read the data [server dateTime, p2 millis(), p2 Time.now()]

In[1]:=
```
SetDirectory[NotebookDirectory[]];
```

In[2]:=
```
data = Transpose[Import["0a10aced202194944a004c08.csv"]];
```

check number of entries

In[3]:=
```
Length[data[[1]]]
```

Out[3]= 84 242

define dateTime format

In[4]:=
```
FromDT[s_] := FromDateString[s, {"Year", "-", "Month",
   "-", "Day", "T", "Hour", ":", "Minute", ":", "SecondExact"}]
```

does it work?

In[5]:=
```
FromDT[data[[1]][[1]]]
```

Out[5]= Wed 14 Feb 2024 17:20:29 GMT+1

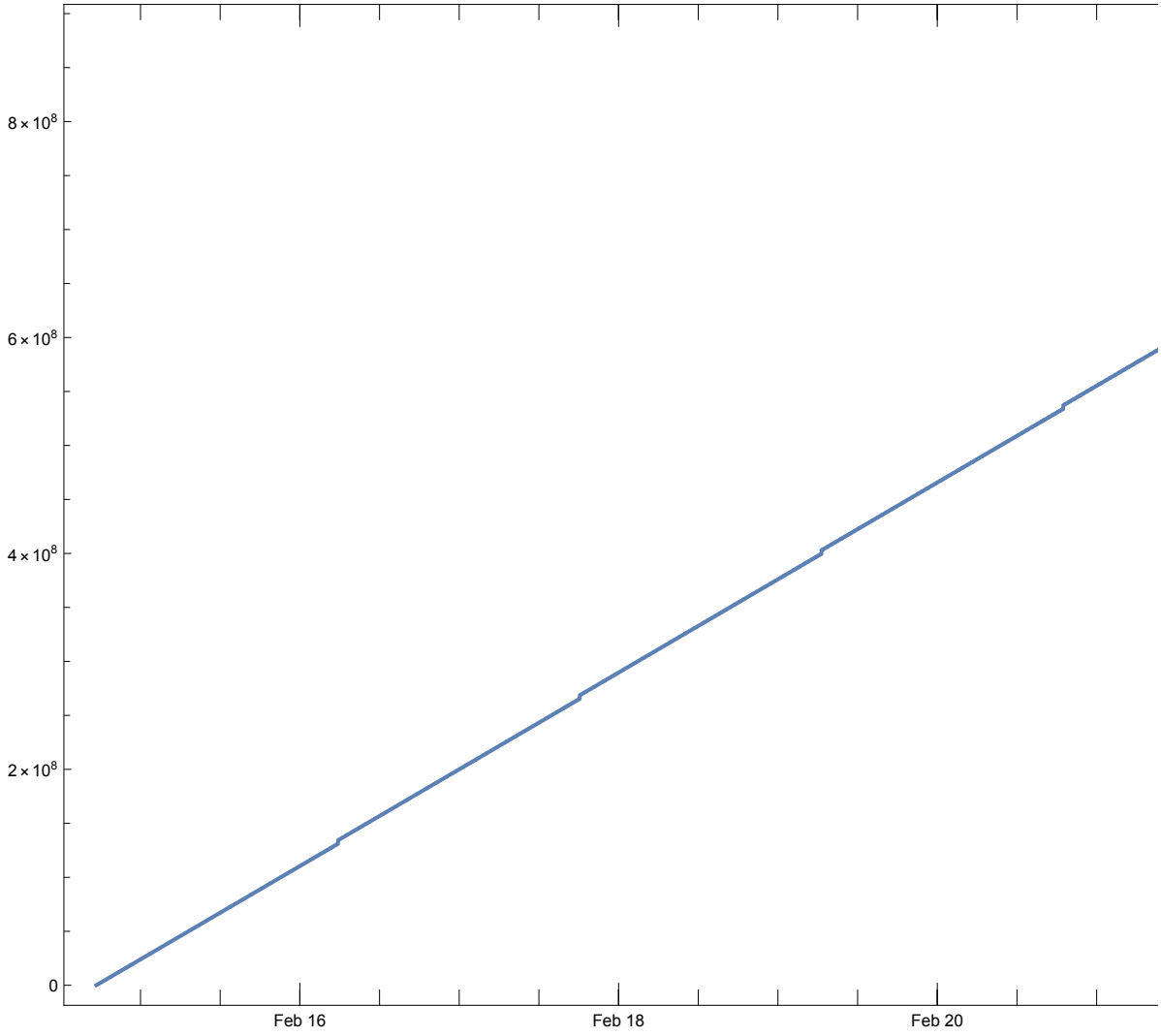
convert string dateTime to dateTime

In[6]:=
```
dt = Map[FromDT, data[[1]]];
```

plot p2 millis() against server dataTime -- 6 jumps!

