

The Missing Team Fortress 2 Manual

A Reddit Team Fortress 2 Community Project

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1 Introduction

This manual sets forth instructions to ensure uniformity and consistency among employees of Reliable Excavation Demolition (RED) and Builders League United (BLU) as determined by the Administrator/Announcer. Uniformity and consistency are necessary steps towards ensuring that combatants are efficient in the execution of their duties on the battlefield. This manual is applicable to all combat classes. Contained in this manual are:

- General instructions that have been determined by the Administrator to be applicable to all combatants and are a requirement for all involved.
- Descriptions of the different types of battlefields in which combat occurs.
- Instructions specified by the Administrator for specific combat classes. Each combat class has mandated strengths and weaknesses and actions by combatants must maximize strengths while minimizing weaknesses.
- Team strategies. Success on the battlefield will be determined by the combatants who display greater levels of teamwork. As such, teamwork is vital for victory.
- Decorum guidelines. While combatants are expected to be presentable at all times the Administrator recognizes that individualization is important. As combatant tenure grows, combatants may be awarded "headgear" which may be worn on the battlefield.

Combatants are expected to have this manual in their possession at all times. The Administrator has the authority to challenge any combatant's understanding of the information contained within. Inadequate understanding by the combatant will result in death.

2 General Instructions

These Instructions have been determined by the Administrator to be applicable to all combatants and are a requirement for all involved.

2.1 Keyboard Controls

Combatants have a standardized way for controlling conduct on the battlefield:

Table 1: Common Actions

Key	Action
w	Move Forward
a	Strafe Left
d	Strafe Right
s	Move Backward
Space	Jump
Ctrl	Crouch
g	Taunt

Table 2: Voice Commands

Key	Action
e	Call for Medic
z	Bring up Voice Menu 1
x	Bring up Voice Menu 2
c	Bring up Voice Menu 3

Table 3: Gameplay Actions

Key	Action
n	Open Backpack
m	Change Weapon Loadout
,	Change Class
.	Change Team

Combatants may wish to customize these controls and can do so through the options menu, the console, or use configuration files. See Appendix A - Console on [pageref](#) for more information.

2.2 Spawn Points & Spawning

Combatants enter the battlefield at set points known as spawn points. Before entering these areas, combatants must choose which class they will play. If combatants wish to change classes, they may press the “,” key on their keyboard and they will be presented a list of classes from which they can choose. Note that if combatants select a different class while anywhere else in the map they will be killed by the server (suicide) and have to wait to re-spawn as the new class (this can be changed in Options;Multiplayer;Advanced). However, if combatants select a new class while inside of the spawn points they will re-spawn as the new class immediately without suiciding. Most spawn points also contain resupply lockers which replenish health and ammo to full, instantly.

2.3 Selecting a Class

On the class selection screen, each class will have a number above it. This number represents the number of their fellow combatants who are already a member of that class. Combatants should take care that no class is over-represented. This maintains balance on the team and ensures that a team is not missing players in other classes that would serve the current initiative. A balanced team generally includes a balance of support, defensive, and offensive classes. For example, a Medic is generally considered to be a useful support class on any map.

2.4 Maintaining Health

Throughout the battle, unskilled combatants may find themselves low on health. The Administrator has provided several solutions to this problem. One way is by providing health packs which can be used to replenish combatant health. There are three types of health packs: small, medium, and large. They heal 20.5%, 50% and 100%, respectively.

Health may be replenished by returning to the spawn point (see pageref) and opening the supply cabinet installed by the Administrator for these purposes. Teammates playing Medic (see pageref) can also replenish teammates’ health using their medigun. Teammates playing Engineer (see pageref) can build dispensers which can also replenish health. Last, but not least, a teammate playing Heavy (see pageref) can throw out his delicious Sandwich which will replenish 125 health. Combatants receiving this generosity should be sure to show their gratitude.

2.5 Maintaining Ammunition

Combatants will maintain ammunition so that they will always be prepared for combat. Ammunition can be resupplied in ways similar to Health. The Administrator has distributed ammunition packs throughout the map that can be picked up by any class that will increase their available ammunition. Ammunition packs will also increase the Engineer's available metal. Engineer's dispensers also supply combatants with ammo without having to wait for ammo packs to re-spawn, at no cost to the dispenser.

2.6 Weapon Drops

The Administrator has provided each class with a base set of weapons for use in combat. As combat time increases, the Administrator may provide additional weapons to the combatant through random drops while in combat. These will be given out after death. Weapons may also be gained via achievement milestones. All found weapons and items can be viewed by opening the backpack (default key 'n').

2.7 Changing Loadout

Once a player is given a new weapon for a class (either through random drops, or earned through achievements), they can choose to equip the item by opening up the load out screen (default key 'm'). At the load out screen, one can select the primary, secondary, and melee weapons (as well as headgear and other items) to be equipped to the selected class. Switching back to the default weapons is just as easy. Combatants can switch weapons as much as they want but the changes will not take effect until either they die and respawn or they touch a resupply cabinet in the spawn room.

2.8 Critical Hits

During play, combatants inflict damage to one another through various means of attack. The damage caused by these attacks is based on the weapon being used and, generally, the distance to the enemy. Every time a combatant uses their weapon, they have a chance of producing a critical hit. Generally, these critical hits inflict 300% the normal level of damage to an opponent (i.e. not buildings). Critical hits are identifiable by a team-colored glow around projectiles and a custom sound upon firing and upon collision with enemy. Critical hits are often shortened to just "crits." Notes:

- A server's configuration can increase or lower the number of critical hits a combatant produces.

