

Catapult Clearsky T6 FCC Document

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CATAPULT

1. OUTLINE

The Catapult Clearsky T6 system is a professional-grade Local Positioning System (LPS) designed to measure the performance of elite athletes within individual and team sports. This document introduces the Clearsky T6 hardware components and provides an explanation of functionality and general operation.

The OpenField software system data are collected live and downloaded to the OpenField console and can then be uploaded to the OpenField cloud post session. To store the collected data on the OpenField cloud, data must be synced from the console to the cloud over a solid internet connection.

The hardware components of the Clearsky system include the worn Clearsky tag, wireless Ultrawide Band (UWB) anchors for LPS tracking and a charging case.

2. CLEARSKY T6 TAG

The **Clearsky T6** tag is a wearable LPS tag with embedded microprocessors that is used to measure the performance of elite athletes, in both real-time and post session. The Clearsky T6 tag contains the following measurement sensors and components:

- UWB (3973MHz to 4243MHz) radio transceiver
- UWB antenna
- Tri-axial Accelerometer (up to 1000 Hz data rate)
- Tri-axial Gyroscope (up to 1000 Hz data rate)
- Tri-axial Magnetometer (up to 1000Hz data rate)
- Magnetic Heart Rate Receiver (5.4KHz frequency)
- Tag status Light-emitting Diodes (LEDs)
- Haptic feedback via vibration unit

All sensors are sampling continuously, and data are logged onto an onboard eMMC card as well as transmitted live via ultra-wide-band (UWB).

Figure 1. – Clearsky T6 wearable Tag




TAG ICON/LED FUNCTIONALITY

Flashing green – Listening for Clearsky T6 Anchors

Flashing green and then blue – Connected to at least one Clearsky T6 Anchor

Clearsky T6 Tag Operation Overview:

1. **Charging:** Each Clearsky T6 tag is charged and configured, prior to use, using the specifically designed Clearsky charging case. This is a 28-tag case that connects to the mains electricity supply for the purpose of Clearsky T6 charging.
2. **Configuration:** Configuration of the Clearsky T6 occurs via USB serial connection from the charging case to the desktop software (OpenField) where athlete and tag settings are transferred and stored on the Clearsky T6 tag. This process occurs automatically as the tags are recognized by the system and each tag is assigned to an athlete.
3. **Assigning Athletes to Tags:** after logging in and pressing start, navigating to the settings menu will show athletes. Pressing 'auto-assign' will assign tag IDs to players and will then transfer this configuration to the tag as described above
4. **Starting a live session:** Connect the Clearsky Anchor via Ethernet. In the software from the main  screen, press the 'quick start' icon to start a live session. Clearsky T6 tags will show in 'active players' once they connect to the anchor and data transmission will begin. You can check if data are being received by checking the orange and black bar in the top right corner of the interface. Press 'All' in active players box then press '+period' to start recording. To end the live session, press the stop icon
5. **Download Session:** Turn the tags off by pressing the button on the front of the tag for 2 seconds and release. Place Clearsky T6 tags in Clearsky charging case, insert the power adapter into the charging case and connect the USB to PC. Press settings and then transfer. Press begin transfer. Once display says 'finished', data can be viewed from calendar.

TAG CONNECTORS & FEATURES

Ring LED: Located on the front of the tag is a LED used to indicate the charging and enumeration state of the tag when in the charging case and the live status when out of the charging case.

Power Button: The power button is on the front of the tag inside the ring LED.

Charging Pins: Allows the tag to connect to the Clearsky charging case which enables the tag(s) to charge and connect / data transfer to the PC.

FIRST USE AND CHARGE

Ensure the tags are fully charged before using them to collect data for a session. To charge the tags, connect the Clearsky charging case to a power supply and then place the tags into an individual dock slot on the Clearsky charging case. The LED ring will stop rotating when the tags have been fully charged. To turn the tag on, press the button on the front of the tag or set an alarm in the console.

