

SLA Landing Application: Description and Installation

Version 1.01

8/1/2018

Background

The landing application runs on the SLA application processor and subscribes to landing position messages from the SLA. Landing position messages are generated when enabled on the SLA and the Sightline landing target is in view. The landing application uses angles and distance to the target along with vehicle state information from the autopilot to generate steering commands to the autopilot. The basic communications paths are shown in *Figure 1*.

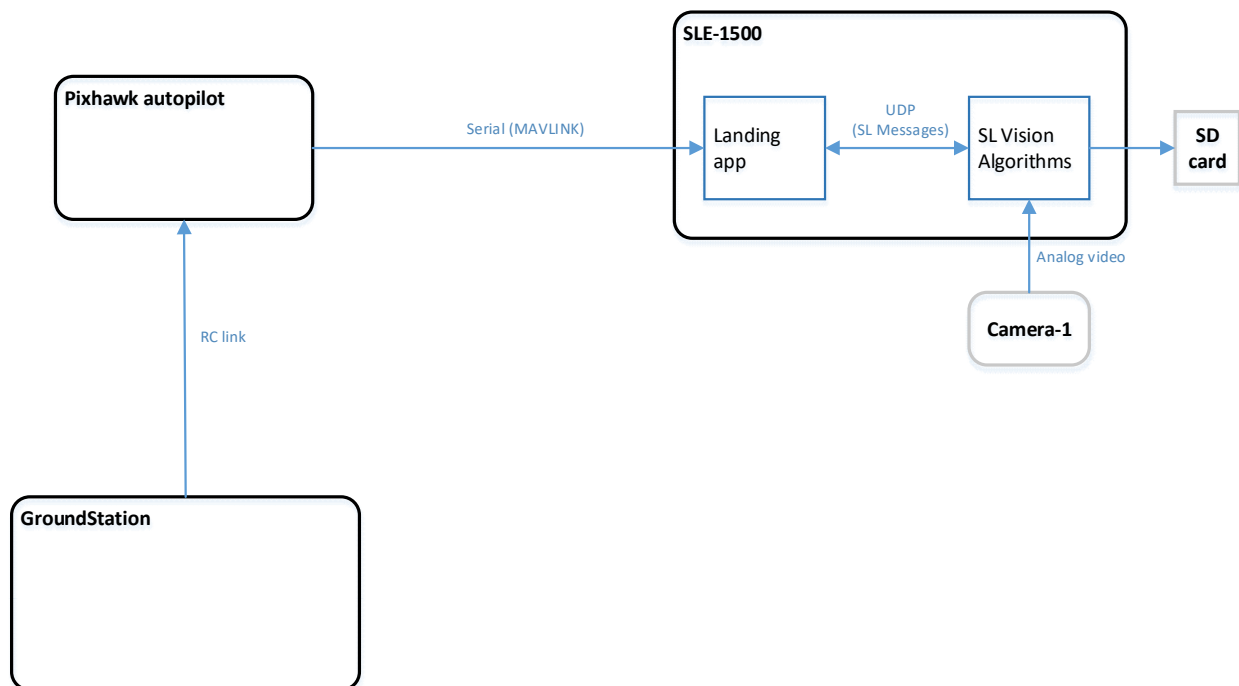
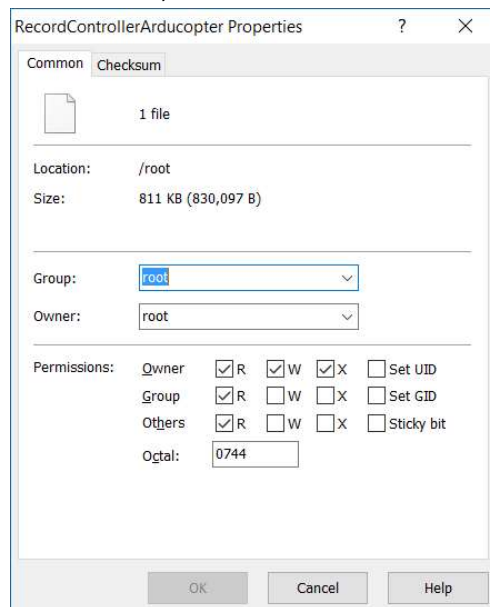