- The base chance of producing a critical hit is 2% for all non-melee, 15% for melee weapons.
- The more damage a combatant has done in the past 20 seconds, the higher the chance of a crit. This linearly scales with damage up to a maximum of an extra 10%.
- Critical hits do not produce additional self-damage (e.g. Demoman's sticky bombs)

2.9 Mini-Crits

Mini-crits are similar to critical hits in that they allow a combatant to inflict additional damage to their opponents. However, they differ in several ways, as they:

- Inflict 135% the normal level of damage to an opponent
- Are not random; rather, they are a direct result of one of the following:
 - The victim is covered in a Sniper's Jarate (See Sniper section on pageref)
 - A projectile has been reflected by a Pyro's airblast (See Pyro section on pageref)
 - The attacker is within the range of a Soldier's Buff Banner (See Soldier section on pageref)
 - The attacker or victim is under the influence of Crit-a-Cola (See Scout section on pageref)
 - Hitting a combatant who is on fire with a Flare Gun (See Pyro section on pageref)

Note: Crits and mini-crits do not stack

2.10 Übercharge

There are two types of "Übercharge" that can be created by the Medic. Übercharges involve the Medic and usually just one other player (the "patient"), although skilled Medics may Übercharge more than one person. Medics continue healing while Übercharged so Übering a teammate is a great way to save his life if he is about to die, because he gets 8 seconds of uninterrupted healing and invincibility.

2.10.1 Standard Übercharge

A standard Übercharge is a buff deployed for 8 seconds by the Medic on one patient at a time. While the Übercharge is active, both the Medic and the patient are invulnerable to all damage. An Übercharge is a very important part of game mechanics, potentially allowing a team to overcome highly concentrated defenses, which would otherwise be impossible to overcome (e.g. well-defended choke points with sentries, etc.). The Medic can deploy an Übercharge only when his Übercharge meter is full. The Übercharge meter is filled by healing combatants, and healing combatants who are wounded fills the meter faster.

2.10.2 Kritzkrieg Übercharge

The Kritzkrieg is a fully-offensive variant of the Übercharge. It is deployed using the Kritzkrieg instead of the Medigun. Unlike the Übercharge, the Kritzkrieg confers no invulnerability to either the Medic or the patient, instead providing the patient with 100% critical hit chance. It lasts 8 seconds like the Übercharge. The Kritzkrieg is especially useful when used on Soldiers, Heavies and Demomen.

2.10.3 Reacting to an Enemy Übercharge or Kritzkrieg

Combatants who face an enemy Übercharge have several options, besides running away. First, they can become invulnerable by means of either two ways. If there is a Medic with a fully charged Über of his own, he can "pop" it on a fellow teammate and prevent both of their deaths. If a Scout is carrying Bonk Atomic Soda (see Scout pageref), drinking it will make him invulnerable as well.

If a Pyro is carrying the Flamethrower, he can counter Übercharges through the use of his airblast. He should blast Übercharges away from teammates or sentry positions. Through repeated use of the airblast, an Übercharge can be completely countered in some cases.

Combatants who face an incoming Kritzkrieg have fewer options. The most obvious option is to run and hide for the duration of the Kritzkrieg attack. The lesser known option is for a Sniper to use Jarate on them to prevent them from firing crits (See Sniper pageref). It is important to note that unlike the standard Übercharge the Kritzkrieg does not provide invulnerability, so the Medic can be killed to end the Kritzkrieg.

2.10.4 Übercharging Multiple People

It is possible to Übercharge several patients by quickly switching between them during an Übercharge, however the downside is that the charge will drain much more quickly.

2.10.5 Übercharged Combatants

Combatants who find themselves Übercharged may initially panic, especially if they are not expecting it. They should not panic, but concentrate the attack on the biggest threat, such as an enemy sentry nest.

2.10.6 Deploying an Übercharge

The key to a successful Übercharge deployment is communication. Medics can keep their team updated on the status of their charge and let someone know when they are about to deploy the charge. Combatants should inform the Medic if they need to pick up more ammo or reload before the charge. A charge on someone without ammo is a wasted charge. Combatants and Medics can work together to find the best time to deploy a charge. Deploying it too early can waste the charge, and deploying it too late can get them killed before they are able to use the charge.

3 Battlefields

Throughout combatant tenure, combatants will encounter many types of battlefields. Generally, combatants should kill those on the other team, while following the team-work guidelines (see pageref). Navigating an unfamiliar map can be quite hard at first. Combatants should follow the arrows and Blu and Red signs. Combatants should note the different types of conflict they face upon entering the battlefield:

3.1 Arena (arena_*)

Arena is a heavily round-based mode where combatants fight in a last-man standing scenario. There are no supply cabinets inside of spawn points and a very limited number health packs. Combatants who die in these battles do not respawn until the beginning of the next battle. The battle is focused around a center control point that eventually unlocks if the teams take too long to kill each other. Battles in arena matches tend to be much shorter and more intense because of these changes. Examples of maps that use this gamemode include Lumberyard and Ravine.

3.2 Control Points (cp_*)

There are a number of control points throughout the battlefield. Both teams must try to capture and/or hold some or all of the points. Combatants work together to capture these points by occupying the control point and sometimes the area immediately around it, as marked by a black and yellow line. Certain points capture slower than others, but having additional combatants of the same team on the point will increase the rate of capture. The maximum number of combatants on the point that will result in a bonus is four, but note that a Scout counts as two combatants on a point. There are two different types of CP maps, attack/defend maps and five control point push maps.

