

**Preface:**

The xml gateway is an import/export module that can interact remotely with Timekeeper tables produce or retrieve XML files.

The gateway comes in 2 shapes a dll that can be called from any language that supports ActiveX like Visual Basic or in a form of windows application.

**Environment:**

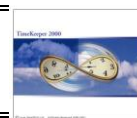
TK-SQL.

**Required program files:**

TK_XML.dll	05/14/2006 (or later)
tkxmlGate.exe	05/09/2006 (or later)
TSTTK_XML.exe	03/19/2006 (or later)
XML schemas	

**Setup Steps:**

Copy all required program files into TKSQL main root directory and register TK\_XML.DLL.



## **1. Enumerated Values:**

1.1 Constant values representing TimeKeeper tables:

<b>TimeKeeper Table</b>	<b>Value</b>
Employees	1
Plants	2
Sites	3
Departments	4
Sort0	5
Sort1	6
Sort2	7
Sort3	8
Sort4	9
Contract	10
Schdgrp	11
Schedule	12
TableQ	13
Dndint	14
Rate	15
Class	16
Ranks	17
Martial	18
Absgroup	19
Daily	20
Profs	21
TableH	22
TableGZ	23
PrdTypes	24
OccupTypes	25
Order	26
Batch	27
Part	28
Proc	29
EmployeeChgKey	1001

1.2 Type Of Parameter that most methods will accept or return.

<b>Type</b>	<b>Value</b>
tkParamsXML	1
tkParamIsFileURL	2



## **2. Methods**

### **2.1 GetSchemaFullPath**

This method is used to retrieve specific schema name and path.

Function structure:

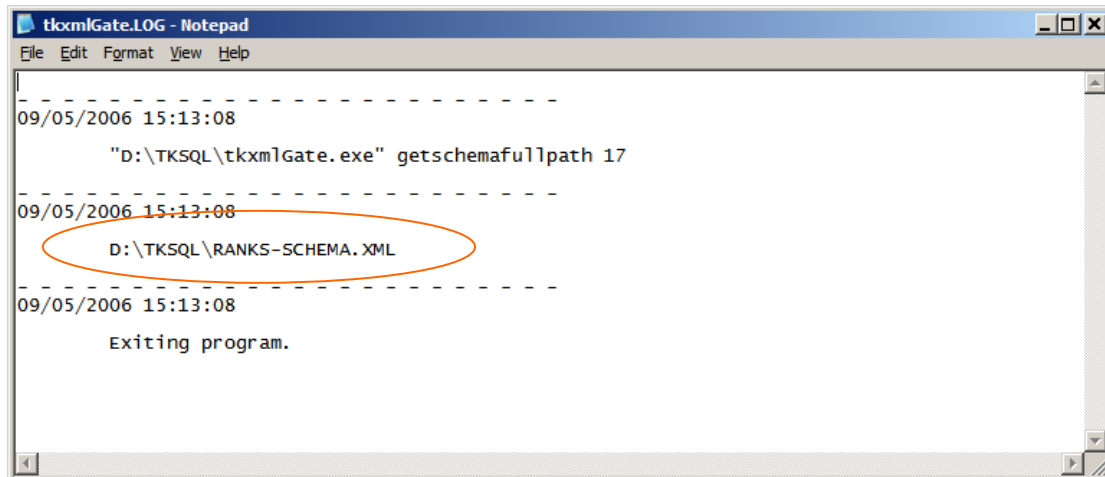
<u>..\TK-SQL Path</u>	<u>TkxmlGate.exe</u>	<u>Getschemafullpath</u>	<u>Enumerated value</u>
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Example:

D:\TKSQL\tkxmlGate.exe getschemafullpath 17
---

Will save the schema used for specific enumerated value on Tkxmlgate.log file.  
For example for Ranks table the system uses D:\TKSQL\RANKS-SCHEMA.XML

