

# COM DCOM Interview Questions And Answers Guide.



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## COM DCOM Job Interview Preparation Guide.

### Question # 1

Do COM keep track of all the object references (Accounting)?

#### Answer:-

Object references in COM is accounted using two methods of IUnknown Interface (AddRef and Release).

AddRef: Increments a reference count whereas "Release" decrements the count.

When the count of the reference is zero the DLL is unloaded from memory.

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### Question # 2

When you call CoInitialize(NULL) function how it works internally?

#### Answer:-

CoInitialize will initialize the COM library and will move the executing thread to a STA or Single Threaded Apartment. Apartment is the logical entity where threads live.

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### Question # 3

How do you know it is general dll or com dll?

#### Answer:-

Open the dll in dependency walker application (depends.exe). If the dll is having following functions

DLLRegisterServer  
DLLUnRegisterServer  
DLLCanUnloadNow  
DLLGetClassObject

It is a COM DLL otherwise it is not.

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### Question # 4

Can a COM interface be implemented by more than one COM class in the same COM component?

#### Answer:-

NO

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### Question # 5

What should QueryInterface functions do if requested object was not found?

#### Answer:-

It returns a pointer to the current interface if successful or E\_NOINTERFACE otherwise.

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### Question # 6

How do you make a NET component talk to a COM component?

#### Answer:-



RCW is used for making a .NET component talk to a COM component.  
CCW is used for COM to .NET communication

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### Question # 7

How to create an instance of the object in COM?

**Answer:-**

To create the instance of COM component use the following WIN32 APIs  
To access the component that was there in local system use following API  
CoCreateInstance(clsid,NULL(used for aggregation),CLSCTX\_ALL,Interface\_GUID,(void\*\*)&pRequestedInterface );  
To access the COM component remotely use the following API  
CoCreateInstanceEx  
(CLSID,NULL,CLSCTX\_ALL,COSERVERINFO,Interface\_GUID,MULTI\_QI\* );

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### Question # 8

What kind of components can be used as DCOM servers?

**Answer:-**

There are two kind components

1. InProc
2. OutProc

We can use both as DCOM servers, its upto our design.

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### Question # 9

What are the different compatibility types when we create a COM component?

**Answer:-**

No Compatibility  
Project Compatibility  
Binary Compatibility

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### Question # 10

How to Use structs in COM interfaces when Automation compatibility is not an issue?

**Answer:-**

Structs, also known as User Defined Types (UDTs), can be used in Automation- compatible interfaces  
An Automation- compatible struct may contain only primitive Automation types as its members.  
Nesting structs is not allowed, but VARIANT is allowed thus enabling nested structs (you can store a struct in a VARIANT).

In order for a struct to be usable for Automation-compatible interfaces, the struct must be described in a type library and it must be declared with its own GUID:  
[uuid(21602F40-CC62-11d4-AA2B-00A0CC39CFE0)]  
struct MyStruct

```
{
    [helpstring("A long value")]
    long nLongValue;
    [helpstring("A string")]
    BSTR bstrStringValue;
};
// Later in the IDL file
[uuid(...), version(...), helpstring(...)]
library MyLib
{
    ...
    struct MyStruct;
};
```

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### Question # 11

Differentiate normal DLL to COM DLL?

**Answer:-**

COM DLL exposes Interface on the contrary to normal DLL



that exports functions. Clients create the pointer to COMDLL's interface to call the methods defined by the component that implements the interface. That results in isolation of implementation and definition of method in the interface. Client doesn't need to relink or recompile the code if method in the com dll changes as far as the definition of the interface remains same.

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### Question # 12

Which tool is used to configure the port range and protocols for DCOM communications?

**Answer:-**

use DCOMCONFIG.EXE

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### Question # 13

What are queued components?

**Answer:-**

Queued Components, a key feature of COM+ and based on Microsoft Message Queuing Services (MSMQ), provides an easy way to invoke and execute components asynchronously. Processing can occur without regard to the availability or accessibility of either the sender or receiver. A home shopping network is an example of the type of application that might benefit from asynchronous processing. In this asynchronous, disconnected scenario where viewers phone in to several operators, orders are taken en masse and are then queued for later retrieval and processing by the server.