3.2.1 Attack/defend

The RED team begins with control of all the points on the map, the BLU team's goal is to take them all before the time limit runs out, while the RED team is trying to hold the points for the time limit. Each time the BLU team is able to take a point, the more time is added. The number of points can vary depending on the map, between 2 and 5. Some of RED's points may begin the game locked and cannot be captured by BLU until the points before them have been captured, but this also depends on the map. Examples of maps that use this gamemode include Dustbowl and Gravelpit.

3.2.2 Five Control Point Push

These maps have 5 control points in a linear fashion and are symmetrical across the center point. Each team begins the match by spawning on opposite sides of the map. Both teams are automatically given control of the two points closest to their spawn. Both teams then have to race out to fight over the center point. The team that is able to win the center point then tries to push forward onto the opponent's side of the map and take the other two points (in order), while trying to defend the points they have. Points are locked for capture unless the team owns the point preceding it. The first team to control all 5 points on the map wins. Examples of maps that use this gamemode include Badlands and Well.

3.3 Capture the Flag (ctf_*)

Combatants must bring the intelligence briefcase (aka intel) to a specific point on the map in order to score points. Capturing the intelligence refers to obtaining the intelligence by touching it to pick it up and bringing it back to the intelligence room. If the intelligence-carrier is killed by the opposing team, the intel is dropped on the ground at the point they were killed. If untouched by team, it will return to the original intel room in a number of seconds (time varies by map). The icon above the dropped intel is a timer that displays the time until this occurs. If the intel is touched by another teammate, they will pick it up and the timer resets. A player can also willingly drop the intel (default key 'I') in order to allow a faster class to pick it up. Arrows on the HUD indicate which direction the intel is in. When a player captures the intelligence, their team receives ten seconds of critical hits. Both teams have identical bases housing their own top secret briefcase of intel. The goal is to fight into the enemy's base to take their intel while defending one's own. Examples of maps that use this gamemode include 2Fort and Turbine

3.4 King of the Hill (koth_*)

Capture the central control point and hold it! Once the control point is held by a team for the required amount of time, it is captured and the team-colored round timer will begin to run down. If either team's timer reaches 0:00 and they have complete control (meaning the other team is not currently nor has recently attempted a capture of the point), that team wins. Currently, KOTH is the only game type which allows bots without advanced action required by the user (see appendix E: Bots on pageref). Examples of maps that use this gamemode include Viaduct and Nucleus.

3.5 Payload (pl_*)

BLU must escort a large cart full of explosives into the RED base. It is the BLU teams job to push the cart by standing next to it to advance it down the tracks before time runs out. More time can be earned by reaching the 2 or 3 checkpoints on every map. Standing near the cart will also heal and replenish attacking combatant ammunition. The more combatants that stand near the cart, the faster the cart moves, however capture speed does not increase once three people are pushing the cart. The RED team must try to stop the cart at all costs by making sure that BLU cannot push the cart. Just one RED combatant standing near the cart will stop BLU making any progress. If the cart is not moved after 30 seconds of inactivity, the cart will start to slowly move backwards towards the last checkpoint. Examples of maps that use this gamemode include Goldrush and Badwater.

3.6 Payload Race (plr_*)

Payload Race is a variant of the Payload battlefield, where instead of one team defending and the other attacking, both teams have a cart that they must push while also stopping the opposing teams' cart. There is not a time limit in this mode; the match is won when one team successfully escorts their payload to the destination. Examples of maps that use this gamemode include Pipeline.

3.7 Territory Control (tc_*)

Territory Control consists of several smaller battles over single control points. The map is broken up into multiple regions. Each round consists of a battle between two of the regions, one controlled by each team. Individual battles are won by controlling capturing the opposing teams' control point. Once a team has completely taken over the territory of the other team, a point is awarded to it, and the map resets. Examples of maps that use this gamemode include Hydro.

3.8 Additional Battlefields

A select number of additional battlefield types are referenced in Appendix F on [pageref](#)

4 Classes

Class information is broken down into several different parts:

- Biography – a brief overview of the history of the class.
- Purpose – As stated in the introduction combatants have mandated strengths and weaknesses. Combatants will find the role they play on the battlefield is unique to their chosen class.
- Weapons – The administrator has graciously provided each class of combatants with a multitude of weapons and tools which they should use in accordance with the information in the classes weapons description.
- Tactics – Class specific tactics and abilities that should not be overlooked.

Note: Any weapon with an asterisk * next to it is an unlockable weapon, and is not included in the class loadout by default

4.1 Scout

Bio The youngest of eight boys from the south side of Boston, the Scout learned early how to problem solve with his fists. With seven older brothers on his side, fights tended to end before the runt of the litter could maneuver into punching distance, so the Scout trained himself to run. He ran everywhere, all the time, until he could beat his pack of mad dog siblings to the fray.

Health: 125 HP

Purpose Harass, Capture Objectives, Steal intelligence

Weapons **Primary Scattergun:** The Scattergun is extremely powerful at close range, though as the distance to the target increases, the damage dealt by this weapon decreases more rapidly than other weapons. **Force-A-Nature*:** A double-barreled shotgun that knocks opponents backward when it hits them. Opponents of a smaller stature are knocked back further, in accordance with Newton's laws. Also, the Scout can shoot it in midair to get an extra boost in the opposite direction. For example, shooting down will propel him up. However, shooting twice does not propel the Scout twice as far. Like the Scattergun, the Force-A-Nature (or FAN, as it is often called) excels at close-quarters combat.