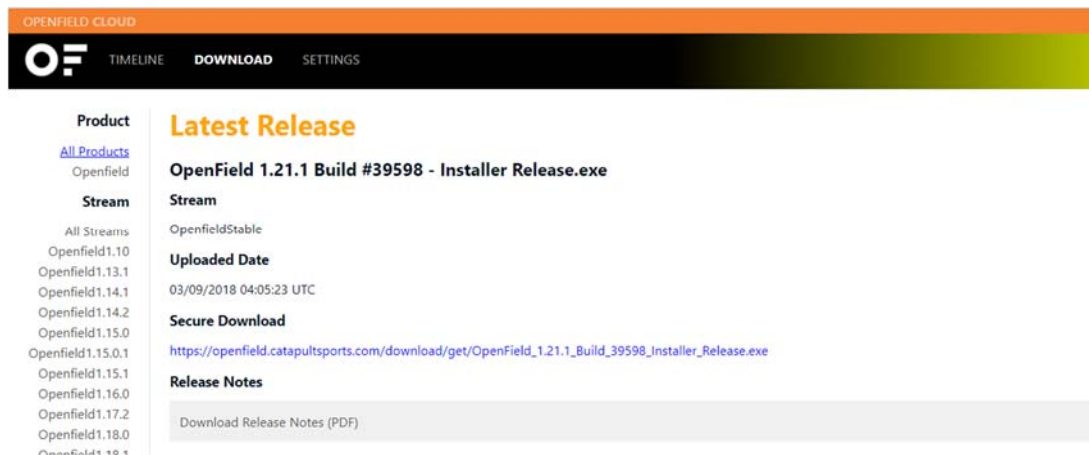
VEST POUCH INSERTION

The tag is placed into the tag pocket located on the back of the vest. Please ensure the tag has been turned on the power button prior to inserting the tag into the vest. The tag is now ready to record your player's data.

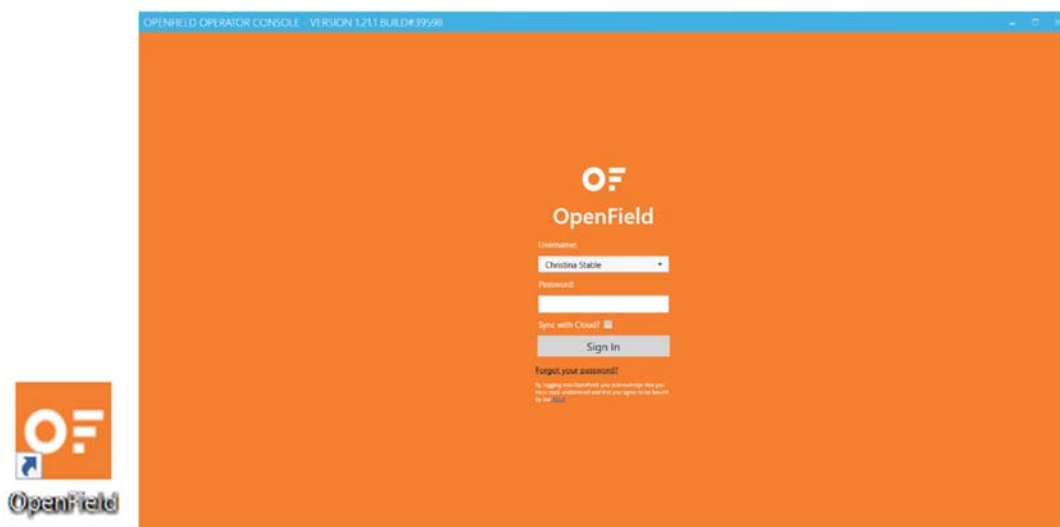
3. SYSTEM LOGIN

The software components of the Clearsky system consist of a cloud account and a downloadable console.

- 1) Each user will receive a unique username and password from a Catapult representative to log into their OpenField Cloud account. Each user can login to the cloud Account through one of the following URLs depending on their geographical location:
 - APAC (Australia Pacific and Asia): <https://openfield.catapultsports.com>
 - EMEA (Europe, Middle East and Africa): <https://eu.catapultsports.com>
 - US (North and South America): <https://us.catapultsports.com>
- 2) The OpenField Console Software can be downloaded from the OpenField Cloud. Login to the OpenField cloud with the account credentials and click the Downloads tab. Click the link under 'Secure Download' to download the latest version of the OpenField Console. You'll also find release notes regarding installations, changes, bugs, and improvements of the newest build.



- 3) Once the Open Field console is downloaded, click the desktop Icon to open the console. Log into the console with the same account credentials used to log into the cloud.



