

# mrPAT User Guide

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## About this Guide

This guide describes the mrPAT tag. Interacting with the tag and deploying the tag are explained. We recommend new users visit [wildlifecomputers.com](http://wildlifecomputers.com) for more information.

## Before you begin

The list below shows what is required in order to configure and deploy an mrPAT:

- A Windows computer with Tag Agent Software and USB Blue driver installed
- A USB Blue communications cable
- A USB Blue – round adapter
- A magnet
- A Wildlife Computers online account

Visit [wildlifecomputers.com](http://wildlifecomputers.com) to download the required software and setup an account. At the end of this document, there is a list of key concepts to reference. We recommend new users review this list.

## Anatomy of a tag

mrPAT's have elements in common with other Wildlife Computers tags and have an additional nose cone and tether (Figure 1). The nose cone and tether separate from the tag at release and remain on the animal and the released tag floats to the surface to begin transmissions (Figure 2). A custom label may be added to the tether as a long term identifier for mark-and-recapture studies.

The wet/dry sensor is composed of two elements, a small metal post at the top of tag and metal strap on the side of tag. Neither of these should be covered in any way. Covering either will interfere with the normal function of the tag. This includes anti-fouling substances and attachment adhesives (e.g. epoxy). The wet/dry sensors are configured for use in marine water. For deployments in brackish or freshwater please contact Wildlife Computers.

The communications port is where the USB Blue plugs into the tag. Do not apply silicone grease to the port as this will risk contamination of the release link or the wet/dry sensor. Both must have free access to sea water to function properly. A plug is not required for the tag to function normally.

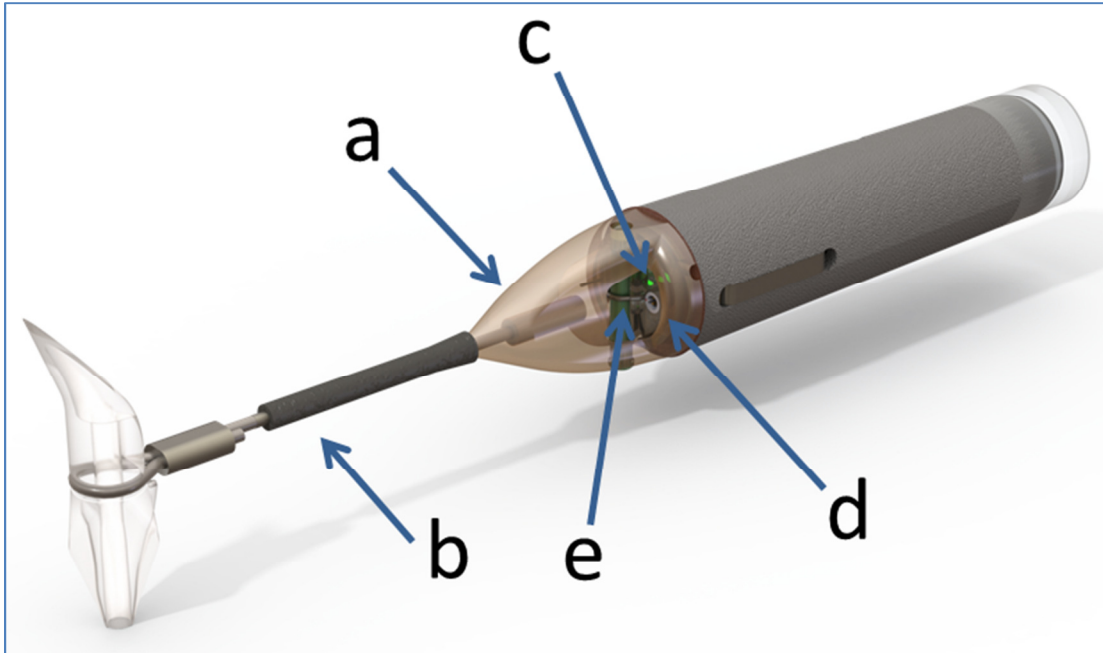


Figure 1 - A typical mrPAT showing the nose cone (a), tether (b), indicator light (c), release link (d), and communications port and magnetic switch (e). The magnetic switch is near the communications port. Swiping the magnet across the communications port will activate the switch. Note that the tether length is not representative.

