

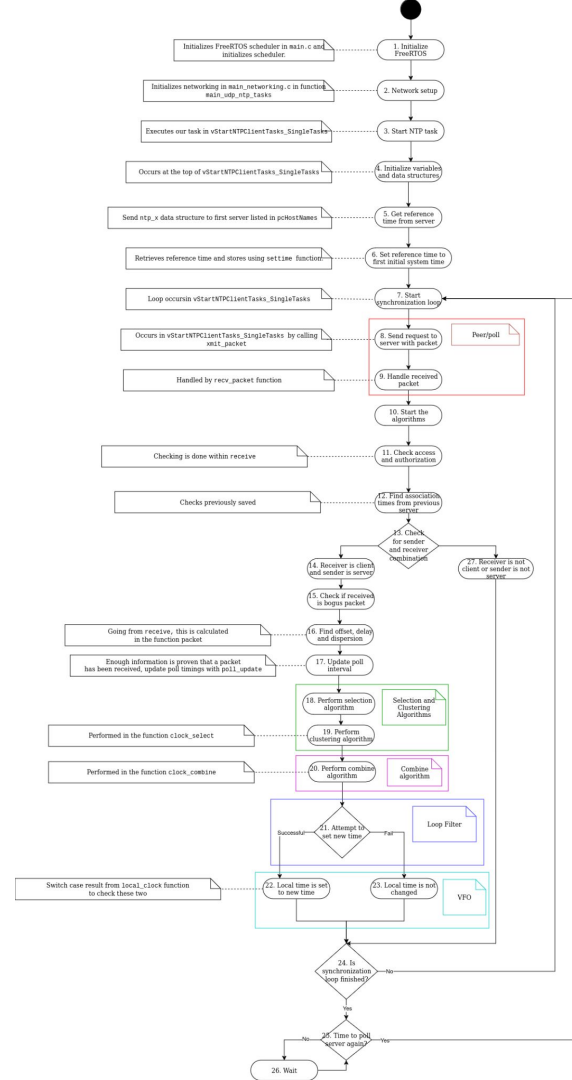
Code

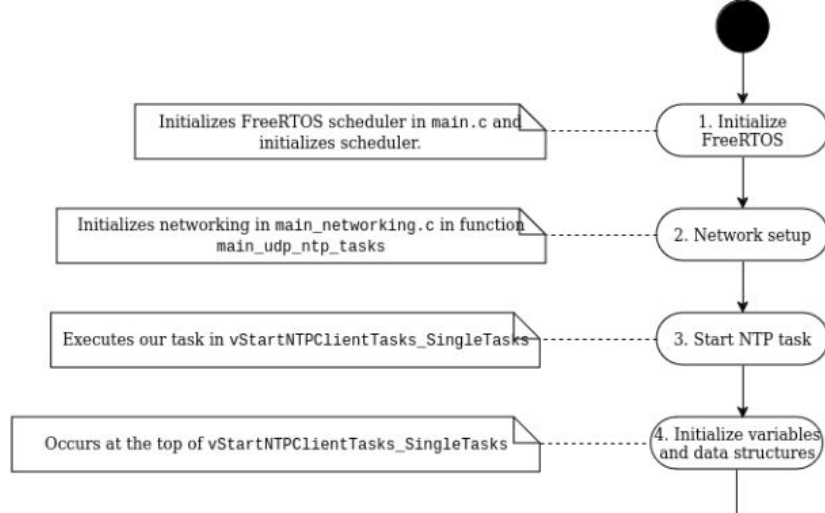


ATOMIC Demo

2024-05-30

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```
0x200334f0->main_udp_ntp_tasks 164: vTaskStartScheduler
0x200334f0->prvIPTask 242: prvIPTask started
0x20039370->pxEasyFit 875: EasyFit[dd86]: 0 0 0 ( fe80::4c96:f6ff:fe2e:d21e ->ff02::16 ) BAD
0x200334f0->vStartNTPClientTasks_SingleTasks 27: Starting NTPTask.
0x200334f0->xCheckIPv6SizeFields 197: xCheckIPv6SizeFields: location 4
0x2003d2c0->vNTPTask 103: Initializing network and dns
0x2003d2c0->vNTPTask 105: Initializing mutex
0x2003d2c0->vNTPTask 108: Initializing datastructures
0x2003d2c0->rstclock 278: Changing local clock state and offset
0x2003d2c0->vNTPTask 141: Initializing association table
```

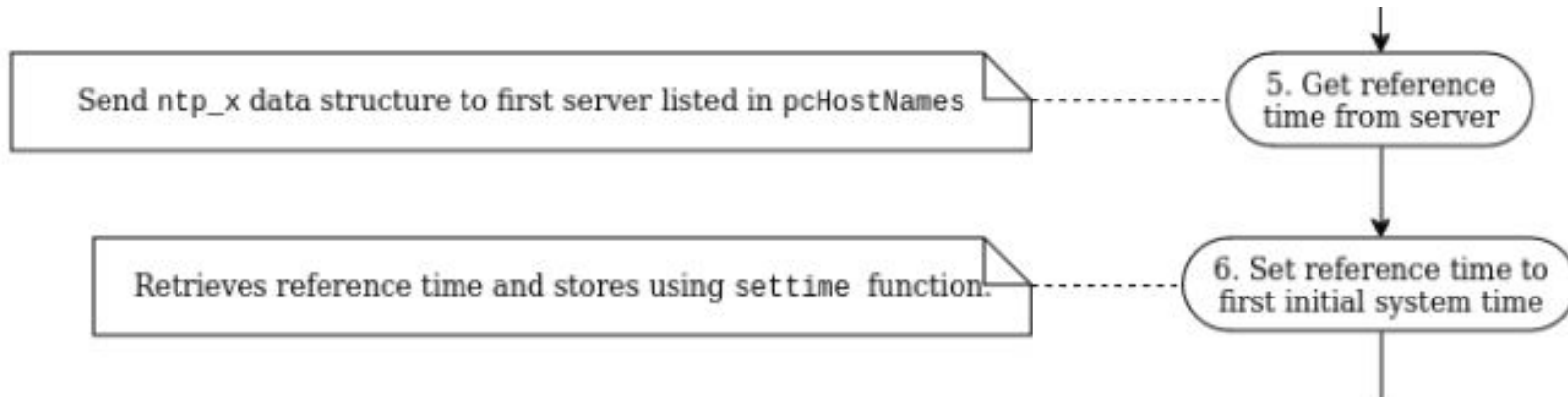