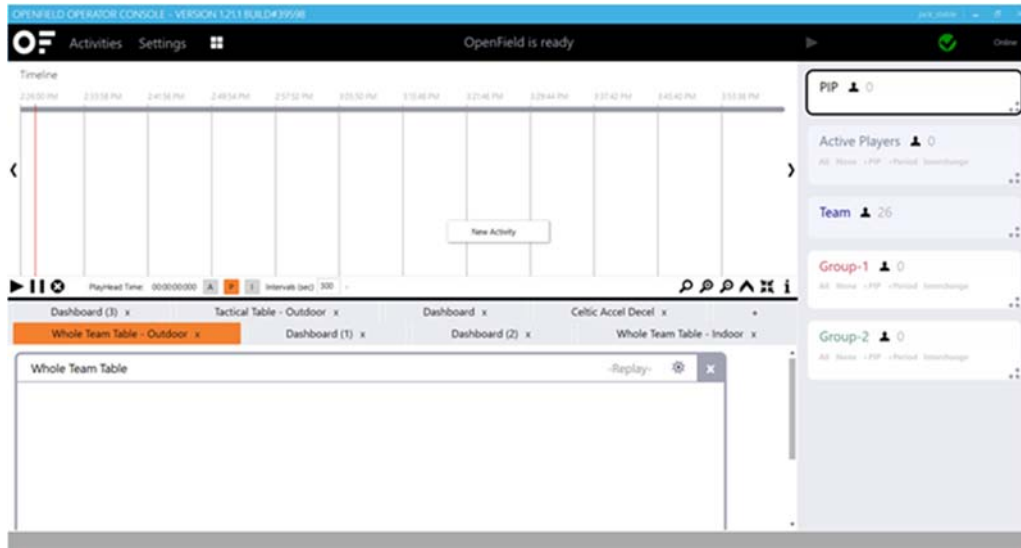
4. COLLECTING DATA

COLLECTING LIVE DATA

A Live Activity is an Activity being analysed in real time whilst the Tags are being used; this is achieved via Data being collected through the Clearsky LPS anchor (s). Live Activities are extremely useful to be able to provide real-time feedback on Athlete Performance.

1. Ensure the tags, console and anchor are all set to indoor or outdoor mode.
2. Turn on the wireless anchors(s) and the Clearsky tags.
3. Map each of the tags to their corresponding athlete via the Settings menu – Mappings Tab in the console.

- From the main user interface in the console, select Start to begin a new Live Activity.
- Create a New Activity via the Activity Timeline by right clicking in the timeline area and selecting New Activity. From the new activity menu, fill in all of the details for the session such as Name, tag type, venue, teams, ect. Select 'Create Activity'.



- Hit the 'Play' Button up the top right of the User Interface; Once hit the button will change to a 'Pause' Button

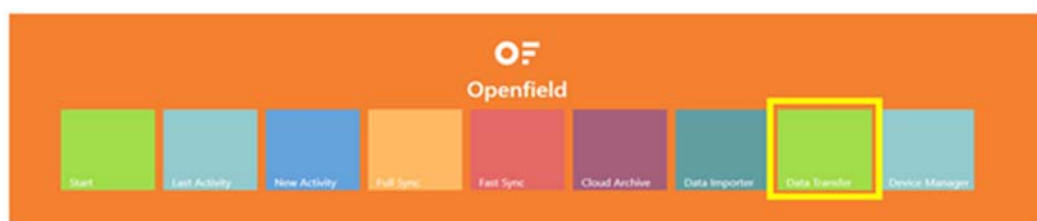


- Start a New Live Period and PIP Athletes as necessary. See our [Periods](#) article for more information on how to create and stop Periods.
- When the Activity is completed, stop all live Periods and press the pause button.

5. DOWNLOADING DATA

Data are recorded on the Tag in a 'Raw File', which is created every time the Tag is turned on; up to 31 Raw Files can be stored on a Tag at once. Downloading Data from the Tags is an important step in getting the most out of the metrics recorded on the Tag. It is necessary to apply Sport Specific Algorithms (GK Dives, QB Throws etc.), for IMA metrics to be calculated and more.

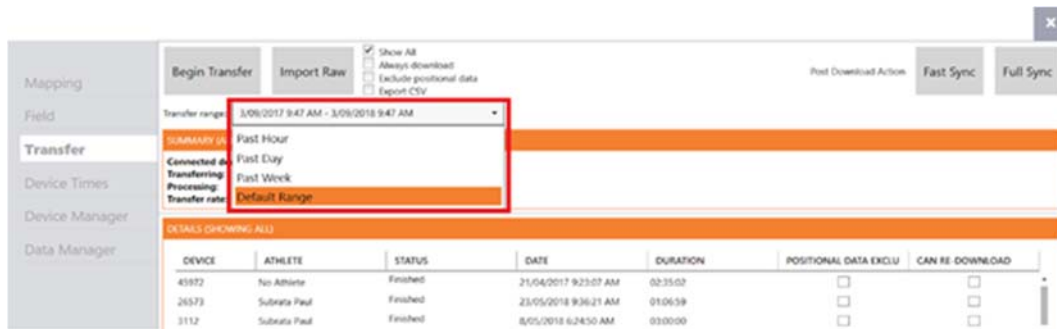
1. After a session is completed, collect all the tags from athletes, turn them off and connect the tags to the PC through the Clearsky charging case.
2. Open up the OpenField console and select 'Data Transfer' from the Console Tile Screen.