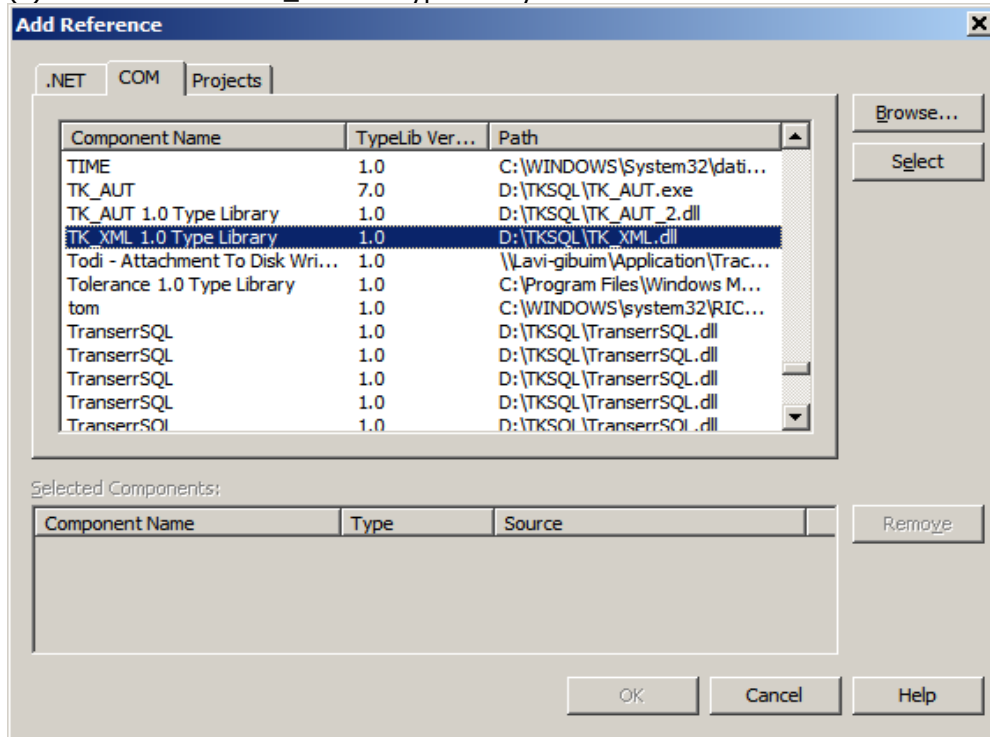
Result Log file:





A VB.Net implementation of using Tk\_XMLLib

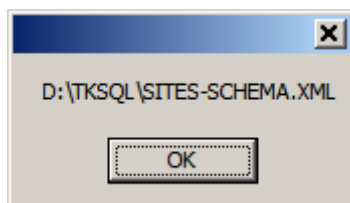
(1) Add reference to Tk\_Xml 1.0 Type library



(2) Add this code to a form:

```
Dim theGate As New TK_XMLLib.TKXMLGate
Dim DW As UInt32
DW = UInt32.Parse(CSTR(TK_XMLLib.tkxmlTableIdentifier.tkTableSites))
Dim thePath As String = theGate.GetSchemaFullPath(DW)
System.Windows.Forms.MessageBox.Show(thePath)
```

(3) Result





## **2.2 InsertObjectAsXML**

This method is used when we want to Import XML data into TimeKeeper tables.  
Function structure:

`..\TK-SQL Path TkxmlGate.exe InsertObjectAsXML Enumerated value XML input file`

Example:

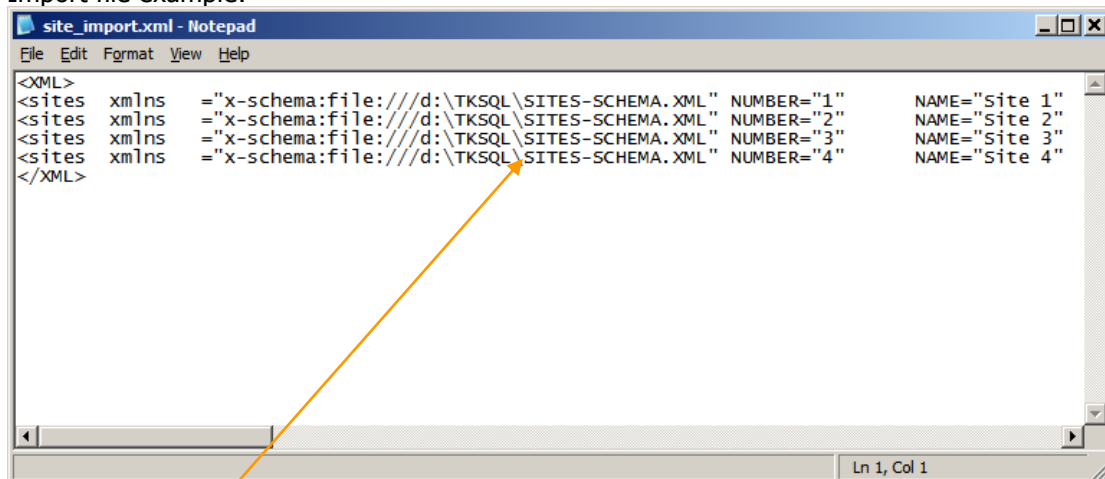
`D:\TKSQL\tkxmlGate.exe InsertObjectAsXML 3 d:\tksql\site_import.xml`

This example will upload sites' info stored on site\_import.xml file into TimeKeeper's sites table.



This function imports one or several objects of the same kind into TimeKeeper's database, after validating both against the relevant XDR schema and referential integrity. The transaction isolation level is per-record which means that if several records are sent, some might be imported and others not.

Import file example:



Note that the fixed path to the import Schema must be hard coded within the XML import file.

The XML import function can also be called using java script:  
This code illustrates it:

```
var oGate = new ActiveXObject("TK_XML.TKXMLGate");
var strxml4="d:\\tksql\\site_import.xml";
oGate.InsertObjectAsXML(3, 2, strxml4); // Import into Sites table
```



### **2.3 GetObject**

This method is used when we want to Export XML data from TimeKeeper tables.

Function structure:

`..\TK-SQL Path TkxmlGate.exe GetObject Enumerated value XML key search file`

Example:

`D:\TKSQL\tkxmlGate.exe GetObject 3 d:\tksql\site_export.xml`

This example will export all fields in Sites table



XML key search file: Is a criteria file and must hold primary key based on it the function will retrieve all other fields of the same record.

XML key search file example:

```
<XML>
<sites xmlns="x-schema:file:///d:\TKSQL\SITES-SCHEMA.XML" NUMBER="1" />
<sites xmlns="x-schema:file:///d:\TKSQL\SITES-SCHEMA.XML" NUMBER="2" />
<sites xmlns="x-schema:file:///d:\TKSQL\SITES-SCHEMA.XML" NUMBER="3" />
</XML>
```



Note that the function will export all fields in required table.

The XML export function can also be called using any language that supports ActiveX technology.

This code illustrates it using vb.net:

```
Dim theGate As New TK_XMLLib.TKXMLGate
Dim Doc As New System.Xml.XmlDocument
Dim DW As UInt32
Dim AW As UInt32
AW = UInt32.Parse(CStr("2"))
DW = UInt32.Parse(CStr(TK_XMLLib.tkxmlTableIdentifier.tkTableSites))
Dim thePath As String = theGate.GetObject(DW, AW,
"d:\tksql\site_export.xml")
Doc.LoadXml(thePath)
Doc.Save("c:\tmp.xml")
```



## 2.4 GetLookupTable

This function retrieves the key field and description for lookup tables.



Note that tkTableDaily and tkTableEmployee are not lookup tables and not supported.