Figure 1. Landing Application Communications

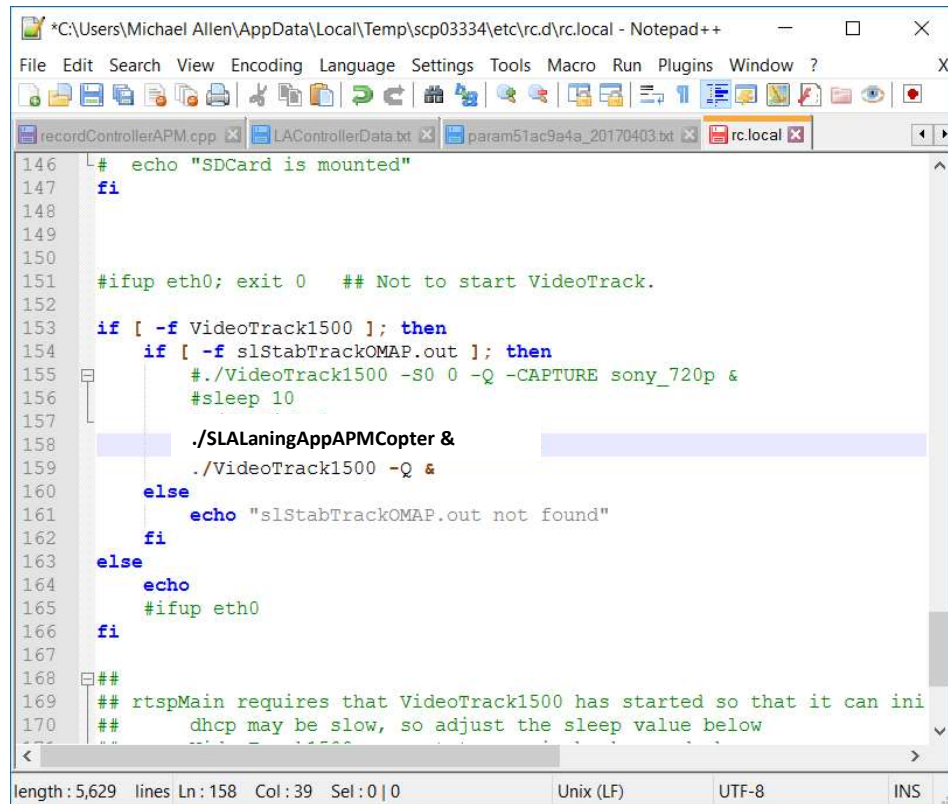
The landing application sends and receives data via the Mavlink protocol with the Pixhawk autopilot.

Installation Instructions

1. Download and install winscp (<https://winscp.net/eng/download.php>).
2. Power on the SLE-1500 and establish an ethernet connection between the SLE and a PC.
3. Open SLA PanelPlus and connect to the SLE-1500. Note the ip-address of the SLE.
4. Open WinSCP and configure a new connection:
 - a. File protocol: SCP
 - b. Host name: <ip-address from step 3>
 - c. Port number: 22
 - d. User name: root
 - e. Password: root
5. Copy the file "SLALandingAppAPMCopter" from the host PC to the SLE (drag and drop file into WinSCP window).
6. Right-click the file "SLALandingAppAPMCopter" in WinSCP and select "Properties".
7. Under "Permissions", check the "X" next to "Owner"



- a.
8. In WinSCP, navigate to </root/etc/rc.d/
 9. Edit the file "rc.local" to start the record controller app at startup as shown:

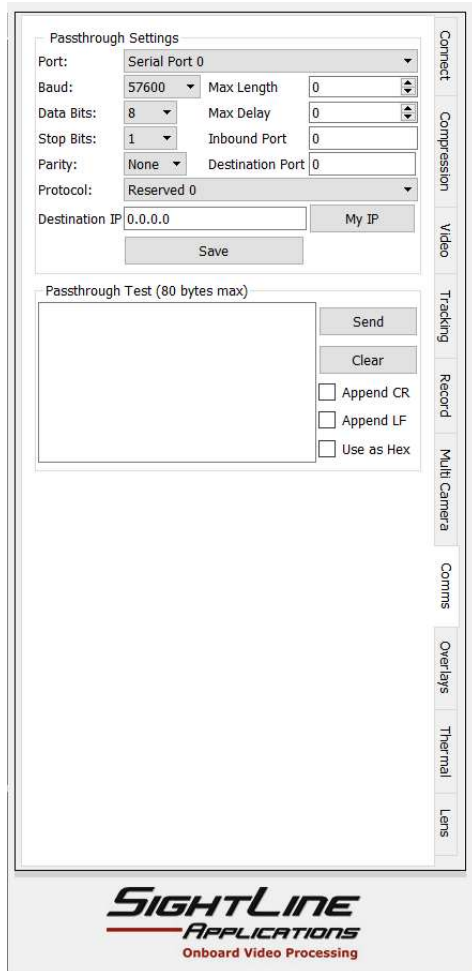


```
146 # echo "SDCard is mounted"
147 fi
148
149
150
151 #ifup eth0; exit 0 ## Not to start VideoTrack.
152
153 if [ -f VideoTrack1500 ]; then
154     if [ -f slStabTrackOMAP.out ]; then
155         #./VideoTrack1500 -S0 0 -Q -CAPTURE sony_720p &
156         #sleep 10
157
158         ./SLAningAppAPMCopter &
159         ./VideoTrack1500 -Q &
160     else
161         echo "slStabTrackOMAP.out not found"
162     fi
163 else
164     echo
165     #ifup eth0
166 fi
167
168 ##
169 ## rtspMain requires that VideoTrack1500 has started so that it can ini
170 ## dhcp may be slow, so adjust the sleep value below
```

length: 5,629 lines Ln: 158 Col: 39 Sel: 0 | 0 Unix (LF) UTF-8 INS

a.

10. Save and close rc.local.
11. Close WinSCP.
12. In SLAPanelPlus, open the "Comms" tab.
13. Configure serial port 0 as shown:



The screenshot shows the 'Passthrough Settings' window in the SightLine Applications software. The window has a sidebar on the right with buttons for Connect, Compression, Video, Tracking, Record, Multi Camera, Comms, Overlays, Thermal, and Lens. The main area contains the following settings:

- Port: Serial Port 0
- Baud: 57600
- Data Bits: 8
- Stop Bits: 1
- Parity: None
- Protocol: Reserved 0
- Destination IP: 0.0.0.0
- Max Length: 0
- Max Delay: 0
- Inbound Port: 0
- Destination Port: 0

Below the settings is a 'Passthrough Test (80 bytes max)' section with a text area, 'Send' and 'Clear' buttons, and checkboxes for 'Append CR', 'Append LF', and 'Use as Hex'. A 'Save' button is located below the Destination IP field. The SightLine Applications logo and 'Onboard Video Processing' text are at the bottom.

a.

14. Click "Save"
15. Power on Pixhawk and establish a connection with Mission Planner
16. Select "Config/Tuning" and "Full Parameter Tree"
17. Set the serial port that is connected to the SLE to output Mavlink protocol at 57600 baud. For example, if Telem-2 is connected to the SLE then set SERIAL2_BAUD to "57" and SERIAL2_PROTOCOL to "1".
18. Set FLTMODE3 to "4" for guided mode.

Test

1. Power on the SLE and Pixhawk
2. Open "rc.local" and comment out the line that runs the LandingApp
3. Open Putty or similar program that allows an SSH connection (a linux machine works as well).
4. In Putty, set the connection type: SSH, IP address: <SLA IP address>, and connect.
5. In Putty, enter: "./SLALandingApp_APMcopter"
6. The application should run and indicate a connection with the autopilot and the SLA.