

API Documentation: How to Explain so Experts will Understand

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Topics

- What's an API?
- Needs of an expert audience
- Essential API concepts
- Organization of API documentation

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What's an API?

- API = Application Programming Interface
- The way applications talk to each other
- The way developers talk to applications

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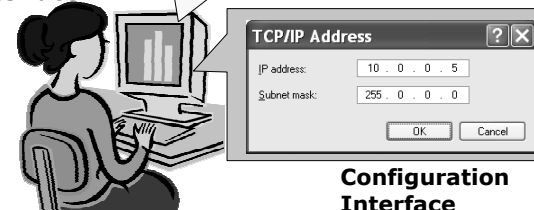


Interfaces are for Everyone

```
Set objGraph = New ColumnChart  
objGraph.Background = "Cyan"  
objGraph.Foreground = "LightBlue"  
objGraph.XAxis.Scale.Lower = 0  
...  
objGraph.Show
```

**Programming
Interface**

**User
Interface**



**Configuration
Interface**

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Typical Documentation Set

- User Interface
 - User's Guide
 - Getting Started
- Configuration Interface
 - Installation Guide
 - Administrator's Guide
- Programming Interface
 - Programmer's Guide
 - API Reference

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Audience for API Documentation

- Software developers
- Assumed knowledge:
 - What an application does (probably)
 - How to use the application (probably)
 - How to program (definitely)
 - How to program in a particular language (maybe)
- Assumed lack of knowledge:
 - How to program the application
 - Why to program the application

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How to Peel a Potato (Novice Version)

To peel the potatoes, follow this procedure:

1. Grasp a potato in your left hand.
2. Hold the peeler or knife in your right hand.
3. Moving the peeler in short, quick motions, scrape the peel from the potato and expose the white.
4. Repeat steps 1-3 for all the other potatoes.

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How to Peel a Potato (Expert Version)

One of the most nutritious parts of a potato is the peel. The peel is rich in vitamin B and other nutrients, and it is also the most flavorful part of the potato. Many people like to eat the peel, and if you're one of them, you can cook with unpeeled potatoes.

It's true, though, that the peel looks ugly to our Western eyes, and some people don't like the taste. Often, too, the peel is dirty and hard to clean. If you prefer to peel your potatoes, follow this procedure:

1. Grasp the peeler and potato in your hands.
2. Scrape the peel from the potato and expose the white.



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Reader's Perspective

Novice version

Procedural

Imperative

Less prior knowledge

Expert version

Conceptual

Advisory

More prior knowledge



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Reader's Perspective (cont.)

- The novice version doesn't meet the expert's needs
- The expert version may not meet the novice's needs
 - Exception: novices who want to become experts



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Author's Perspective

Novice version

Author may be an expert, but must think like a novice

Author should not explain what the reader cannot understand

Expert version

Author may be a novice, but must become an expert

Author cannot explain what the author does not understand



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How to Become an API Expert

- Learn to program
- Learn programming concepts
- Read programming manuals
- Ask questions
- Practice ...

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Object-Oriented Programming

- Object-oriented
 - Visual Basic
 - C++
 - Java
 - JavaScript
 - ASP
 - COM
 - XML
- Not object-oriented
 - C
 - COBOL
 - FORTRAN
 - WebWorks macro language

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Objects

- Everything is an object
- Objects have:
 - Properties
 - Methods

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Object Model for Fixing Your Car

Car
Owner
Garage
Boss
Mechanic

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Car Object

<u>Property</u>	<u>Data type</u>	<u>Example of property value</u>
Model	String	"Studebaker"
Year	Integer	1957
Km	Long Integer	752,821
Problems	Array of String	Problems(0) = "Hood pops open when close trunk" Problems(1) = "Trunk pops open when close hood"

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Garage Object

- Method
FixCar

- Syntax

```
Function FixCar(objCar As Car) As Long
```

Parameter

Return value

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Fixing Your Car in Visual Basic

```
Dim objCar As Car  
Dim objGarage As Garage  
Dim lngPrice As Long
```

Declare variables

```
Set objCar = New Car  
objCar.Model = "Studebaker"  
objCar.Problems(0) = _  
"Hood opens when close trunk"
```

