Application Note: Large Scale WiFI

INTRODUCTION

FreeETarget was originally build with the target acting as an Access Point, i.e. the target has an SSID (usually FET-TARGET) and the PC connects to the access point. This was done since it simplified the WiFi operation for people who are uncomfortable with WiFi settings. Selecting FET-TARGET and using the default settings in the PC Client are enough to connect the target to the PC.

This works fine for locations with one or two targets, but with more than that it becomes harder to manage the hardware. To address this issue, FreeETarget can be used in Station Mode to allow any number of targets to be used on a range. This document describes the steps to do this:

- Setup the range
- Setup the router
- Connect the targets
- Access the targets

When this is done, the target behaves like any other device you have in your home or office. You can access it anywhere there is a WiFi connection at your location.

SETUP THE RANGE

The range is setup as shown in Figure 1. The targets are installed as usual and located nearby is the WiFi router. The router should be no more than forty (30) meters from the targets. The Shooter's PC should be located such that they get a strong signal from the router.

WiFi routers come with the ability to directly connect the PC to the router using an Ethernet cable. Leave this in place since it allows remote diagnostics via TeamViewer and the service PC.

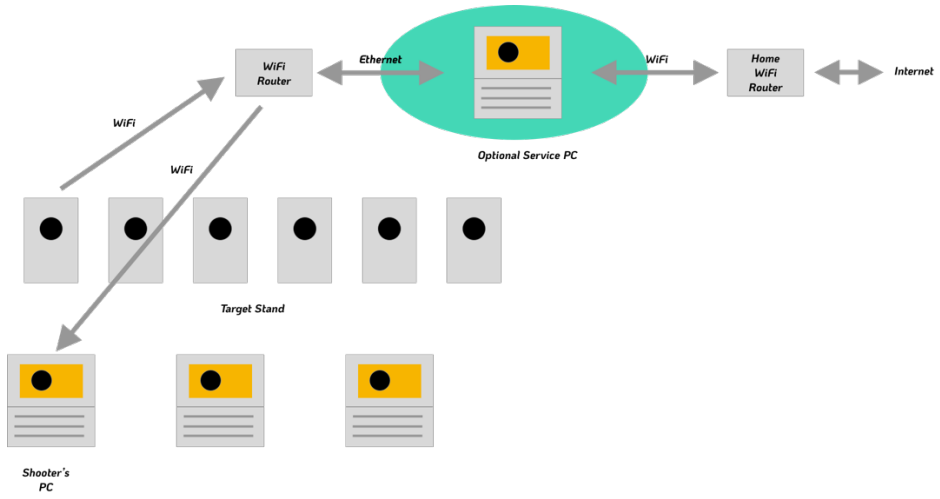

Figure 1: Range Setup

ROUTER SETUP

The router should be setup for the convenience of the shooter and their PC. The following settings are suggested.

Setting	Value	Description
SSID	TargetRange	Easy to recognize
Password	None (open wifi)	No secure data, easy to access for members
IP Address	192.168.109.x	Unique IP address that will not likely conflict with other networks

TARGET SETUP

The target should be setup with the following values

Setting	Description
{“WIFI_SSID”:”TargetRange”}	Set to the same SSID as the router
{“WIFI_PWD”:””}	No password used. Use {“WIFI_PWD”:”mypassword”} if a password is used in the router.
{“NAME_ID”:x}	Select a unique (different) name ID for each target See Appendix
	Optional
{“WIFI_IP”:”IP address”}	Set in a static IP, ex {“WIFI_IP”:”192.168.109.111”}

ACCESSING THE TARGET

Once the targets and router have been setup, the target can be accessed much like any other network device you have.

Using the PC Client

In the client configuration, set in the IP address in the TCP configuration,

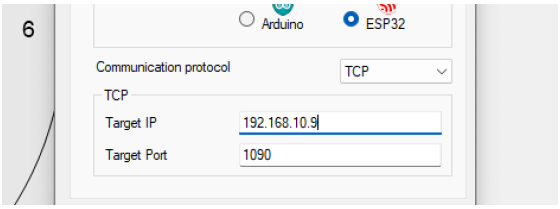

Figure 2: Setting the Target IP Address

When the target connects, it will connect to the IP address and begin the session.

The target will accept up to four simultaneous connections:

- Shooter
- Coach
- Parent
- Observer

Using a Web Browser

The target can be accessed as a web page using a web browser such as Safari or Chrome.

By IP address for example: 192.168.109.23

By target name, for example FET-TARGET.local

SECURITY

The design of FreeETarget assumed a fair amout of trust between the shooters and the shooting range. If this is not the case, then the following steps can be added

- Assign a WiFi password to the target range
- Lock out the target settings by assigning a lock code {“LOCK”:number}. This will prevent anyone from changing the settings unless an unlock code is provided {“UNLOCK”:number}

CAUTIONS

- When using the browser, only one connection will be accepted.
- The target has a WiFi range of fifty-meters in a clear line of sight with no obstructions
- The range manager should assign a WiFi password if they are concerned about security

APPENDIX 1

Target Names

NAME ID	Target Name
0	TARGET (Default)
	Numbers
1	1
2	2
3	3
4	4
5	5
6	6
7	7
8	8
9	9
10	10
	Seven Dwarves
11	DOC
12	DOPEY
13	HAPPY
14	GRUMPY
15	BASHFUL
16	SNEEZY
17	SLEEPY
	Reindeer
18	RUDOLF
19	DONNER
20	BLITZEN
21	DASHER
22	PRANCER
23	VIXEN
24	COMET
25	CUPID
26	DUNDER
	Norse Gods
27	ODIN
28	WODEN
29	THOR
30	BALDAR
	Custom
31	TEST
99	{“NAME_TEXT”:”myName”}. -> FET-myName
100	{“NAME_TEXT”:”myName”}. -> myName
101	Serial number -> FET-SerialNumber