3. The units connected to the PC will automatically begin downloading (beginning with the most recent file, moving back) when the 'Data Transfer' tile is selected.

OR

1. To reach the Data Transfer screen without an automatic download, click 'Start' from the Console Tile Screen, then click 'Settings' in the top left of the console screen. From the settings menu, select the 'Transfer' tab.
2. Connect the Tags to the PC, then in the 'Data Transfer' screen, ensure the correct number of tags are connected.
3. Select the Transfer Range of the sessions you want to download. NOTE: The Default Range enables the user to download all of the sessions that haven't been previously downloaded from the tag.



4. Select 'Begin Transfer' to start downloading the tags.

6. SOFTWARE USER GUIDE LINKS

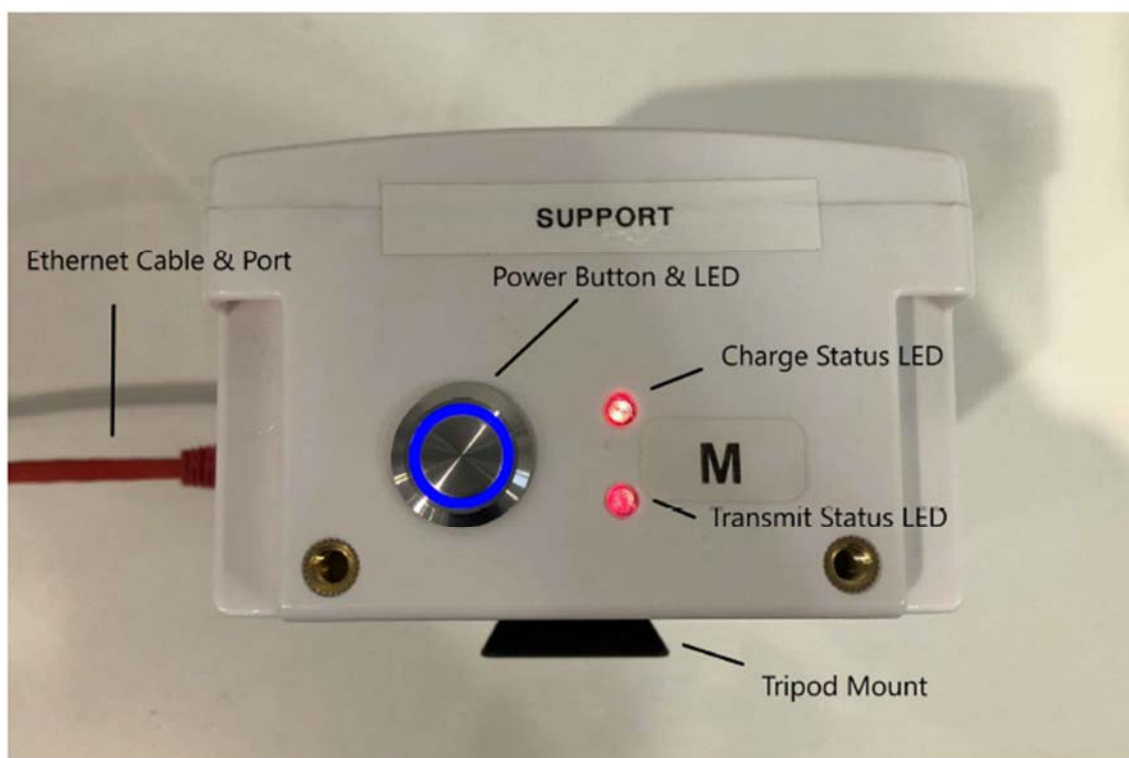
1. How to create a new widget - [Console Widgets](#)
2. Know live vs replay widget options - [Console Widgets](#)
3. How to create a new dashboard on the cloud - [Cloud Dashboards](#)
4. How to create a new widget on the cloud - [Cloud Widgets](#)
5. How to customize a widget on the cloud - [Cloud Widgets](#)
6. How to create a PDF report - [Generating a PDF report](#)
7. How to create a bulk PDF report - [Bulk Export PDF Reports](#)
8. How to export a CTR report - [CTR Reports](#)