Secondary Pistol: Basic pistol, 12 shots per magazine, 48 rounds in total. Best used when the primary weapon is empty or the enemy is out of its range. **Bonk! Atomic Punch*:** Sometimes referred to as a "lunchbox item". Drinking this radioactive concoction will make the Scout immune to any and all damage for 6 seconds, including damage dealt by sentries. During this time the Scout may not attack, take the intelligence, capture points or push the cart. Additionally, the camera will switch from first to third person while under the effects of Bonk! Atomic Punch. After drinking it, there is a 15 second recharge time before he can take another drink. **Crit-a-Cola**:** Similar to the Bonk! Atomic Punch, Crit-a-Cola is a drink that replaces the Pistol. Upon usage, the Scout is given mini-crits on all weapons for 6 seconds. However, everybody else will also score mini-crits on the Scout as well for the duration of usage.

I ain't normally a gambling man, but I make an exception for this baby Scout

Melee Bat: A small aluminum baseball bat. The Scout uses this to smash the skulls of enemies. **Sandman*:** Wooden baseball bat complete with baseball. Hitting an enemy combatant with the baseball using the alternative fire button will stun them. The further the ball travels, the longer the enemy is stunned. If there's a ball rolling around on the ground, then the Scout can replenish his supply by picking it up. Having this bat equipped lowers the Scout's maximum HP to 110.

Tactics The biggest advantage Scouts have is their speed. They move at least twice as fast as every other class. This makes them much more agile, able to jump around their opponents and cause distractions.

A unique ability scouts have is known as the double jump. This is the ability to jump again once in the air, allowing them to change directions or jump higher.

Scouts can capture points at a rate twice as fast as other classes. This means two scouts standing on a capture point will capture in half the time as two soldiers, or a medic and a heavy.

Scouts have a low starting health, which means that they will need to be very aware of their health levels throughout the battle.

This is Scout. Rainbows make me cry Spy

4.2 Soldier

Bio Though he wanted desperately to fight in World War 2, the Soldier was rejected from every branch of the U.S. military. Undaunted, he bought his own ticket to Europe. After arriving and finally locating Poland, the Soldier taught himself how to load and fire a variety of weapons before embarking on a Nazi killing spree for which he was awarded several medals that he designed and made himself. His rampage ended immediately upon hearing about the end of the war in 1949.

Health: 200 HP

Purpose Main assault class.

Weapons Primary Rocket Launcher: Projectile weapon that fires large, slow-moving rockets that inflict massive amounts of direct damage as well as splash damage. Can cause enemies to explode into piles of blood and body parts. Direct Hit*: Another rocket launcher, does 25% more damage than the normal rocket launcher and moves 80% faster through the air, but has a much smaller blast radius (-70% radius). It also does mini-crits when fired on opponents who have been launched into the air by an explosion.

Secondary Shotgun: This weapon is shared between the Soldier, Pyro, Heavy, and Engineer. Standard shotgun with 6 rounds, damage increases as range decreases. Buff Banner*: The buff banner can be used to rally a team. When equipped, a "rage" meter appears on the HUD, filling up as damage is dealt. Once the meter is full, the Soldier can activate it by blowing his bugle, and any teammates in the surrounding area will shoot 100% mini-crits for ten seconds. Gunboats**: Special boots, these provide a 75% damage reduction for self-damage, enabling great leaps with minimal damage to company property.

Melee Shovel: Standard military issue folding entrenching tool. It works well for bludgeoning enemies, too. Equalizer*: A pickaxe which gives increasing movement speed and damage bonuses with decreasing health. When the Equalizer is drawn, the Medic cannot heal or deploy an Übercharge on the Soldier. Pain Train**: Board with a railroad spike through it. Doubles capture speed when equipped. It increases combatant vulnerability to bullets by 10%. Because there are no points to capture on Capture the Flag battlefields, or when playing defense on Attack/Defense Control Point maps, the Pain Train is not useful in these modes.

Tactics

Soldier have the ability to use their rockets to propel them to great heights. In order to rocket jump, they shoot at their feet while simultaneously jumping. Jumping in this manner can enable Soldiers to reach areas inaccessible to other classes. Rocket jumping can be used to surprise enemy combatants and travel at higher speeds over the battlefield. While engaging the enemy, Soldiers can rocket jump and then rain rockets

down on enemy combatants while in the air. Rocket jumping does cause the Soldier to damage himself, but it does so at a lower rate than damage to others. The Soldiers "Gunboats" unlockable weapon, which replaces the shotgun, allows the soldier to rocket jump without taking nearly as much damage.

Soldiers should fire their rockets at the feet of their opponents. By firing at their feet instead of their body, the chance of causing damage is increased, as the rocket will certainly explode once it hits the ground. A rocket fired at the body of an opponent could miss, and not explode for a long distance, causing no damage at all. Accurate shots will throw the opponent up in the air, who can then be juggled by firing additional rockets at the spot where they will land. Another option the Soldier has is to switch to their shotgun and finish off their opponent with that weapon.

The Soldier is great at taking down sentries. Combatants can peek out from around a corner, fire a rocket, and retreat before an enemy sentry can acquire them as a target. Because rockets have a virtually unlimited range and Soldiers can also stand outside the range of enemy sentries to take them down. Firing at the walls or ground behind an enemy sentry is a good way to dislodge a stubborn Engineer.

Some more advanced tactics for Soldiers include air shots (shooting enemies who are in the air with the rocket launcher), horizontal boost jumping, crouch rocket jumping and effective use of the Equalizer.

4.3 Pyro

Bio Only two things are known for sure about the mysterious Pyro: he sets things on fire and he doesn't speak. In fact, only the part about setting things on fire is undisputed. Some believe his occasional rasping wheeze may be an attempt to communicate through a mouth obstructed by a filter and attached to lungs ravaged by constant exposure to his asbestos lined suit. Either way, he's a fearsome, inscrutable on-fire Frankenstein of a man. If he even is a man.

Health: 175 HP

Purpose Burn things, push people around, protect Engineers, locate Spies, ambush enemies.

