**EMAIL #1:**

"Which tool do I purchase to develop a client/server set of applications

that transfer binary info?

There's a async serial data stream in one location that I want to send to

another over the internet

I have the async serial already, I just want to transfer it from a Delphi

program, line by line as it come in, over the internet, to another Delphi

program running on a server.

I control the server, and can set aside a dedicated static IP address for

this stream

The good news is that I know a little about Delphi, the bad news is I

don't know squat about TCIP or whatever is best to use

A few years ago I implemented something similar using the standard Delphi

INDY stuff, and I don't want to have to go through that again

I'm sure your stuff is an overkill for this, but I'd rather buy it than

spend the time re-developing it.

Suggestions appreciated."

Hello,

I would recommend using [IP\*Works!](https://www.nsoftware.com/ipworks/). This has components for developing client and server applications in Delphi. Specifically, the [IPPort component](http://cdn.nsoftware.com/help/IPB/dlp/IPPort.htm) for a client application and the [IPDaemon component](http://cdn.nsoftware.com/help/IPB/dlp/IPDaemon.htm) as the server complement.

See this example for sending and receiving binary data using IPPort in a Delphi program:

<https://www.nsoftware.com/kb/xml/09039713.rst>

Let us know if you are in need of further assistance and we will get back to you promptly.

Regards,

Aidan McRitchie

**Process:**

I looked at the IP\*Works docs, IP\*Works WebSockets docs, and the IPC docs. I figured Websockets would be too specific for this use and didn’t see a particular use for IPC named pipes. I thought IPPort and IPDaemon from the IP\*Works package seemed the most versatile and would also provide some more flexibility for the customer. I also saw an example for sending binary data on the Knowledge Base using IPPort so it convinced me that it would work for this case as well.

**Time taken**: 30 min reading through docs and 20 min reading about Delphi/async serial communication

**Challenges**:

I felt that there were a few options to implement the client/server applications here. I went with the one I felt was the most versatile option available.

**EMAIL #2:**

In reference to the IP\*Workz! Zip toolkit (Zip class). Talking about extracting files from an existing zip file.

"

> I really just want to grab one file out of the zip

> archive (without knowing in which folder or level it resides within the

archive) and

> have it extracted to a known directory (not a directory with the

> same relative path that was in the zip).  Is this possible?  If not,

> then I will have to resort to a much uglier solution

>

> - Extract everything to a temp directory

> - Search the temp directory for the file I need

> - Copy the file to the desired output location

> - Remove the temp directory

>

> I can do it this way, but it just takes a lot longer and is a lot

> less efficient.  Please give me a suggestion if you see a better

> option

>

> Thank you,

>

> mark"

Hi Mark,

Great question! We have a component that can accomplish what you are looking for. [Zip](http://cdn.nsoftware.com/help/IZB/cs/Zip.htm) is part of the [IP\*Workz! Zip toolkit](https://www.nsoftware.com/ipworks/zip/) and includes the Extract method, which extracts one or more files from a zip archive into a directory specified by the ExtractToPath property. It does get tricky without knowing the exact path because we will have to instead find the CompressedName of the file you are looking to extract. I wrote a simple function in C# to get this done.

private Zip ZipControl = new Zip();

private void ExtractWithNoPath(string ziparchive, string destination, string filename)

{

ZipControl.ArchiveFile = ziparchive;

ZipControl.ExtractToPath = destination;

ZipControl.Scan();

for (int i = 0; i < ZipControl.Files.Count; i++) {

if (ZipControl.Files[i].CompressedName.Contains(filename))

String compressedname = ZipControl.Files[i].CompressedName;

ZipControl.Files[i].DecompressedName = filename;

ZipControl.Extract(compressedname);

break;

}

}

}

This will get the job done for now but I will also work on a more elegant solution for you.

Please reference the Zip Component documentation for more information, which can be accessed via this link: <http://cdn.nsoftware.com/help/IZB/cs/Zip.htm>

Let us know if you have in further questions.

Regards,

Aidan

**Process**:

Downloaded zip demos from website and looked at the ZIP documentation.