7. Clearsky Anchor & Clearsky Charging Case

CLEARSKY ANCHOR

Anchor Specification:

- Ethernet
- UWB Antenna (3774.0 MHz to 4243.2 MHz)



The water-resistant wireless anchor design is built to pick up tags for player data capture in a ~350meter range by using ultra-wide band communication (4.0 GHz). The ultra-wide bandwidth provides more robust communication between tags and anchors(s) and improves immunity to third-party environmental interference, such as Wi-Fi. The anchor is wireless and has a 12-hour battery life. Users have the option to add multiple anchors to the same system to improve live data capture capabilities.

To operate, press the single button on the side of the anchor and use the Ethernet cable provided to attach to the OpenField console laptop. Please see instructions above on starting real-time data collection.

CLEARSKY CHARGING CASE

Case Specification:

- USB Connectivity (type-B USB 2.0 transmission)



The Clearsky charging case consists of 28 individual tag slots, a USB port and a power supply port. The USB port connects the tags to the PC via a USB cord to enable tag configuration and downloading of the raw files on the tags. To operate, plug the charging case into mains power with cables provided and then insert tags to charge. Enumerated tags will display a rotating green LED. Charging tags will display a fully green LED ring.

8. SUPPORT & HELP

Any questions or requests for help with the OpenField software system or the CLEARSKY tags should be sent by email. The support email required is dependent on the user's geographical location:

APAC: apac_support@catapultsports.com

EMEA: emea_support@catapultsports.com

AMERICAS: us_support@catapultsports.com

LATAM: latam_support@catapultsports.com

Please provide us with contact details including your name and your preferred email address. Let us know what the problem is and what equipment (computer & browser) you are using to access the site.

Users can also request help through the online cloud platform. From the OpenField cloud main user interface, select **Request Help** in the top right corner of the page. The user will be prompted with a form. Please fill out this form to provide us with the necessary details to fix the issue.



Note that there is knowledge center available at <https://wearables.catapultsports.com/hc/en-us> that includes multiple getting started, how to and troubleshooting articles.

Regulatory Notices

USA

Federal Communication Commission Interference Statement

This equipment has been tested and found to comply with the limits for a Class B digital tag, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.

- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

FCC Caution: Any changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate this equipment.

This tag complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions:

- (1) This tag may not cause harmful interference, and
- (2) this tag must accept any interference received, including interference that may cause undesired operation.

FCC Radiation Exposure Statement (Clearsky T6 Tag)

This equipment complies with FCC radiation exposure limits set forth for an uncontrolled environment and must not be co-located or operating in conjunction with any other antenna or transmitter.

For body worn operation, this device has been tested and meets FCC RF exposure guidelines. When used with an accessory that contains metal may not ensure compliance with FCC RF exposure guidelines.

FCC Radiation Exposure Statement: (Clearsky Anchor)

This equipment complies with FCC radiation exposure limits set forth for an uncontrolled environment and must not be co-located or operating in conjunction with any other antenna or transmitter.

This equipment complies with FCC RF radiation exposure limits set forth for an uncontrolled environment. This equipment should be installed and operated with a minimum distance of 20 centimeters between the radiator and your body.

Responsible Party Information

Name:

Address: @USA

Telephone number or Internet contact:

Canada

CAN ICES-3 (B)/NMB-3(B)

This tag complies with Industry Canada's licence-exempt RSSs. Operation is subject to the following two conditions:

- (1) This tag may not cause interference; and
- (2) This tag must accept any interference, including interference that may cause undesired operation of the tag.

Le présent appareil est conforme aux CNR d'Industrie Canada applicables aux appareils radio exempts de licence. L'exploitation est autorisée aux deux conditions suivantes :

- (1) l'appareil ne doit pas produire de brouillage, et*
- (2) l'utilisateur de l'appareil doit accepter tout brouillage radioélectrique subi, même si le brouillage est susceptible d'en compromettre le fonctionnement.*

IMPORTANT NOTE:

IC Radiation Exposure Statement

This EUT is compliance with SAR for general population/uncontrolled exposure limits in IC RSS-102 and had been tested in accordance with the measurement methods and procedures specified in IEEE 1528.

This equipment should be installed and operated with minimum distance 0cm between the radiator & your body.