Weapons **Primary Flamethrower:** Expels a cone of flames, which will ignite anyone on the opposing team within range. After someone is set on fire, the flames will deal 6 damage per second for 10 seconds, or until extinguished. The Flamethrower has an alternate attack: the compression blast (aka airblast). It expends 20 ammo and expels a cone of non-burning gas. The compression blast has a versatile array of important uses, see the tactics section. **Backburner*:** An alternative to the regular Flamethrower. This weapon causes 15% more damage than the Flamethrower, but at a cost: it does not have airblasts. However, Pyros who successfully ambush the enemy by burning their backs will notice something: All hits from behind are full critical hits, potentially causing an obscene amount of damage.

Secondary Shotgun: All Pyros should familiarize themselves with the shotgun. Lighting an enemy on fire and then finishing them off with the shotgun is a wholesome family pastime. **Flare Gun*:** Shoots a long-range flare that deals hit damage and sets fire to an enemy. The flames will deal damage for 10 seconds, or until extinguished. If the flare strikes an enemy who is already on fire from short to medium range, the flare will be a mini-crit, doing 30% more damage. If the flare hits an enemy who is already on fire from medium to long range, the flare will be a critical hit.

Melee Fire Axe: The fire axe is a standard melee weapon. There isn't anything special about it. Frankly, this should only be used if no other melee weapons are available, or if melee is only used as a last resort when out of Flamethrower or Backburner ammo. **Axtinguisher*:** Light someone on fire, and finish them off with this. While it only does half damage to enemies who aren't on fire, it deals critical hits to those that are. Combined with the Flamethrower or Flare Gun, this can be devastating. **Homewrecker**:** Deals 75% of Fire axe damage against players, but deals 200% damage against buildings. It can also destroy an enemy Spy's sapper on friendly buildings with one hit. This is the only weapon outside of the Engineer's wrench that can destroy sappers.

Tactics Pyros are suited to close combat, so looking for ways to sneak around the enemy and come up behind their backs is important. Wait for enemies outside of exits and

then ambush them. Pyros can also be an enemy Spy's worst nightmare as the Pyro's flame will ignite an invisible or disguised enemy Spy, who can not then easily disappear.

Compression Blast The compression blast is a versatile tool and can be used both offensively and defensively.

A well-timed compression blast can reflect rockets, grenades, stickies, baseballs, Jarate, flares, and even arrows! The reflected object changes team affiliation and gains minicrits.

The compression blast can also be used to push opponents off cliffs, into various environmental hazards, or simply juggled in place. This can be used when an enemy team uses an Übercharge to either move the patient around or to separate the Medic from their patient. In addition, the compression blast can push people off a control point or away from a payload cart to stop the enemy from capturing or advancing.

If a teammate is on fire the compression blast can be used to put them out.

4.4 Demoman

Bio A fierce temper, a fascination with all things explosive, and a terrible plan to kill the Loch Ness Monster cost the six year old Demoman his original set of adoptive parents. Later, back at the Crypt Grammar School for Orphans near Ullapool in the Scottish Highlands, the boy's bomb-making skills improved dramatically. His disposition and total number of intact eyeballs, however, did not.

Health: 175 HP

Purpose Traps, defense, area denial, destruction of sentry nests

Weapons Primary Grenade launcher: The Demoman's trusty sidekick. It fires projectile explosives, each equipped with a 3 second fuse that cause blast damage when they go off. It can be used to take down enemies and sentries alike. Watch out though, the damage done by the grenades can also do damage to the Demoman himself if he gets too close to them. Remember to keep the grenade launcher fully loaded, as it can only holds 4 grenades at a time. Grenades explode instantly upon enemy contact.

Secondary Sticky bomb launcher: Launches up to 8 small spiked explosives that can stick to almost anything. Hitting alt-fire detonates all placed sticky explosives. Sticky bombs can be used to "sticky jump" in much the same fashion as rocket jumping. Stickies can be detonated in mid air before they land, known as "air burst", a tactic that is highly effective when mastered. Stickies can be destroyed by shooting at them once they have landed on something. If the Demoman dies with stickies deployed but undetonated, the stickies will dissolve harmlessly into dust. Chargin' Targe*: This is a shield that partially protects combatants from fire and explosive damage. Additionally, it can be used to quickly charge in a straight line. This can be done by pressing the alternative fire button while the shield is equipped. After charging a certain distance, the demo gets a crit on any attack done while still charging. Scottish Resistance*: Similar to the regular sticky launcher, but has the ability to place up to 14 bombs. In order to detonate the bombs with the Scottish Resistance, the bombs must be in the center of the player's screen when alt-fire is pressed. This allows players to detonate them in groups. The downside is that they take longer to arm (which is the time between placing them and being able to detonate them).

Melee Bottle: The starting melee weapon. It's a bottle of booze. The bottle will break if struck against another object when the player gets a critical hit. A broken bottle does no extra damage. Buy more booze! Demoman Eyelander*: It's a big sword that has twice the range of a normal melee weapon. Landing a killing blow with this weapon will cut off the unfortunate victim's head. Each head will reward the Demo with an 8% increase in speed as well as 15 extra hit points. Combatants gain this reward for the first 4 enemy heads taken, but it will reduce initial health to 150 Pain Train*: Board with a railroad spike through it. Increases capture speed to that of two people, or 1 Scout. It increases combatant vulnerability to bullets by 10%. As such, it is only

useful in-game modes which involve capping points or pushing the cart. Scotsman's Kullcutter**: This weapon is a large, double sided axe. It deals one fifth more damage than the bottle, but makes the combatant travel 15% slower, due to it's bulk.

