OperatorNumber | No | |
| vCheckTester | 1 | OperationNumber | No | |
| vCheckTester | 1 | WorkOrderNumber | No | |
| vCheckTester | 1 | EquipmentNumber | No | |
| vCheckTester | 1 | PassRemainingNumber | No | |
| vCheckTester | 1 | xmlns | Yes | Default value:Valor.vCheckTester.xsd |

2. 2nd level element: Unit, it can include below attributes.

| Element | Level | Attribute | Required | Memo |
|---|---|---|---|---|
| Unit | 2 | PanelSerialNumber or SerialNumber | Yes | |
| Unit | 2 | StatusCode | Yes | |
| Unit | 2 | TimeStamp | Yes | |
| Unit | 2 | PanelStatusCode | No | If panel, Yes |
| Unit | 2 | IsUnitInsidePanel | No | If panel, Yes |
| Unit | 2 | UnitNumber | No | |
| Unit | 2 | UnitRevision | No | |
| Unit | 2 | RetryCount | No | |

| Unit | 2 | DateTimeStart | No | |
|------|---|---------------|-----|--------------|
| Unit | 2 | DateTimeEnd | No | |
| Unit | 2 | IsUnitInsidePanel | No | If panel, Yes |
| Unit | 2 | PanelCol | No | |
| Unit | 2 | PanelRow | No | |
| Unit | 2 | Sequence | No | If panel, Yes |

When it is a panel, all relating to panel attributes should have.

## 3. 3rd level element: Measurement

| Element | Level | Attribute | Required | Memo |
|---------|-------|-----------|----------|------|
| Measurement | 3 | ValueReference | No | |
| Measurement | 3 | TolerancePosPercent | No | |
| Measurement | 3 | ToleranceNegPercent | No | |
| Measurement | 3 | Series | No | |
| Measurement | 3 | PartName | No | |
| Measurement | 3 | Name | Yes | |
| Measurement | 3 | ValueUnit | Yes | |
| Measurement | 3 | UpperLimit | Yes | |
| Measurement | 3 | LowerLimit | Yes | |
| Measurement | 3 | MeasurementUnit | Yes | |
| Measurement | 3 | Value | Yes | |
| Measurement | 3 | DateTime | Yes | |
| Measurement | 3 | StatusCode | Yes | |

This element can be the 3rd level when it is a Pass unit/panel, also it is not a must.

| Element | Level | Attribute | Required | Memo |
|---------|-------|-----------|----------|------|
| Header | 3 | TestFixtureNumber | No | |
| Header | 3 | TestHeadNumber | No | |
| Header | 3 | TestProgramName | No | |
| Header | 3 | TestProgramVersion | No | |
| Header | 3 | TestHeaderType | No | |

This element can be the 3rd level when it is a Passed unit/panel, also it is not a must.

| Element | Level | Attribute | Required | Memo |
|---------|-------|-----------|----------|------|
| Symptom | 3 | Type | Yes | |
| Symptom | 3 | Name | Yes | |
| Symptom | 3 | Message | No | |
| Symptom | 3 | Ordinal | No | |
| Symptom | 3 | PictureReference | No | |
| Measurement | 4 | ValueReference | No | |
| Measurement | 4 | TolerancePosPercent | No | |
| Measurement | 4 | ToleranceNegPercent | No | |
| Measurement | 4 | Series | No | |
| Measurement | 4 | PartName | No | |

| Measurement | 4 | Name | No | |
|---|---|---|---|---|
| Measurement | 4 | ValueUnit | Yes | |
| Measurement | 4 | UpperLimit | Yes | |
| Measurement | 4 | LowerLimit | Yes | |
| Measurement | 4 | MeasurementUnit | Yes | |
| Measurement | 4 | Value | Yes | |
| Measurement | 4 | DateTime | Yes | |
| Measurement | 4 | StatusCode | Yes | |

This element is only for those failed test items on a Failed unit/panel.

## MentorConfig.xml explanation

| Category | Field/Node | VersionApplied | Description | Program |
|---|---|---|---|---|
| Server/ Database/ Version | IPOrName | 12 | REST API server name or IP address | Common |
| | DBServer | 11 | Database server name or IP address | |
| | Database | 11 | database name | |
| | User | 11 | database user name | |
| | Password | 11 | database password | |
| | Version | Common | Mentor system version | |
| Station/Route | OperationType | Common | Operation type | |
| | EquipmentNo | Common | Equipment number | |
| | CompleteBarcode | 12 | true or false | |
| | FollowTheProcess | 12 | true or false | |
| Unit Pattern | PatternForUnit | Common | standard regular express pattefor for serialnumber | |
| | PatternForUnit2 | Common | standard regular express pattefor for serialnumber | |
| | PatternForUnit3 | Common | standard regular express pattefor for serialnumber | |
| Operator | Operator | Common | Indicate who manipulate this station | |
| Dedicated | UnitItemColumnUpdate | Common | Indicate which serialnumber column of tUnitItem table to be updated,  available value is SerialNumberAlias or SerialNumber2nd | SNLink |
| | SerialPort_From | Common | Indicate serial port  configuration if use it | Package |
| | SerialPort_From_Enable | Common | Indicate whether use serial port | |
| | SerialPort_To | Common | Indicate serial port  configuration if use it | |
| | SerialPort_To_Enable | Common | Indicate whether use serial port | |
| | SerialPort_To_Conent | Common | Indicate the content of serial port send to | |
| | SerialPort_To_Conent_Type | Common | Indicate the content type, a string or hex | |
| | QtyPerBox | Common | Indicate quantity per carton | |
| | QtyPerPallet | Common | Indicate quantity per pallet | |
| | PrefixForBox | Common | Indicate prefix for box barcode and it will not log into database | |
| | SuffixForBox | Common | Indicate suffix for box barcode and it will not log into database | |
| | PatternForPallet | Common | Indicate pallet barcode pattern | |
| | PrefixForPallet | Common | Indicate prefix for pallet barcode and it will not log into database | |
| | SuffixForPallet | Common | Indicate suffix for pallet barcode and it will not log into database | |