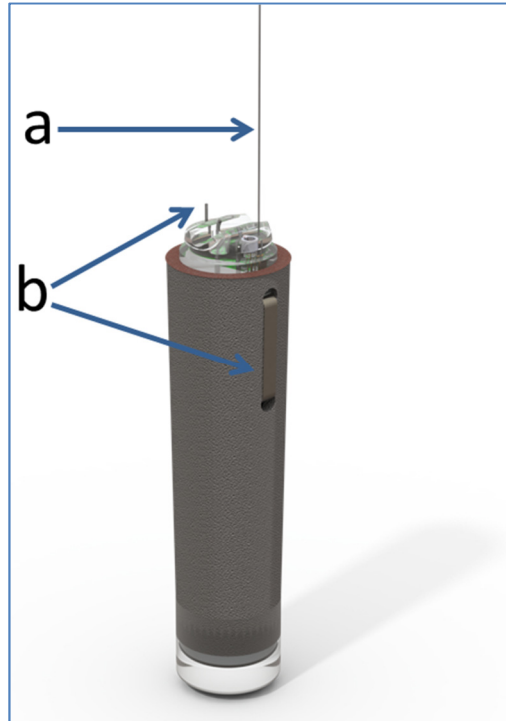


Figure 2 - MrPAT in the released configuration showing the Argos antenna (a) and the wet/dry sensor (b).

## Interacting with a Tag

### Tag Agent

Tag Agent Software can be used to put the mrPAT in Stop or Auto Start. Tag Agent is also used to send configurations from the Tag Portal to the tag. The software can be found at [wildlifecomputers.com](http://wildlifecomputers.com).

### Stop and Auto Start, and Start

An mrPAT can be in one of 3 states: Stop, Auto Start, and Start (Figure 3).

- Auto Start will allow the tag to Start by the swipe of a magnet or submersion in seawater. When Started, a tag is running and will generate locations after release.
- An mrPAT can only be Started by submersion in salt water or with a magnet. Tag Agent cannot be used to Start an mrPAT.
- In Stop, the tag will remain unresponsive unless connected to Tag Agent and swiped with a magnet.
- Once a tag's mission is complete and pin burn initiates, the tag state can no longer be changed via magnet. Tag Agent must be used to put the mrPAT in Auto Start or Stop mode.

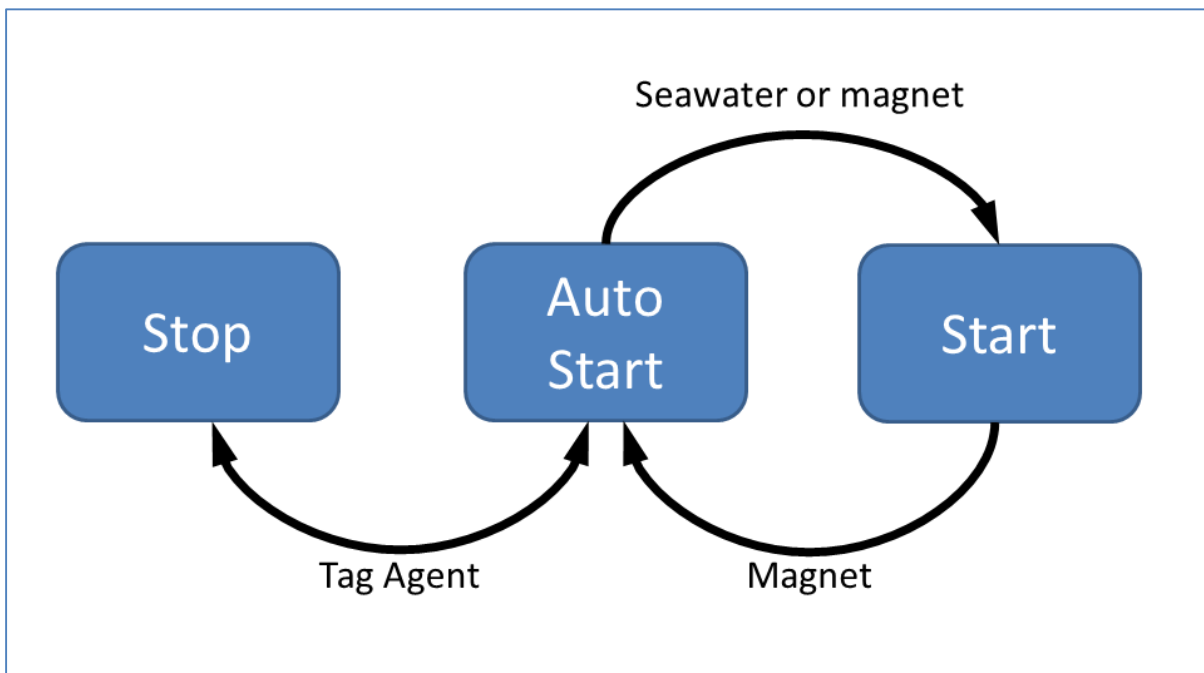


Figure 3 - Methods for changing an mrPAT's state. Note that Tag Agent cannot be used to start a tag.