Function structure:

..\TK-SQL Path TkxmlGate.exe GetLookupTable Enumerated value

Example:

D:\TKSQL\tkxmlGate.exe GetLookupTable 5

Will retrieve key and description for Sort0 table in Xml format:

```

29/05/2006 11:34:07
"D:\TKSQL\tkxmlGate.exe" GetLookupTable 5
29/05/2006 11:34:07
<xml xmlns:s='uuid:BDC6E3F0-6DA3-11d1-A2A3-00AA00C14882'
xmlns:dt='uuid:C2F41010-65B3-11d1-A29F-00AA00C14882'
xmlns:rs='urn:schemas-microsoft-com:rowset'
xmlns:z='#RowsetSchema'>
<s:Schema id='RowsetSchema'>
  <s:ElementType name='row' content='eltonly'>
    <s:AttributeType name='NUMBER' rs:number='1' rs:nullable='true'>
      <s:datatype dt:type='string' rs:dbtype='str' dt:maxLength='6' />
    </s:AttributeType>
    <s:AttributeType name='NAME' rs:number='2' rs:nullable='true'>
      <s:datatype dt:type='string' rs:dbtype='str' dt:maxLength='21' />
    </s:AttributeType>
    <s:extends type='rs:rowbase' />
  </s:ElementType>
</s:Schema>
<rs:data>
  <z:row NUMBER='3' NAME='Alberta' />
  <z:row NUMBER='1' NAME='Ontario' />
  <z:row NUMBER='2' NAME='Quebec' />
  <z:row NUMBER='4' NAME='Remote' />
</rs:data>

```

This code illustrates it using vb.net:

```

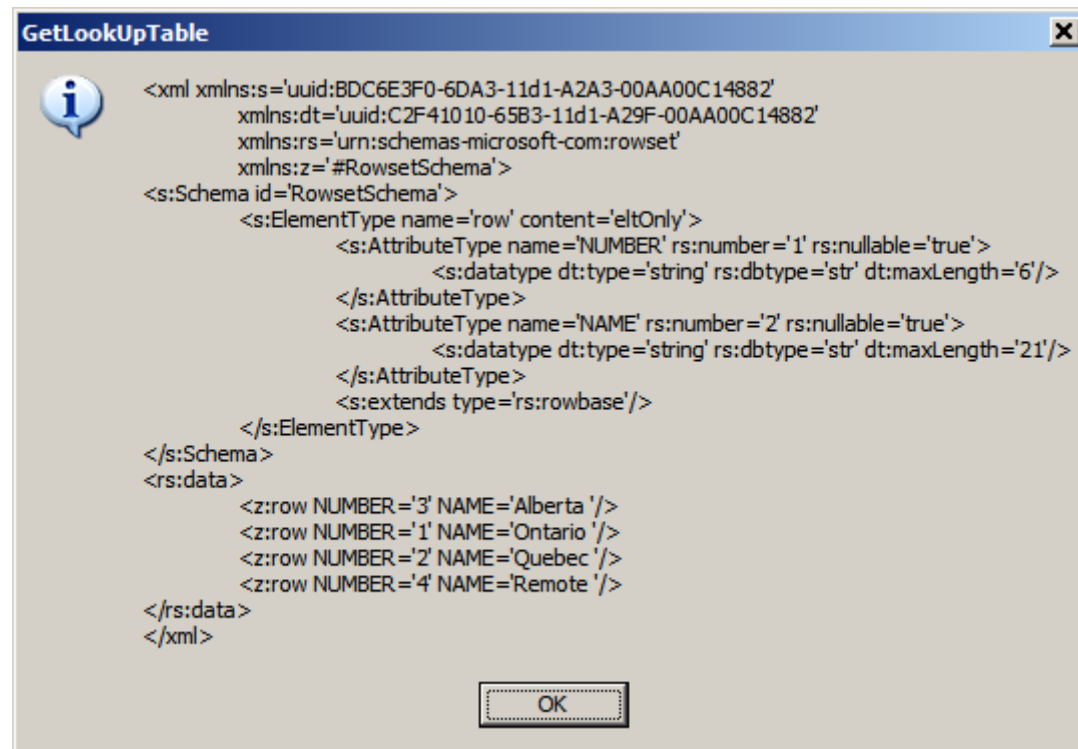
Dim theGate As New TK_XMLLib.TKXMLGate

Dim Doc As New System.Xml.XmlDocument
Dim DW As UInt32
Dim AW As UInt32
AW = UInt32.Parse(CStr("1"))
DW = UInt32.Parse(CStr(TK_XMLLib.tkxmlTableIdentifier.tkTableSort0))
Dim thePath As String = theGate.GetLookupTable(DW, AW)
MsgBox((thePath), MsgBoxStyle.Information, "GetLookUpTable")

```



Result:







## **2.5 ChangeKey**

This function changes employee number based on XML input file that hold the old employees' numbers, new employees' numbers and TK user name.