Create Car object

```
...  
Set objGarage = New Garage  
lngPrice = objGarage.FixCar(objCar)  
objCar.Owner.Pay(lngPrice, objGarage)
```

Create Garage obj

Call methods

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Example: a Word Macro

```
Public Sub FindSelectedText()
```

```
    Dim objRange As Range  
    Dim strText As String
```

```
    Set objRange = Selection.Range  
    strText = objRange.Text  
    Call objRange.Collapse(wdCollapseEnd)  
    objRange.Find.Text = strText
```

```
    ...  
    objRange.Find.Execute  
    If objRange.Find.Found Then objRange.Select
```

```
End Sub
```

Declare variables

Create Range obj

Call methods

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Fixing Your Car in XML

```
<FixCar>  
  <Car>  
    <Model>Studebaker</Model>  
    <Problems>  
      <Problem>Hood opens when close trunk</Problem>  
      ...  
    </Problems>  
  </Car>  
  <Garage>  
    <Name>Jake's Studebaker</Name>  
  </Garage>  
</FixCar>
```

Method

Car object

Garage object

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Conceptual Documentation

- *Programmer's Guide* or *Developer's Guide*
- Introduction
 - What you can do with the API
 - System architecture
 - Operating principles
- Tutorial
 - "Hello, World" program
- Concepts
 - Object model
 - Programming guidelines
- How to ...
 - Code examples
 - Advanced configurations (registry, cfg files, network)
 - Application design examples

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Language of Examples

- Most systems can be programmed in multiple languages
 - Visual Basic / Visual C++ / ASP
- Examples are often in a single language
 - Visual Basic



API Reference

- Object-model documentation
- Online help
- One help topic per object
- Typically one help topic per property or method



Service Optimization Library

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Contents Index S

W6CBFTask object
ClickSchedule Client-Side Business API

Declared in
[W6CBFObjModLib.dll](#)

Description
A W6CBFTask object contains the data that define a task. For a general discussion of tasks and their properties, see the ClickSchedule User's Guide.

Properties	Methods
AppointmentFinish	GetAssignments
AppointmentStart	GetDuration
Calendar	GetObjectType
CallID	GetProperty
City	GetPropertyByName
ConfirmationDate	GetPropertyCount
ContactDate	GetPropertyID
ContactName	GetPropertyName
ContactPhoneNumber	GetPropertyType
ContractType	Serialize

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Object Topic

Service Optimization Library

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Contents Index S

AppointmentFinish property
ClickSchedule Client-Side Business API

Read/Write

Type
Date

Description
The end of an appointment for the task, that is, the latest time that is permitted for an assignment start.
The [W6CBFApptOptions](#) object uses this property to book appointments. The property is not in use with the [W6CBFApptBooking](#) object.
When you afterwards schedule the task, you should use a Time rule to enforce the appointment, that is, ensure that the task is assigned before the AppointmentFinish time.

Applies to [W6CBFTask](#) **See also**

Property Topic

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- GetCollectionID method
- GetCollectionName method
- GetCount method
- GetCurrentStatus method
- GetDictionaryKey method
- GetDistance method
- GetDistanceByKey method
- GetDuration method**
- GetExtendedProperties method
- GetFirst method
- GetHead method
- GetInitialStopCondition method
- GetIntervals method
- GetIntervals method
- GetKeyTypeInfo method
- GetLast method
- GetLocation method
- GetLocationByKey method
- GetLog method
- GetMultiple method
- GetNext method
- GetNext method
- GetNext method
- GetNextInterval method

GetDuration method
ClickSchedule Client-Side Business API

Syntax

```
Sub GetDuration( _
    varDays As Variant, _
    varHour As Variant, _
    varMinute As Variant, _
    varSecond As Variant)
```

Description


This method retrieves the Duration property of a task, in units of days : hours : minutes : seconds.

Parameter	In/Out	Description
varDays	Out	Days
varHour	Out	Hours
varMinute	Out	Minutes
varSecond	Out	Seconds

Applies to
[W6CBFTask](#)

See also
[SetDuration](#)

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