Gonna take down to the pain train...station in the..train..town!! Demoman

Tactics Remember to keep the grenade launcher fully loaded, it can only hold 4 grenades at a time. With the right timing, grenades can be used to "grenade jump" in much the same fashion as rocket jumping.

Sticky bombs can be used to "sticky jump," which is similar in some ways to the Soldier's rocket jumping. In order to sticky jump, a demoman shoots a sticky bomb, stands on top of it, and then simultaneously jumps and detonates the bomb. This has the result of flinging the combatant through the air. Sticky jumping can be an effective way of moving quickly through the map, especially in control point maps, where the time it takes to get to the center point can be vital to the outcome of the battle.

Demos excel at taking out sentry guns. Three stickies in close proximity to a gun will destroy even a level 3 sentry instantly upon detonation.

The sticky launcher can be used as an assault weapon by lobbing stickies towards the enemy and detonating them in the air when they get close.

Using the arch of both the sticky launcher and the grenade launcher, a demo has the ability to fire while behind cover, or attack well defended sentries from a different angle.

HUD The Demoman's HUD shows the number of deployed sticky bombs next to the standard weapon ammunition count (0-14)

4.5 Heavy

Bio Like a hibernating bear, the Heavy appears to be a gentle giant. Also like a bear, confusing his deliberate, sleepy demeanor with gentleness will get you ripped limb from limb. Though he speaks simply and moves with an economy of energy that's often confused with napping, the Heavy isn't dumb, he's not your big friend, and he generally wishes you'd just shut up before he has to make you shut up.

Health: 300

Purpose Suppression fire. Best in close quarters like hallways where enemies cannot run away, worst out in the open where Snipers can easily kill him.

Kill them all! Heavy

Weapons Primary Sasha: Minigun with a high rate of fire, but takes a short period of time to "spin up" before it can be used. Holding the alt-fire key keeps this weapon spinning. While the gun is "spinning" the Heavy moves slower than he normally does, and if crouching as well as spinning, he cannot move. Natascha*: A minigun that causes 25% less damage than Sasha, but slows the enemy on every hit. Also slows a Demoman's Chargin' Targe.

Some people think they can outsmart me. Maybe, [sniff], maybe. I've yet to meet one that can outsmart bullet. Heavy

Secondary Shotgun: Same as all other shotguns. Sandvich*: Using this lunchbox item will quickly recharge the Heavy's health to full. However, the Heavy will be unable to attack or move while eating. Using the alternate fire key will throw the Sandvich onto the battlefield. Other combatants can pick the Sandvich up like a health pack, allowing the Heavy to keep his comrades alive. If the Heavy has thrown his Sandvich, he can get another one by picking up a health pack, or by using a resupply closet. Heavy note: "OM NOM NOM" Dalokohs Bar*: Eating this will make the Heavy's max health increase to 350 for 30 seconds, if eaten when below full health, it will also heal 120hp. Unlike the Sandvich, the Dalokohs Bar cannot be thrown on the battlefield.

Melee Fists: Punches enemies. Same as most other melee weapons. Killing Gloves of Boxing (KGB)*: 20% slower fire rate than fists. Killing an enemy with KGB grants the Heavy 5 seconds of critical hits for all weapons.

Tactics Heavies should try to stick close to a Medic buddy. A good Heavy/Medic combo can be devastating to the enemy team. If no Medics are nearby, a good Heavy knows when to break from combat and find a safe place to stop and have a Sandvich or knows where the health kits are on the map (See Maintaining Health on pageref) A Heavy can spin up his gun while he is in the air to save time and catch some enemies off guard. A Heavy should keep in mind that his status as a huge, slow-moving damage sponge makes him a prime target for both Spies and Snipers. Heavies should remain aware of who is behind them, and should not engage enemy Snipers at long range.

4.6 Engineer

Bio This amiable, soft-spoken good ol' boy from tiny Bee Cave, Texas loves barbeque, guns, and higher education. Natural curiosity, ten years as a roughneck in the west Texas oilfields, and eleven hard science PhDs have trained him to design, build and repair a variety of deadly contraptions.

Health: 125

Purpose Area denial, support for teammates in the field, transportation to front lines

Weapons Primary Shotgun: Same weapon as carried by the Soldier, Pyro, and Heavy except it's the Engineers' main weapon.

Secondary Pistol: A basic pistol, 12 shots per clip. The Engineer carries a large amount of pistol ammo (over 200 shots!)

Melee Wrench: Also known as "Uhlman Build-Matic Wrench." The Engineer can use his wrench to upgrade buildings, destroy sappers, and kill Spies(or anyone else for that matter). The wrench has a higher than average base critical hit rate. In addition, damage dealt by the Engineer's sentry adds towards his damage counter for critical hits.

PDA Build Menu 1. Sentry Gun (costs 130 metal) 2. Dispenser (costs 100 metal) 3. Teleporters (entrance and exit each cost 125 metal)

Special Destroy Menu: The Engineer can destroy his previously constructed buildings in order to move their gear up or to prevent an enemy from destroying them. A building that has been sapped cannot be destroyed.

Tactics All buildings start at level 1 and can be upgraded to level 3. Each upgrade level costs 200 metal and adds more health and increased abilities.

Constructed buildings and those of friendly Engineers can be repaired, upgraded, and stocked with ammo by whacking them with the Wrench. All repairs and upgrades cost metal, and once metal supply is depleted buildings cannot be upgraded or repaired unless more metal is obtained from an ammunition source. (See 'Maintaining Ammunition' on pageref). Teleporters share metal towards an upgrade, so fully upgrading both teleporter sides to level 3 costs only 400 metal.