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Github: [src/main_networking.c](#), [src/main.c](#), [src/NTPTask.c](#)



```
0x2003d2c0->vNTPTask 145: Initializing time with the first NTP server
0x2003d2c0->prep_xmit 196: Preparing packet for send
0x2003d2c0->xmit_packet 268: Sending packet...
0x200334f0->FreeRTOS_InterfaceEndPointOnNetMask 597: FreeRTOS_FindEndPointOnNetMask[4]: No match for c23aca14ip
0x200334f0->eARPGetCacheEntryGateWay 1089: ARP c23aca14ip hit using ac150001ip
0x2003d2c0->xmit_packet 283: Sent packet
0x2003d2c0->recv_packet 168: Receiving packet...
0x2003d2c0->recv_packet 176: Packet received
```

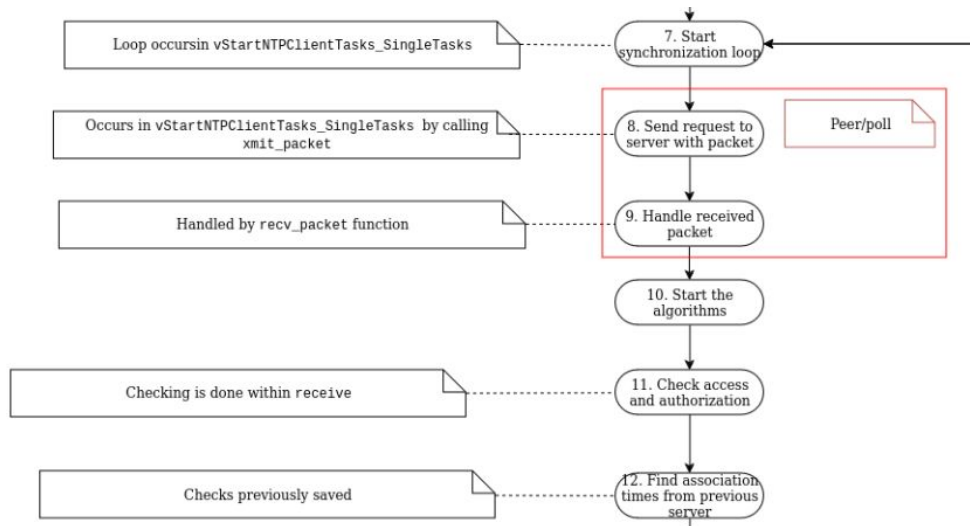
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Github: src/NTPTask.c



```

0x2003d2c0->vNTPTask 158: Starting synchronization loop
0x2003d2c0->vNTPTask 164: Getting time from IP (sth1.ntp.se): 194.58.202.20