Function structure:

..\TK-SQL Path TkxmlGate.exe Changekey Enumerated value XML input file

Example:

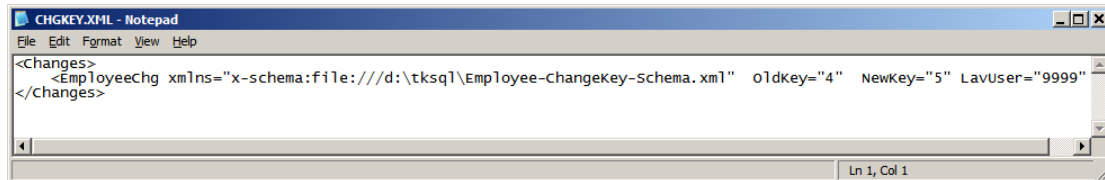
D:\TKSQL\tkxmlGate.exe Changekey 1 2 "d:\tksql\CHGKEY.XML"

This code illustrates the usage of the function using vb.net:

```
Dim theGate As New TK_XMLLib.TKXMLGate

    Dim theGate As New TK_XMLLib.TKXMLGate
    Dim DW As UInt32
    Dim AW As UInt32
    AW = UInt32.Parse(CStr("2"))
    DW =
    UInt32.Parse(CStr(TK_XMLLib.tkxmlTableIdentifier.tkTableEmployees))
    theGate.ChangeKey(DW, AW, "d:\tksql\CHGKEY.XML")
```

XML Input file example that will convert employee number 4 into Employee number 5.



Note that this method will convert all occurrences of the old employee number into the new one in all TimeKeeper tables.



The XML input file must hold a fix path to the employee-ChangeKey-Schema.xml



## **2.6 DeleteObject**

This function deletes records from lookup tables.

Function structure:

<u>TableType</u> <u>deleteobject</u> <u>Enumerated value</u> <u>XML input file</u>
--

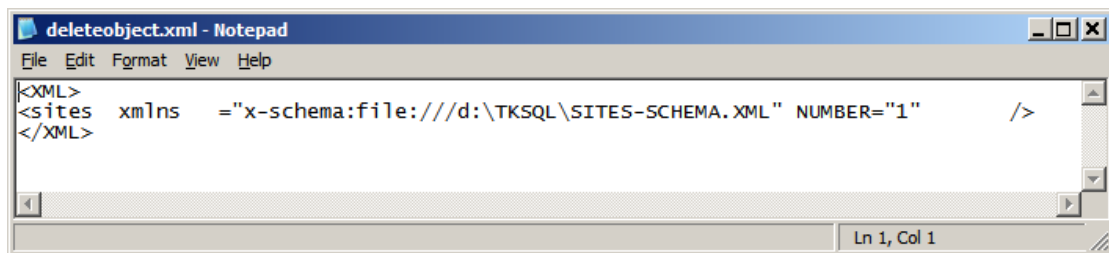


*This function can be run only using DLL interface.*

This code illustrates the usage of the function using vb.net:

```
Dim theGate As New TK_XMLLib.TKXMLGate
Dim DW As UInt32
Dim AW As UInt32
AW = UInt32.Parse(CStr(TK_XMLLib.tkxmlParamType.tkParamIsFileURL))
DW = UInt32.Parse(CStr(TK_XMLLib.tkxmlTableIdentifier.tkTableSites))
Dim sFile As String = "d:\tksql\deleteobject.XML"
Dim res As String = theGate.DeleteObject(DW, AW, sFile)
```

XML sample input file: This sample will delete site number 1.