Hitting a building with the wrench while it is being built makes it build twice as fast. Multiple Engineers make this effect stack.

Buildings can be rotated by right-clicking before the building is placed in the Build Menu. By utilizing this feature, teleporter exits can be pointed away from walls (note the small arrow on the blueprint of the teleporter exit). This allows teammates who take the teleporter to quickly join the battle, and reduces disorientation.

Heads-Up-Display The building status display (top left corner): Has four slots, one for each building, and shows the status of the buildings that have been built. If a building has been damaged, the respective icon will flash and display a picture of a Wrench, as well as playing a sound to warn the player. If a Spy's Sapper (see pageref) has been attached to a building, the same will happen but will be changed with the picture of a Sapper instead of a Wrench.

Note: As the Engineer is yet to receive an update there are no unlockable items as of May 2010

4.7 Medic

Bio What he lacks in compassion for the sick, respect for human dignity, and any sort of verifiable formal training in medicine, the Medic more than makes up for with a bottomless supply of giant needles and a trembling enthusiasm for plunging them into exposed flesh. Raised in Stuttgart, Germany during an era when the Hippocratic oath had been downgraded to an optional Hippocratic suggestion, the Medic considers healing a generally unintended side effect of satisfying his own morbid curiosity.

Health: 150

Purpose The purpose of the Medic class is to provide mobile medical care to in-field combatants.

Weapons Primary Syringe Gun - Rapid fire pneumatic pistol that can launch syringes over moderate to long distances. Medic annotation: that is not medicine! Blutsauger* - Another syringe firing device which heals three health per syringe that hits an enemy, but slows the Medic's natural health regeneration.

Secondary Medigun - heals normally, and builds übercharges. It takes about 40 seconds of constant healing to fully build a charge. Kritzkrieg* - heals normally, and builds kritz charges. Kritz charges build faster than Übercharges. For more information, see Übercharges on pageref. Taunting with this weapon replenishes 10 health.

Melee Bonesaw - Used by the Medic to dice the bones of enemy combatants Übersaw*: The alternative to the Bonesaw. This saw has a 20% slower attack than its simple brother, but with each successful hit on an enemy player the Über-Meter will go up by 25%. A successful taunt kill on an enemy with the Übersaw will add 50

Tactics Regenerating Health The longer damage is avoided, the more quickly health regenerates, up to a maximum of 6hp/sec (4hp/sec if using the Blutsauger)

Heads-Up-Display When using the Medigun or Kritzkrieg, the Heads-Up-Display will show a cross in the middle of the players' screen. When this is aimed at a friendly player, it will display the name and current health level of the player, allowing the Medic to discover who is low on health. The Übercharge meter of the weapon is also displayed on the HUD, as a percentage of full charge.

Overheal Medics can overheal teammates up to 150% of their maximum health. This is a temporary effect and will gradually fade down to the maximum health, even if they take no damage. Since the overheal amount is based on percentage, classes with higher health (such as the Heavy or the Soldier) will gain more health, but it will also take more time to fully overheal them. While overhealing increases teammates' survivability significantly, healing wounded teammates still has higher priority than overhealing.

A successful Medic stays alive to build and deploy Übercharges, and to keep fellow combatants on the battlefield. A Medic should not be engaged in shooting someone as

their primary weapon is fairly weak, but instead should focus on healing teammates and dodging enemy attacks.

Keep moving and actively dodge enemy fire. Retreat earlier than other classes and keep in mind that staying alive is the top priority.

Set "Medic auto-call" option in the multiplayer advanced options. This makes it so whenever a teammate goes below a given percentage of their maximum health, an icon appears above their head and an audio alert sounds.

If a Medic heals for a good portion of the Setup time available on some battlefield types, they will be able to start the round with an Übercharge.

Good Medics are able to compensate for the slow firing and slight drop of their needles when using their primary weapon.

All Medics should keep in mind that they are a primary target for enemy combatants. Medics should strive to keep a high level of situational awareness in order to avoid a swift death.

4.8 Sniper

Bio In his former life as a tracker of dangerous game in the unforgiving Australian outback, the Sniper would spend months by himself. Prolonged isolation taught him a valuable lesson: You don't have to rely on other people if you never miss.

Health: 125

Purpose Area denial, eliminating high-value targets.

Weapons Primary Sniper rifle: Zoom in using alt-fire to do more damage. The longer the rifle zoomed in, the more damage a shot will do. Headshots deal massive amounts of damage. Huntsman*: Use this bow and arrow at closer range. Hold the fire button to pull back the string and ready the arrow for release. Holding fire for too long will cause the arrow to fire at a random angle when the fire button is released. The arrow can be unnocked by clicking the secondary fire button.

Secondary SMG: Best used when enemies are too close to snipe. Be careful though, as ammunition is limited. Jarate*: Throw Jarate onto enemies. Any enemies within the splash radius will take mini-crits for 10 seconds, unless they jump into water. Jarate will also reveal cloaked spies that are in the splash radius. In addition, Jarate victims cannot fire critical hits or mini crits from the effects of an item specific buff. Razorback*: The Razorback will block a single backstab from a Spy, and will not allow the Spy to attack for 2 seconds. After blocking the stab, the razorback will break, having no effect on subsequent backstabs.

Melee Kukri: The Kukri is a general melee weapon. Use the Kukri when enemies are too close for comfort, or to deter spies. Tribalman's Shiv**: This kukri replacement causes opponents to bleed out for 8 seconds, but at a price. It causes just over a third less damage than the kukri.

Tactics HUD: When zoomed with the Sniper rifle, bars will appear on the screen. These bars reflect the relative damage a shot will inflict on an enemy, and will charge the longer the aim is held. If charged to full, a Sniper does substantial damage body shots (can kill weaker classes), or headshots that kill all classes, including an over-healed Heavy.