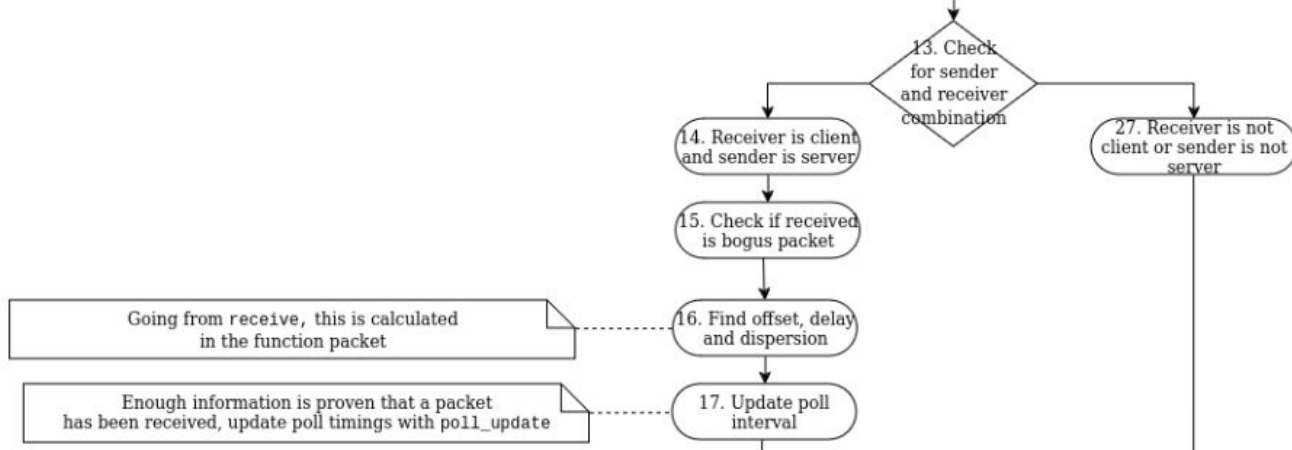
0x2003d2c0->prep_xmit 196: Preparing packet for send
0x2003d2c0->xmit_packet 268: Sending packet...
0x200334f0->FreeRTOS_InterfaceEndPointOnNetMask 597: FreeRTOS_FindEndPointOnNetMask[4]: No match for c23aca14ip
0x200334f0->eARPGetCacheEntryGateWay 1089: ARP c23aca14ip hit using ac150001ip
0x2003d2c0->xmit_packet 283: Sent packet
0x2003d2c0->recv_packet 168: Receiving packet...
0x2003d2c0->recv_packet 176: Packet received
0x2003d2c0->vNTPTask 171: Start the algorithms
0x2003d2c0->receive 397: Checking access and authorization
0x2003d2c0->receive 466: Finding association...
0x2003d2c0->receive 474: Association found
  
```

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Github: `src/NTPTask.c`, `src/NTP_peer.c`



```
0x2003d2c0->receive 478: Check for sender and receiver mode combination
0x2003d2c0->receive 590: Receiver is client and sender is server
0x2003d2c0->receive 619: Checking if paket is bogus...
0x2003d2c0->receive 703: Packet is not bogus.
0x2003d2c0->packet 101: offset:
0x2003d2c0->FreeRTOS_printf_wrapper_double 412: 0.008499750
0x2003d2c0->packet 104: delay:
0x2003d2c0->FreeRTOS_printf_wrapper_double 412: 0.016999499
0x2003d2c0->packet 107: disp:
0x2003d2c0->FreeRTOS_printf_wrapper_double 412: 0.000004099
0x2003d2c0->packet 110: Updating poll interval
```

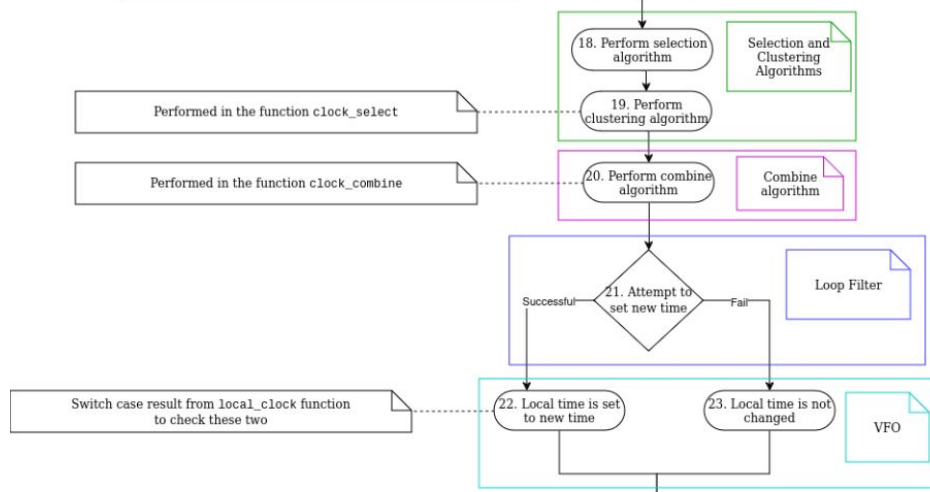
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Github: [src/NTP_peer.c](#)