The XML input file must hold a fix path to the schema file of the deleted table.



You can use this function only to delete lookup tables' entries, records from daily or employee master file can't be deleted using this function!!!



## **2.7 TruncateTable**

This function deletes all records from a lookup table.  
This Function gets Table Number as an input parameter and deletes all records on that table so the usage of this table must be with extreme care!!!

<u>TableType</u> <u>TruncateTable</u> <u>Enumerated value</u>
---



*This function can be run only using DLL interface.*

This code illustrates the usage of the function using vb.net and will delete all records on Sites Table:

```
Dim theGate As New TK_XMLLib.TKXMLGate
Dim DW As UInt32
Dim AW As UInt32
DW = UInt32.Parse(CStr(TK_XMLLib.tkxmlTableIdentifier.tkTableSites))
Dim res As String = theGate.TruncateTable(DW)
```



You can use this function only to delete lookup tables' entries, records from daily or employee master file can't be deleted using this function!!!



## Appendix A.

Error codes:

Descriptive Name	Result	Description / Solution
TKERR_EMP_NOCODE	0x8F86-0001	An <employee> element with no EMPLOYEE attribute has been detected. (1).
TKERR_EMP_NOATTRIBUTES	0x8F86-0002	An <employee> element with no attributes whatsoever has been detected. (1).
TKERR_TAKSHIR_NOATTRIBUTES	0x8F86-0003	A <TAKSHIR> element with no attributes whatsoever has been detected. (1).
TKERR_IBROWSE_NOATTRIBUTES	0x8F86-0004	A <IBROWSE> element with no attributes whatsoever has been detected. (1).
TKERR_ATT_NOATTRIBUTES	0x8F86-0005	An <EmplAtt> sub-element with no attributes whatsoever has been detected (1).
TKERR_CONTRACT_NOATTRIBUTES	0x8F86-0006	An <EmplCont> sub-element with no attributes whatsoever has been detected. (1).
TKERR_EMPLOYEE_NOT_NUMERIC	0x8F86-0007	In an installation where employee numbers are defined as numeric, an employee's code should be numeric, right-justified, space padded to length 12
TKERR_EMPLOYEE_EMPTY	0x8F86-0008	The employee code passed was an empty string.
TKERR_BAD_EMPVEC	0x8F86-0009	At least one of the EMPVEC elements passed had an either logical or referential error.
TKERR_PLANT_NOCODE	0x8F86-000A	A <plants> element with no NUMBER attribute has been detected. (1).
TKERR_PLANT_NOATTRIBUTES	0x8F86-000B	A <plants> element with no attributes whatsoever has been detected. (1).
TKERR_SITE_NOCODE	0x8F86-000C	A <sites> element with no NUMBER attribute has been detected. (1).
TKERR_SITE_NOATTRIBUTES	0x8F86-000D	A <sites> element with no attributes whatsoever has been detected. (1).
TKERR_DEPT_NOCODE	0x8F86-000E	A <dpartmnt> element with no NUMBER attribute has been detected. (1).
TKERR_DEPT_NOATTRIBUTES	0x8F86-	A <dpartmnt> element