<http://cdn.nsoftware.com/help/IZB/cs/Zip.htm> I saw that the extract method was able to extract a single file so I tried using that but quickly noticed that it would require the CompressedName of the file if was looking for in order to extract the correct file. I also noticed that I would have to change the DecompressedName to extract the file to the correct path. My solution was to scan the archive and search the File collection for the matching file. I assume this will work correctly in most cases as long as the file searched for matches according to C#’s Contain method. This is probably a naïve solution and doesn’t look especially elegant but it works for an initial solution.

**Time taken**: 10 min reading Zip documentation and testing example code. 5 min to figure out why Extract method wasn’t working when trying to extract a file like ‘test.txt’ from a test zip archive. (I figured it out by checking the File collection for the CompressedName of the files. Used Contains method to circumvent this). 5 min reading docs to figure out why it was extracting the entire path into the new directory, fixed by changing the DecompressedName before extracting. Total: 20 min

**Challenges**:

This was not very difficult once I understood the properties that I would need to get the file extracted properly. I think my solution could be better but for a first attempt it works. If I used more time I could probably come up with something better. (For this email I tried to come up with a working response as quickly as possible).

**EMAIL #3:**

"I am attempting to use the htmlmailer to send emails through gmail

account. I've been playing with all kinds of settings in the authmechanism

but I continue to get the error (SMTP Protocol error. 530 5.7.0 Must issue

a STARTTLS command first. 34sm5167595ibi2.) I am using your demo that came

with in in the vb.net. Do you have sample code showing connection to gmail

or can you offer some advice?

 thank you,

"

Hi there,

This is a common issue we see with connections to gmail but thankfully, we have a simple solution. I have modified the htmlmailerDemo class to show how to set up the AuthMechanism by obtaining an authorization string for your gmail account (you will need this for authorizing the demo to have access to your gmail account information) as well as configuring the SSL negotiation (SSLStartMode) to use the STARTTLS command.

Imports nsoftware.IPWorks

Namespace nsoftware.Demos

Partial Public Class htmlmailerDemo

Inherits System.Web.UI.Page

Protected Sub cmdSend\_Click(ByVal sender As Object, ByVal e As System.EventArgs)

Me.htmlmailer1.MailServer = Me.mailserver.Text

Me.htmlmailer1.From = Me.from.Text

Me.htmlmailer1.User = "youremail@gmail.com" //use your gmail address for this

Me.htmlmailer1.SendTo = Me.sendto.Text

Me.htmlmailer1.Subject = Me.subject.Text

Me.htmlmailer1.MessageHTML = Me.message.Text

// Getting an authorization string

Dim oauth1 As New IPWorks.Oauth

oauth1.ClientId = "723966830965.apps.googleusercontent.com"

oauth1.ClientSecret = "\_bYMDLuvYkJeT\_99Q-vkP1rh"

oauth1.ServerAuthURL = "https://accounts.google.com/o/oauth2/auth"

oauth1.ServerTokenURL = "https://accounts.google.com/o/oauth2/token"

oauth1.AuthorizationScope = "https://mail.google.com/"

Dim authorization As String = oauth1.GetAuthorization()

Try

// Setting up AuthMechanism

htmlmailer1.AuthMechanism = HtmlmailerAuthMechanisms.amXOAUTH2

// Setting SSL negotionation. Explicit uses STARTTLS

htmlmailer1.SSLStartMode = HtmlmailerSSLStartModes.sslExplicit

htmlmailer1.Config("AuthorizationIdentity=" + authorization)

htmlmailer1.MessageHTML = "<p>Test Mail</p>"

htmlmailer1.Connect()

htmlmailer1.Send()

htmlmailer1.Disconnect()

Finally

Me.lblLastReply.Text = Me.htmlmailer1.LastReply

End Try

End Sub

Protected Sub htmlmailer1\_OnSSLServerAuthentication(ByVal sender As Object, ByVal e As nsoftware.IPWorks.HtmlmailerSSLServerAuthenticationEventArgs) Handles htmlmailer1.OnSSLServerAuthentication

e.Accept = True

End Sub

End Class

End Namespace

Here are some links to documentation related to this issue.

<http://cdn.nsoftware.com/help/IPB/cs/HTMLMailer_p_SSLStartMode.htm> - Setting SSL to use STARTTLS

<https://www.nsoftware.com/kb/xml/10231401.rst> - Getting authorization for connecting to gmail

Let me know if you have any further questions.