```

0x2003d2c0->clock_select 161: Perform selection algorithm
0x2003d2c0->cull 39: Culling falsechimes
0x2003d2c0->cull 65: Truechimes added
0x2003d2c0->FreeRTOS_printf wrapper_double 412: -0.775930577
0x2003d2c0->FreeRTOS_printf wrapper_double 412: 0.010499757
0x2003d2c0->FreeRTOS_printf wrapper_double 412: 0.796930092
0x2003d2c0->intersection 89: Finding largest contiguous intersection of correctness intervals
0x2003d2c0->clock_select 173: Clustering algorithm
0x2003d2c0->clock_select 187: survivor found
0x2003d2c0->FreeRTOS_printf wrapper_double 412: -0.775930577
0x2003d2c0->clock_select 187: survivor found
0x2003d2c0->FreeRTOS_printf wrapper_double 412: 0.010499757
0x2003d2c0->clock_select 187: survivor found
0x2003d2c0->FreeRTOS_printf wrapper_double 412: 0.796930092
0x2003d2c0->clock_select 266: s.p = s.v[0].p
0x2003d2c0->FreeRTOS_printf wrapper_double 412: 0.010499757
0x2003d2c0->local_clock 128: fabs(offset) <= STEPT
0x2003d2c0->local_clock 144: c.state = 1
0x2003d2c0->rstclock 278: Changing local clock state and offset
0x2003d2c0->clock update 410: Set new time
  
```

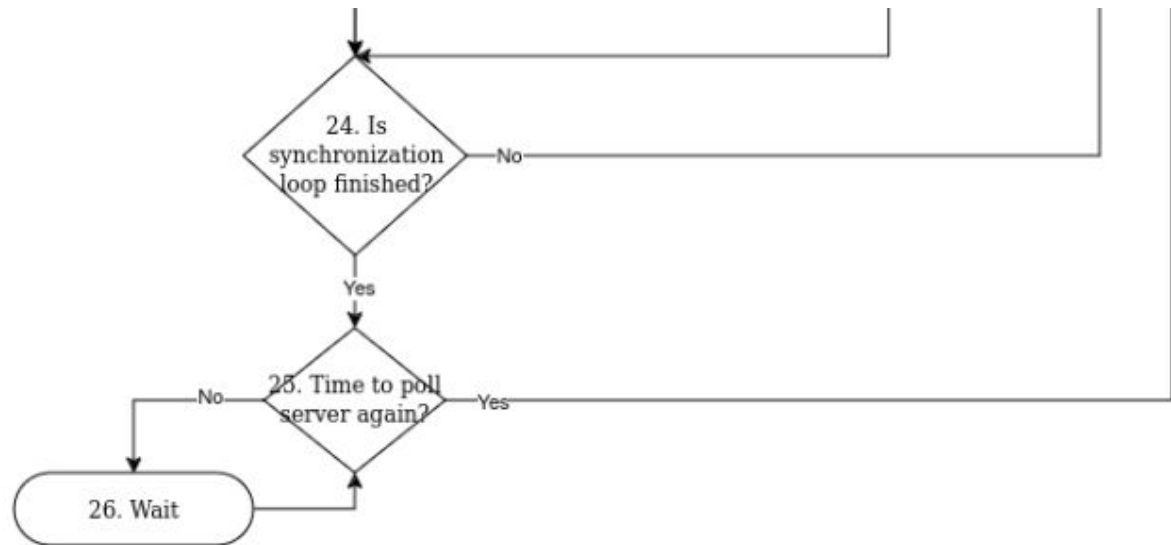
Github: [src/NTP_system_process.c](#), [src/NTP_vfo.c](#)

[Code](#)



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```
0x2003d2c0->vNTPTask 177: Synchronization loop finished  
0x2003d2c0->vNTPTask 182: Start polling loop  
0x2003d2c0->clock_adjust 347: Polling peer 1
```

[Code](#)



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Github: [src/NTPTask.c](#), [src/NTP_poll.c](#)

Handling invalid data sent from NTP server

Demo server that sends old date (differs a lot from other servers)

```
fixedDate := time.Date(2002, time.June, 23, 6, 30, 0, 0, time.UTC)
fixedUnix := fixedDate.Unix()
fixedNTP := (uint64(fixedUnix) + NTP_EPOCH_OFFSET) << 32 // Shift left to put into the upper 32 bits
```

Our client handles this and discards the packet

```
0x2003d2c0->receive 619: Checking if packet is bogus...
0x2003d2c0->receive 652: r0rgInSeconds != pXmtInSeconds
0x2003d2c0->receive 669: !synch, discarding packet
```

Github: [testing/ntp-example-server/ntpserver.go](https://github.com/testing/ntp-example-server)

[Code](#)



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Contributors

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Find final report [here](#)

[Code](#)



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