	000F	with no attributes whatsoever has been detected. (1).
TKERR_SORT_NOCODE	0x8F86-0010	A <sortN> element with no NUMBER attribute has been detected. (1).
TKERR_SORT_NOATTRIBUTES	0x8F86-0011	A <sortN> element with no attributes whatsoever has been detected. (1).
TKERR_ABSGROUP_NOCODE	0x8F86-0012	An <absgroup> element with no ABSGROUP attribute has been detected. (1).
TKERR_ABSGROUP_NOATTRIBUTES	0x8F86-0013	A <absgroup> element with no attributes whatsoever has been detected. (1).
TKERR_MARITAL_NOCODE	0x8F86-0014	A <marital> element with no NUMBER attribute has been detected. (1).
TKERR_MARITAL_NOATTRIBUTES	0x8F86-0015	A <marital> element with no attributes whatsoever has been detected. (1).
TKERR_CLASS_NOCODE	0x8F86-0016	A <class> element with no NUMBER attribute has been detected. (1).
TKERR_CLASS_NOATTRIBUTES	0x8F86-0017	A <class> element with no attributes whatsoever has been detected (1).
TKERR_RATE_NOCODE	0x8F86-0018	A <rate> element with no RATE_CODE or RATE_FROM attribute has been detected (1)
TKERR_RATE_NOATTRIBUTES	0x8F86-0019	A <rate> element with no attributes whatsoever has been detected (1).
TKERR_DNDINT_NOCODE	0x8F86-001A	A <dndint> element with no TYPNUMBER attribute has been detected (1).
TKERR_DNDINT_NOATTRIBUTES	0x8F86-001B	A <dndint> element with no attributes whatsoever has been detected (1).
TKERR_SCHDGRP_NOCODE	0x8F86-001C	A <schdgrp> element with no GROUP_NUM attribute has been detected (1).
TKERR_SCHDGRP_NOATTRIBUTES	0x8F86-001D	A <schdgrp> element with no attributes whatsoever has been detected (1).
TKERR_RANKS_NOCODE	0x8F86-001E	A <ranks> element with no CLASS_NUM or RANK_NUM attribute has been detected (1).
TKERR_RANKS_NOATTRIBUTES	0x8F86-001F	A <ranks> element with no attributes whatsoever has been detected (1).



TKERR_SAME_KEY	0x8F86-0020	Attempt to replace a key by an identical value.
TKERR_DAILY_NOEMPLOYEE	0x8F86-0021	The DAILY XML passed has no EMPLOYEE information
TKERR_DAILY_BAD_FORMAT	0x8F86-0022	The DAILY XML passed is not properly formatted.
TKERR_DAILY_BAD_EMPLOYEE	0x8F86-0023	The employee passed should be right justified, 12 characters in length
TKERR_PROFS_NOCODE	0x8F86-0024	A <profs> element with no NUMBER attribute has been detected
TKERR_PROFS_NOATTRIBUTES	0x8F86-0025	A <profs> element with no attributes whatsoever has been detected.
TKERR_DAILY_NODATE	0x8F86-0026	A DAILY record with no date was found.
TKERR_DAILY_NODATA	0x8F86-0027	A DAILY record with no data whatsoever was found
TKERR_DAILY_NORECORD	0x8F86-0028	The desired DAILY database record does not exist. It won't be created
TKERR_EMPLOYEE_WITH_NO_CONTRACT	0x8F86-0029	No contracts at all were provided for the employee.
TKERR_DAILY_NO_CALCDAY	0x8F86-002A	The desired DAILY database record does not exist. It won't be created
TKERR_DAILY_BAD_CALCDAY	0x8F86-002B	<i>Description is dynamically built from CalcDay's result.</i>
TKERR_DAILY_NOUSER	0x8F86-002C	The XML passed does not include the user's name.
TKERR_DEL_NOKEY	0x8F86-002D	The XML passed does not include all necessary key fields.
TKERR_DUPLICATE_KEY	0x8F86-002E	Employee's key was not changed due to duplicate records, see log.
TKERR_ORDER_NOCODE	0x8F86-002F	An <order> element with no NUMBER attribute has been detected.
TKERR_ORDER_NOATTRIBUTES	0x8F86-0030	An <order> element with no attributes whatsoever has been detected.
TKERR_ORDER_LEVEL_NOT_USED	0x8F86-0031	The current configuration does not support the use of table ORDER.
TKERR_NO_SCHEMA	0x8F86-0033	The XML passed does not use the schema specified by this application.
TKERR_BUFFER_OVERFLOW	0x8F86-0033	Buffer overflow when moving XML attribute to database field.
TKERR_BAD_TABLE	0x8F86-003D	The requested table code cannot be handled by the