In[7]:=
```
DateListPlot[Transpose[{dt, data[[2]]}]]
```

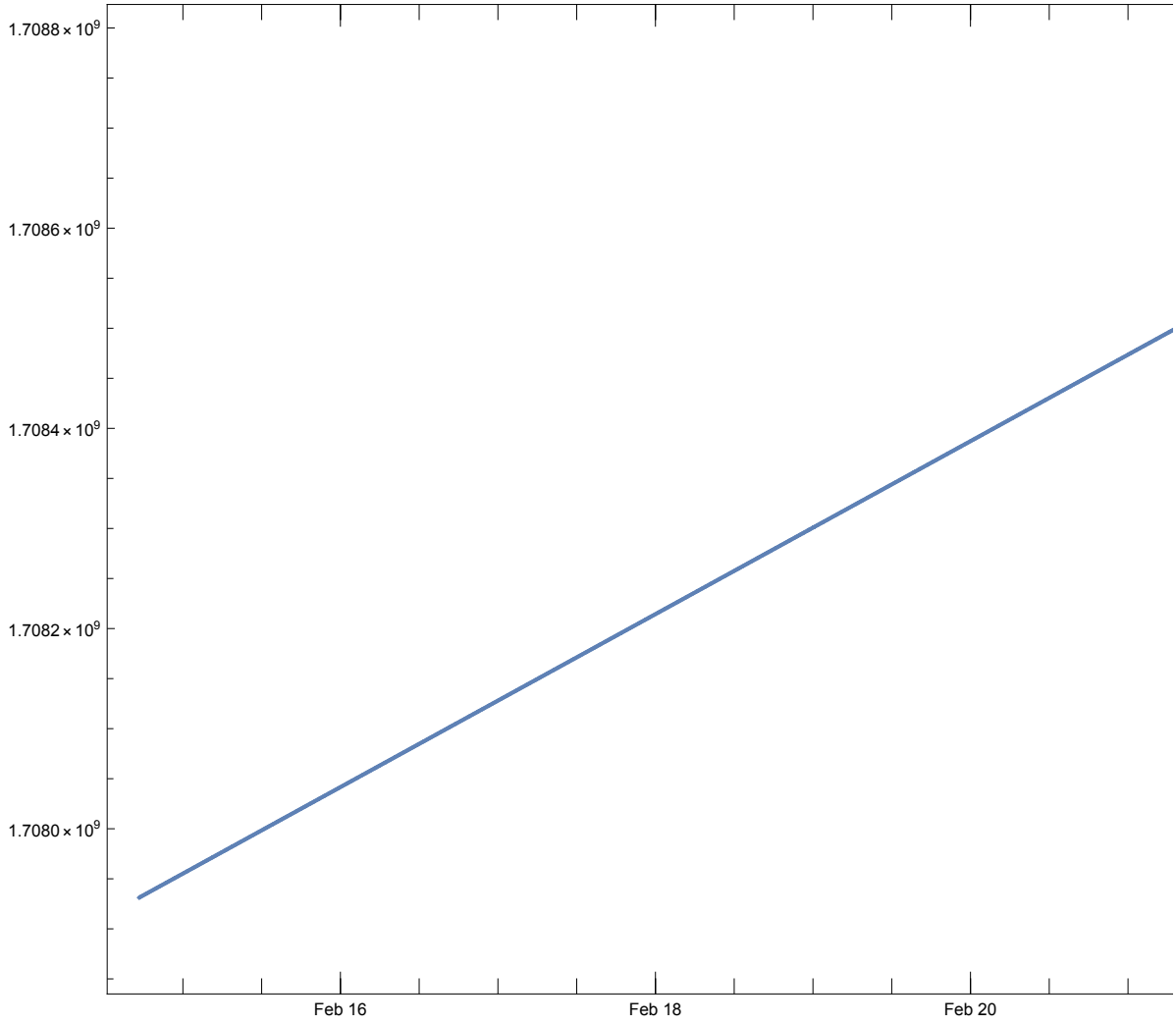
Out[7]=



plot p2 Time.now() against server dataTime -- no jumps

In[8]:=
```
DateListPlot[Transpose[{dt, data[[3]]}]]
```

Out[8]=

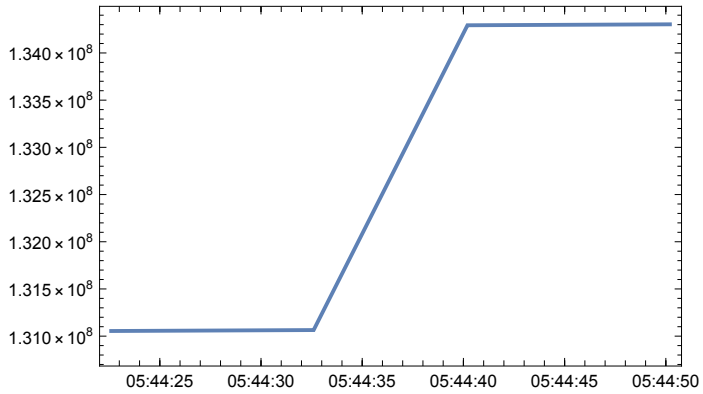


same plot (p2 millis () against server dataTime) but zoomed in on the first jump

In[9]:=
```
start = 13 087;
stop = 13 090;
```

In[11]:=
```
DateListPlot[Transpose[{dt, data[[2]]}][[Range[start, stop]]]
```

Out[11]=

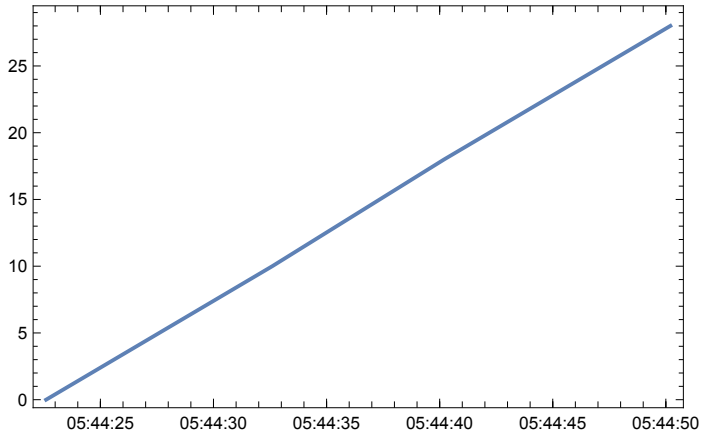


same plot (p2 Time . now () against server dataTime) but zoomed in and offset subtracted

(otherwise range too large)

In[12]:=
```
DateListPlot[Transpose[{dt, data[[3]] - data[[3]][[start]]}][[Range[start, stop]]]]
```

Out[12]=



actual data around jump

In[13]:=
```
jumpData = Transpose[{data[[1]][[Range[start, stop]]],
    data[[2]][[Range[start, stop]]], data[[3]][[Range[start, stop]]]}] // TableForm
```

Out[13]//TableForm=

2024-02-16T05:44:22.6	131 054 435	1 708 062 260
2024-02-16T05:44:32.6	131 064 436	1 708 062 270
2024-02-16T05:44:40.2	134 293 356	1 708 062 278
2024-02-16T05:44:50.2	134 303 357	1 708 062 288

actual data around jump, in binary

In[14]:=
```
Table[{jumpData[[1]][[i]][[1]], BaseForm[jumpData[[1]][[i]][[2]], 2], jumpData[[1]][[i]][[3]]},