Regards,

Aidan

**Process:**

First off, I read through the Htmlmailer documentation to see if there was anything directly relating to the 530 error. This told me that it was specific to the mail server and was likely happening due to an incorrect connection to the gmail smtp server. I did a search on the nsoftware help articles for htmlmailer and gmail and was lead to the OAuth example connection. From there I pulled up the demo that the customer was referencing to try to recreate the error he got. I got the same 530 error using the default demo code so I tried using the example from the article to get the authmechanism to work. I got this working (connected to google gmail account) but still got the 530 error. From here I went back into the documentation to look for the STARTTLS command and quickly found it in the SSLStartMode property which said to set its value as sslExplicit to use the STARTTLS command.

**Time took:** 10 min to read through HTMLMailer Component, 2 min searching for similar help articles on website, 10 min setting up demo code/recreating problem, 5 min trying to use Oauth alone to get valid AuthMechanism, 2 min looking at documentation for STARTTLS/adding property in code/testing Total: 29 min

**Challenges:**

Firstly, I have never seen Visual Basic syntax before so I quickly looked over some Microsoft documentation to see how functions and objects are declared. Fortunately I did not need much to complete this request but I see that I will need to do some tutorials using vb to become more familiar. My initial research did not lead me to a solution dealing with the actual error the customer encountered (530 error) so I actually ended up fixing another problem they may have encountered (authorizing gmail) by accident. I’m not sure if it would be advisable to add this into a reply or only reply to the specific error encountered.

XML Parser

**Process**:

I first did some initial research on XML parsing including DOM and SAX parsing. I read up on Microsoft’s implementation of their forward-only XML parser that had XPath integration so I tried to focus on that sort of functionality. I obviously was not able to recreate that library but it gave me some ideas. I decided to do this project in Java because I thought .NET already had a pretty good forward-only implementation and I haven’t coded recently in Java (I’ve mostly been working with Python and C# this summer) so it would be good practice.

I decided to implement a SAX style parser which called methods every time a certain element, text value, etc was found during parsing since this would fit the description of a forward only parser. Forward-only also made me think of using a cursor reader to go through the XML. As a string buffer is read in the cursor advances and checks are made to determine what the parser is reading. For example, if a < is read in we know we have started some sort of element. Then there would be some characters for an element, followed by the closing >. In all, this would be recognized as the start of an element and call the startElement method.

To start with, I defined some states that would determine what the parser was supposed to be looking for. I enclosed a reader inside a while loop that updated a character (int) value. This means the general runtime of the parser itself should be O(n) with n being the number of characters in the complete xml doc (of course this is increased based on the complexity of the doc itself and Stack updates in the while loop but it only reads through once).

Some tests with large files:

Parsing 58 MB file took ~ 6325 ms

Parsing 580 MB file took ~ 37383 ms

Memory is something I have not fully tested. It shouldn’t be a problem as long as you don’t have an extremely nested XML structure.

I added some test files to test the exception handling. Generally as long as the XML is correctly formatted you will be able to parse everything. If it can’t parse, it will default to some tag exception. I also added some demos for showing the pathing structure as well as testing some large files as referenced above. There is more documentation on the Github readme.

**Time** **took**:

I started this project on Sunday the 21st and finished up on Wednesday night. I’d say overall it took me about 3 hours of doing some research into xml parsing which included reading about DOM parsing and event based SAX parsing. I did some tutorials on how the current libraries parse data and then started developing my cursor based parser. It took about 8-10 hours of work to do everything since then.

**Challenges**:

The biggest challenge was definitely getting the pathing information to be accessible in a somewhat user friendly manner. I never really got it working how I would have liked but I figured out a way to make it work by using a Stack to represent the current path of an element/text value. I figured that the most relevant use for a path would be to find out some path to certain information like a text/attribute value so any time those are found the path Stack gets updated. The user can then figure out how to pull information from a matching path and element combination to get the data they want. A demo is in the FindOrders.java class to show you what I mean. It is definitely no XPath style functionality here but it gets the job done.

Overall, I had a great time working on everything. If you have any questions let me know and I will explain in more detail.