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### Question # 14

how to call a dll as a COM dll?

**Answer:-**

In order to call your DLL as COM dll, you have to follow some rules to develop the dll. If those rules are there then only your DLL will be called as COM dll. COM is a specification set of rules to develop binaries, COM is not a language.

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### Question # 15

What are the purposes of AddRef, Release and QueryInterface functions?

**Answer:-**

Query Interface method is used to get the pointer to the interface specified in one of the parameters of this method. Client then uses this pointer to call the method of the component. AddRef and Release are used to increase and decrease the count of the instance of component loaded in memory respectively. When the count reaches zero the component is unloaded.

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### Question # 16

What is the difference, if any, between OLE and COM?

**Answer:-**

OLE is a set of technologies to support linking and embedding. COM lies in OLE as one of the technologies. COM defines a binary standard / set of rules for developing reusable components.

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### Question # 17

What is In-proc?

**Answer:-**

In-proc server is a COM component, when instance is the server is loaded into the caller process space. In-Proc server can be easily identified by .dll extension.



Out-of-Proc server is a COM component that runs in its own process space and for any instances created by the users, a proxy is created within the user's process space. Proxy is responsible for interacting with the server to carry out operation on behalf of the client. (.exe extension).

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### Question # 18

Define and explain about COM?

**Answer:-**

COM (Component Object Model) technology in the Microsoft Windows-family of Operating Systems enables software components to communicate. COM is used by developers to create re-usable software components, link components together to build applications, and take advantage of Windows services.

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### Question # 19

Explain Futures of COM?

**Answer:-**

1. Defines a binary standard for component interoperability
2. Is programming language-independent
3. Is provided on multiple platforms (Microsoft® Windows®,
4. Microsoft Windows NT®, Apple® Macintosh®, UNIX®)
5. Provides for robust evolution of component-based applications and systems
6. Is extensible

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### Question # 20

What is IUnknown? What methods are provided by IUnknown?

**Answer:-**

IUnknown is a type of COM Interface.

Every COM class implements an interface named IUnknown.

IUnknown contains three methods:

- 1) HRESULT QueryInterface()
- 2) ULONG AddRef()
- 3) ULONG Release()

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### Question # 21

What happens when client calls CoCreateInstance?

**Answer:-**

- Reads RootClassesProgId for the matching ProgID
- Reads RootClassesProgId for the matching CLSID. The CLSID is read from the above step.
- From the CLSID key, the server type and image filename is known.
- Depending upon the server type, it starts the server.
- Calls CoGetClassObject function to get a handle to the factory object.
- Then calls createinstance on the factory interface to get the pointer to the derived object.

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### Question # 22

C is aggregated by B, which in turn aggregated by A. Our client requested C. What will happen?

**Answer:-**

QueryInterface to A will delegate request to B which, in turn, will delegate request for the interface to C. This pointer will be returned to the client.

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### Question # 23

How does a DCOM component know where to instantiate itself?

**Answer:-**

While accessing the DCOM component you have to provide COSERVERINFO structure. This structure is having the



information about where the component is.

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### **Question # 24**

What is a moniker?

#### **Answer:-**

An object that implements the IMoniker interface. A moniker acts as a name that uniquely identifies a COM object. In the same way that a path identifies a file in the file system, a moniker identifies a COM object in the directory namespace.

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### **Question # 25**

Suppose we have object B and aggregated object C (in- proc server), created by B. Can you access any interface of B from C? What's the difference between aggregated and contained objects?

#### **Answer:-**

For the first question, Yes, we can since the QueryInterface () rules of thumb suggest that if we can query an interface of C from B, we should be able to query the viceversa. The IUnknown implementation of both the objects has to do the 'magic'.

For the second question, Aggregation bounds outer and inner objects together and gives the user the interface pointers of either objects to access it directly so that the user never knows the objects are aggregated.

But when containment is used, the interface of inner object never exposed to the client directly rather the outer object receives the calls and forwards internally. Here also, the user doesn't know the objects are contained.

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