  {i, 1, Length[jumpData[[1]]]}] // TableForm
```

Out[14]//TableForm=

2024-02-16T05:44:22.6	$111110011111011101101100011_2$	1 708 062 260
2024-02-16T05:44:32.6	$111110011111110001001110100_2$	1 708 062 270
2024-02-16T05:44:40.2	$100000000001001001110110110 0_2$	1 708 062 278
2024-02-16T05:44:50.2	$100000000001010011100111110 1_2$	1 708 062 288

find all jumps, delta time per delta time should be 1 (or 1 second per second)

In[15]:=
```
tq[n_] :=
 (data[[2]][[n]] - data[[2]][[n - 1]]) Quantity[0.001, "Seconds"] / (dt[[n]] - dt[[n - 1]])
```

In[16]:=
```
jumpFinder = Table[{dt[[i]], tq[i]}, {i, 1, Length[dt]}];
```

find all entries with more than 10 seconds per second

In[17]:=
```
Jump[v_] := v[[2]] > 10
```

In[18]:=
```
jumps = Select[jumpFinder, Jump] // TableForm
```

Out[18]//TableForm=

Fri 16 Feb 2024 05:44:40 GMT+1	424.858
Sat 17 Feb 2024 18:09:12 GMT+1	367.061
Mon 19 Feb 2024 06:33:44 GMT+1	362.939
Tue 20 Feb 2024 18:58:16 GMT+1	367.064
Thu 22 Feb 2024 07:22:48 GMT+1	367.055
Fri 23 Feb 2024 19:47:21 GMT+1	362.938

what is the time between jumps?

In[19]:=
```
Table[jumps[[1]][[i]][[1]] - jumps[[1]][[i - 1]][[1]], {i, 2, Length[jumps[[1]]]}]
```

Out[19]=

{1.51704 days , 1.51704 days , 1.51704 days , 1.51704 days , 1.51704 days }