		requested function.
TKERR_BAD_PARAM	0x8F86-003E	The requested parameter type is not supported by this function.
TKERR_BATCH_NOCODE	0x8F86-0047	A <batch> element with no NUMBER attribute has been detected.
TKERR_BATCH_NOLINK	0x8F86-0048	A <batch> should be linked to an ORDER in the current configuration.
TKERR_BATCH_NOATTRIBUTES	0x8F86-0049	A <batch> element with no attributes whatsoever has been detected.
TKERR_TC_NOT_INSTALLED	0x8F86-004A	Time Costing is not supported by the current configuration.
TKERR_PART_LEVEL_NOT_USED	0x8F86-004B	The current configuration does not support the use of table PART.
TKERR_PART_NOCODE	0x8F86-004C	A <part> element with no NUMBER attribute has been detected.
TKERR_PART_NOLINK	0x8F86-004D	A <part> should be linked to an ORDER or BATCH in the current configuration.
TKERR_PART_NOATTRIBUTES	0x8F86-004E	A <part> element with no attributes whatsoever has been detected.
TKERR_PROC_NOLINK	0x8F86-004F	A <proc> should be linked to an ORDER/BATCH/PART in the current configuration.
TKERR_PROC_NOCODE	0x8F86-0050	A <proc> element with no NUMBER attribute has been detected.
TKERR_PROC_NOATTRIBUTES	0x8F86-0051	A <proc> element with no attributes whatsoever has been detected.
TKERR_PROC_LEVEL_NOT_USED	0x8F86-0052	The current configuration does not support the use of table PROC.
TKWRN_NO_OBJECTS_FOUND	0x0F86-0053	None of the desired objects was found.
TKERR_UNSOPPORTED_ALTKEY	0x8F86-0054	The combination of element and attribute for an alternate key is not supported.
TKERR_BAD_EMPFLEX	0x8F86-0055	At least one of the EMPFLEX elements passed had a logical or referential error
TKERR_BAD_CHILD	0x8F86-0056	At least one of the 'child' elements passed had a logical or referential error
TKERR_BAD_RELATIVE	0x8F86-	At least one of the 'relative'



	0057	elements passed had a logical or referential error
TKERR_BAD_ABSENCE	0x8F86-0058	At least one of the 'absence' elements passed had a logical or referential error
TKERR_BAD_PARTIAL	0x8F86-0059	At least one of the 'partial' elements passed had a logical or referential error
TKERR_NO_HIRE_DATE	0x8F86-005A	In order to create a new employee record, the hiring date MUST be SPECIFIED.
TKERR_CONTRACT_NOT_NUMERIC	0x8F86-005B	In this installation, an contract's code should be numeric.
TKERR_EMP_NOT_GENERATED	0x8F86-005C	Could not automatically generate an employee number.
TKERR_RATE_NEGATIVE	0x8F86-005D	A rate should NOT be negative.
TKERR_EMPLUA_NOCODE	0x8F86-005E	A 'emplu01' element with no NUMBER attribute has been detected.
TKERR_EMPLUA_NOATTRIBUTES	0x8F86-005F	A 'emplu01' element with no attributes at all has been detected.
TKERR_EMPLUB_NOCODE	0x8F86-0060	A 'emplu11' element with no NUMBER attribute has been detected.
TKERR_EMPLUB_NOATTRIBUTES	0x8F86-0061	A 'emplu11' element with no attributes at all has been detected.
TKERR_REFERENTIAL	0x8F86-0065	Referential integrity violation (details in returned string).
TKERR_INTERNAL	0x8F86-006F	Internal consistency violation.
TKERR_BADGE_NOCODE	0x8F86-0083	Attempt to select a badge with no code (1).
TKERR_BADGE_MSG_FROM_AFTER_TILL	0x8F86-0084	BADGE: First date to display message should be earlier than or equal to last date to display message.
TKERR_BADGE_FROM_AFTER_TILL	0x8F86-0085	BADGE: First date assigned to employee should be earlier than or equal to last date assigned to employee.
TKERR_BADGE_IN_USE	0x8F86-0086	BADGE: The specified badge is in use by another employee during the requested period or part of it.