### Magnet

Passing a magnet near the communications port will cause the tag to blink the indicator light. Two blinks and a pause repeated 6 times mean the tag is in Auto Start. Ten rapid blinks indicate the tag is Started. No blinks indicate the tag is Stopped.

Passing a magnet near the communications port can also toggle the tag between Auto Start and Start. First, swipe the magnet and wait for the tag to indicate its current state. Then wait for the indicator light to remain on. Then simultaneously swipe the magnet a second time. The second swipe needs to happen in the 2 second window that the light is on (Figure 4).



Figure 4 - Magnet and indicator light sequence to switch from Auto Start to Start. After an initial swipe of a magnet near the communications port, the indicator light will show a double blink 3 times when in Auto Start. Then the indicator light will remain on for 2 seconds. Simultaneously swiping the magnet again with the light on will Start the tag. The tag will blink 10 times rapidly and then remain lit for 2 seconds to show the tag is Started.

## mrPAT Configuration in the Tag Portal

The Tag Portal at [wildlifecomputers.com](http://wildlifecomputers.com) is used to configure a tag. A Wildlife Computers online account is required access the Tag Portal.

## Tag Information

### Tag Details & Argos Settings

Tag type, serial number, tagware and Argos ID are displayed on the Tag Details tab. The “Tag Name” field is an optional user-definable field which makes a tag or tags easy to find in the Tag Portal using the Filter.

## Tag Release Sequence

### Duration or Calendar Release

An mrPAT will release after the specified deployment duration or on a calendar date. The release is initiated at midnight UTC of the specified date or after the elapsed deployment duration. A deployment day is considered to be any midnight crossing. For example, a deployment scheduled for 5 days that starts at May 1, 2015 at 18:00UTC will initiate release on May 5, 2015 00:00UTC. The duration from deployment to release initiation will be 4 days and 6 hours.

Once release is initiated, the release link begins to degrade. After approximately 3 hours, the nose cone will separate from the body of the tag. The antenna will uncoil and the tag will ascend to the surface. Argos uplinks begin immediately.

## Release Location

The primary goal of the mrPAT is to report a location after release. The tag uses continuous Argos uplinks to generate locations. To generate an Argos location, 3 or more uplinks must be received by one satellite in a narrow window of time (<15 minutes).

Other diagnostic information is also reported and may be of use to determine if the tag was attached to the animal at the time of release and if the was animal alive. These data products include tilt and temperature measurements prior to release. Contact Wildlife Computers for details.

## Additional Information

### Key concepts

- Argos ID – Uniquely identifies a transmitter for the Argos system. The ID consists of a decimal number and a hexadecimal (base 16) number.
- Argos location – A location generated by the Argos system from uplinks received during a satellite pass. Get more information about how the Argos system works here: <http://www.argos-system.org/web/en/391-faq-general-questions.php>
- Argos uplink – A radio transmission intended for the Argos satellite system.
- Deployment – The period when a tag is attached to an animal and Started.
- Location uplink – A transmission intended to generate an Argos location. These uplinks can also carry a data message payload. Multiple uplinks are required to generate an Argos location.
- Pinger – A UHF radio tracking beacon.
- Start/Auto Start/Stop – Tag states. When Started, will initiate a scheduled release. Auto Start will allow the tag to Start using a magnet or when reading wet. Stop causes the tag to do nothing until reconnected to Tag Agent.
- Tag Agent Software – The program used to connect a tag to the Wildlife Computers Tag Portal.
- Tagware – The software running on a tag.
- USB Blue – The Wildlife Computers communication cable required by Tag Agent.
- Tag Portal – The cloud-based service offered by Wildlife Computers for tag setup.
- Wet and dry – The state of the tag as determined by the wet/dry sensor which measures conductivity.

# Contacting Wildlife Computers

## U.S. and International

Members of the Wildlife Computers technical sales and support team are located in Redmond, WA, USA, and Havelock North, New Zealand, allowing us to cover promptly a wide range of time zones.

### Mailing and shipping

Wildlife Computers  
8345 154th Avenue NE  
Redmond, WA 98052 USA

### E-Mail

Sales, Quotes, and Inquiries: [tags@wctags.com](mailto:tags@wctags.com)  
Technical Support: [support@wctags.com](mailto:support@wctags.com)

### Phone

+1.425.881.3048

## For Asian Clients

While we welcome your direct correspondence, we recommend that you contact our colleague, Yong Huang, for assistance. Mr. Huang understands the special purchase processes for your countries, and will provide you with the best service for the best price. He also is fluent in Japanese, Chinese, and English.

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