General (chapter 03, Singleton objects)

```csharp
using System;

namespace General
{
        public interface IMyRemoteObject
        {
                void setValue(int newval);
                int getValue();
        }
}
```

Client (chapter 03, Singleton objects)

```csharp
using System;
using System.Runtime.Remoting;
using General;
using System.Runtime.Remoting.Channels.Http;
using System.Runtime.Remoting.Channels;

namespace Client
{

        class Client
        {
                static void Main(string[] args)
                {
                        HttpChannel channel = new HttpChannel();
                        ChannelServices.RegisterChannel(channel);

                        IMyRemoteObject obj = (IMyRemoteObject) Activator.GetObject(
                                typeof(IMyRemoteObject),
                                "http://localhost:1234/MyRemoteObject.soap");
                        Console.WriteLine("Client.Main(): Reference to rem.obj. acquired");

                        int tmp = obj.getValue();

                        Console.WriteLine("Client.Main(): Original server side value: {0}",tmp);
                        Console.WriteLine("Client.Main(): Will set value to 42");
                        obj.setValue(42);
                        tmp = obj.getValue();
                        Console.WriteLine("Client.Main(): New server side value {0}", tmp);


                        Console.ReadLine();
                }
        }
}
```

```csharp
using System;
using System.Runtime.Remoting;
using General;
using System.Runtime.Remoting.Channels.Http;
using System.Runtime.Remoting.Channels;

namespace Server
{

        class MyRemoteObject: MarshalByRefObject, IMyRemoteObject
        {
                int myvalue;

                public MyRemoteObject()
                {
                        Console.WriteLine("MyRemoteObject.Constructor: New Object created");
                }

                public MyRemoteObject(int startvalue)
                {
                        Console.WriteLine("MyRemoteObject.Constructor: .ctor called with
{0}",startvalue);
                        myvalue = startvalue;
                }

                public void setValue(int newval)
                {
                        Console.WriteLine("MyRemoteObject.setValue(): old {0} new
{1}",myvalue,newval);
                        myvalue = newval;
                }
                public int getValue()
                {
                        Console.WriteLine("MyRemoteObject.getValue(): current {0}",myvalue);
                        return myvalue;
                }
        }

        class ServerStartup
        {
                static void Main(string[] args)
                {
                        Console.WriteLine ("ServerStartup.Main(): Server started");

                        HttpChannel chnl = new HttpChannel(1234);
                        ChannelServices.RegisterChannel(chnl);
                        RemotingConfiguration.RegisterWellKnownServiceType(
                                typeof(MyRemoteObject),
                                "MyRemoteObject.soap",
                                WellKnownObjectMode.Singleton);
```

```
                              // the server will keep running until keypress.
                              Console.ReadLine();
                  }
         }
}
```

From Client to Server calling "getValue()"

```
POST /MyRemoteObject.soap HTTP/1.1
User-Agent: Mozilla/4.0+(compatible; MSIE 6.0; Windows 5.0.2195.0; MS .NET Remoting; MS .NET
CLR 1.1.4322.573 )
Content-Type: text/xml; charset="utf-8"
SOAPAction: "http://schemas.microsoft.com/clr/nsassem/General.IMyRemoteObject/General#getValue"
Content-Length: 551
Expect: 100-continue
Connection: Keep-Alive
Host: localhost:1234

<SOAP-ENV:Envelope xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
xmlns:xsd="http://www.w3.org/2001/XMLSchema" xmlns:SOAP-
ENC="http://schemas.xmlsoap.org/soap/encoding/" xmlns:SOAP-
ENV="http://schemas.xmlsoap.org/soap/envelope/"
xmlns:clr="http://schemas.microsoft.com/soap/encoding/clr/1.0" SOAP-
ENV:encodingStyle="http://schemas.xmlsoap.org/soap/encoding/">
<SOAP-ENV:Body>
<i2:getValue id="ref-1"
xmlns:i2="http://schemas.microsoft.com/clr/nsassem/General.IMyRemoteObject/General">
</i2:getValue>
</SOAP-ENV:Body>
</SOAP-ENV:Envelope>
```

From Server to Client as response to "getValue()" call

```
HTTP/1.1 200 OK
Content-Type: text/xml; charset="utf-8"
Server: MS .NET Remoting, MS .NET CLR 1.1.4322.573
Content-Length: 587

<SOAP-ENV:Envelope xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
xmlns:xsd="http://www.w3.org/2001/XMLSchema" xmlns:SOAP-
ENC="http://schemas.xmlsoap.org/soap/encoding/" xmlns:SOAP-
ENV="http://schemas.xmlsoap.org/soap/envelope/"
xmlns:clr="http://schemas.microsoft.com/soap/encoding/clr/1.0" SOAP-
ENV:encodingStyle="http://schemas.xmlsoap.org/soap/encoding/">
<SOAP-ENV:Body>
<i2:getValueResponse id="ref-1"
xmlns:i2="http://schemas.microsoft.com/clr/nsassem/General.IMyRemoteObject/General">
<return>0</return>
</i2:getValueResponse>
</SOAP-ENV:Body>
</SOAP-ENV:Envelope>
```

From Client to Server calling "setValue(42)"

```
POST /MyRemoteObject.soap HTTP/1.1
User-Agent: Mozilla/4.0+(compatible; MSIE 6.0; Windows 5.0.2195.0; MS .NET Remoting; MS .NET
CLR 1.1.4322.573 )
Content-Type: text/xml; charset="utf-8"
SOAPAction: "http://schemas.microsoft.com/clr/nsassem/General.IMyRemoteObject/General#setValue"
Content-Length: 572
Expect: 100-continue
Host: localhost:1234

<SOAP-ENV:Envelope xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
xmlns:xsd="http://www.w3.org/2001/XMLSchema" xmlns:SOAP-
ENC="http://schemas.xmlsoap.org/soap/encoding/" xmlns:SOAP-
ENV="http://schemas.xmlsoap.org/soap/envelope/"
xmlns:clr="http://schemas.microsoft.com/soap/encoding/clr/1.0" SOAP-
ENV:encodingStyle="http://schemas.xmlsoap.org/soap/encoding/">
<SOAP-ENV:Body>
<i2:setValue id="ref-1"
xmlns:i2="http://schemas.microsoft.com/clr/nsassem/General.IMyRemoteObject/General">
<newval>42</newval>
</i2:setValue>
</SOAP-ENV:Body>
</SOAP-ENV:Envelope>
```

From Server to Client as response to "setValue(42)" call

```
HTTP/1.1 200 OK
Content-Type: text/xml; charset="utf-8"
Server: MS .NET Remoting, MS .NET CLR 1.1.4322.573
Content-Length: 567

<SOAP-ENV:Envelope xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
xmlns:xsd="http://www.w3.org/2001/XMLSchema" xmlns:SOAP-
ENC="http://schemas.xmlsoap.org/soap/encoding/" xmlns:SOAP-
ENV="http://schemas.xmlsoap.org/soap/envelope/"
xmlns:clr="http://schemas.microsoft.com/soap/encoding/clr/1.0" SOAP-
ENV:encodingStyle="http://schemas.xmlsoap.org/soap/encoding/">
<SOAP-ENV:Body>
<i2:setValueResponse id="ref-1"
xmlns:i2="http://schemas.microsoft.com/clr/nsassem/General.IMyRemoteObject/General">
</i2:setValueResponse>
</SOAP-ENV:Body>
</SOAP-ENV:Envelope>
```