The Sniper is a support class, this means the Sniper's main goal should be taking out the most valuable enemy targets. One tactic is to make sure that the opposing team's Medic is killed first, as this will keep the enemy from being healed, and can prevent an enemy Übercharge.

While using the Sniper Rifle, long range is best. If enemies advance too quickly to get long-distance shots, consider switching to the Huntsman.

Throwing Jarate on several enemies at once can stop a rush, or even turn the tide of the battle.

The Huntsman string can be pulled back while in mid-air, then released upon landing.

The Huntsman's arrow can be lit by a friendly Pyro. If an enemy is hit by this flaming arrow, they will burst into flames!

"Say goodbye to your head, wanker!" Sniper

4.9 Spy

Bio He is a puzzle, wrapped in an enigma, shrouded in riddles, lovingly sprinkled with intrigue, express mailed to Mystery, Alaska, and LOOK OUT BEHIND YOU! But it is too late. You're dead. For he is the Spy — globetrotting rogue, lady killer (metaphorically) and mankiller (for real).

Health: 125

Purpose Countering Engineers and Snipers, picking off distracted players, reporting enemy positions from behind their lines.

Pleasuring the Scout's mother Spy

Weapons Primary Revolver: The revolver is the Spy's ranged weapon. Ambassador*: This weapon is another revolver, but with much more accuracy on the first shot. Like the Sniper's rifle, headshots will result in critical hits. It has a slightly slower firing rate than the Revolver. Note that while the Ambassador can do punishing damage when it scores a headshot, it is generally advisable to use the Revolver if the combatant is not confident he or she can reliably score headshots, due to the slower firing rate and lower base damage of the Ambassador.

Secondary Electro-sapper: Solely used on Engineer buildings. Combatants can place a sapper on any enemy building, without giving up their disguise or alerting enemy sentries. "Sapped" buildings are rendered inactive and if the sapper is not removed quickly, will be destroyed. Sappers can be removed by any Engineer, or Pyros equipping the "Homewrecker" melee weapon. The Spy can place an infinite number of sappers as fast as he wants. Spies cannot place sappers while cloaked.

Melee Butterfly Knife: A melee weapon that requires true skill to employ, this blade normally does little damage, but is able to kill any opponent in one hit when used from behind.

PDA Disguise Kit: Disguise is a vital asset to the master of espionage. Using the Disguise Kit the Spy is able to disguise as any of the nine classes on either team. When they are disguised, they are mostly indistinguishable. Spies appear to wear a paper mask to their fellow teammates! Firing a weapon will automatically remove any disguise, with the exception of the electro-sapper. A disguised Spy is able to fool enemy Engineer's buildings, allowing him to heal from dispensers and carts, take teleporters, and not be attacked by sentries. Disguised spies can also be healed (and even Übered) by enemy Medics. However, when wearing a disguise, the spy will still receive damage from any enemy that may fire upon him, avoid this as it one of the only ways the enemy can tell you're a spy.

Special Invisibility Watches: Spies have the capability of becoming cloaking themselves, but there are a few things combatants should know before they start sneaking behind enemy lines. For the first few moments after combatants cloak are slightly visible, so it

is recommended that they give themselves enough time to be fully cloaked. Spies who bump into enemy players will shimmer in their team's color, letting the enemy know they're there. There are three kinds of watches that a Spy can equip, each catering to a different play style: Invisibility Watch: This watch can be replenished with metal, it will refill using any ammo source (See Maintaining Ammunition section on pageref), or it will recharge by not using it. It gives the Spy 9 second of full invisibility and it takes about 33 seconds to fully recharge by standing still, but in situations where metal is abundant this watch is a much needed asset to a Spy's arsenal. Cloak and Dagger*: This watch is motion based. It is the only watch of the three that can't be recharged with metal and ammo crates. This is because it only drains its charge when the Spy cloaked and moving. It can be recharged slowly by standing still while cloaked or by being uncloaked. By standing still, a Spy can be under the cloak indefinitely. Dead Ringer*: This is probably the most interesting of the watches because of the way it works. When pulling this watch out, the Spy will not automatically cloak like with the other two. Instead, the next damage the Spy takes will cause the watch to simultaneously activate cloaking and drop a fake body for the other team to see, feigning a death. It also negates 90% of the damage that would be taken while cloaked. Be warned though, this watch has a short cloak time and makes a loud noise when uncloaked, drawing others' attention.

Tactics Cloak and Dagger: This watch has a habit of promoting camping, because combatants can stay still in one spot for indefinite periods of time, hidden and waiting for kills. A good Spy is always moving, and always has a new sentry to sap or Heavy to backstab.

Dead Ringer: Because of the short cloak range and noise made upon decloaking, care should be made to find a inconspicuous place to decloak, away from alert ears and prying eyes. Even if out of sight, the Dead Ringer's sound will alert the enemy to the presence of a Spy nearby, and lead to an increase in counter-Spy measures such as Spy Checking and overall alertness.

Spies should move towards their targets indirectly. A spy heading straight for an engine nest is sure to arouse suspicions, but if it looks like their attention is off somewhere else, they will seem more safe.

Teammates should shoot at disguised spies to increase their authenticity.

4.10 Sandwich

Bio He was a good lunch who played by the rules, until the rules robbed him of everything he ever loved. Now he's lettuce, tomato, cheese, bread, and a mysterious slice of meat, marching down your throat and straight to hell. He'll satisfy your hunger. FOR REVENGE!

5 Team Strategy

All combatants need to realize that they are a team and that they must look out for each other. Teams that fail to do this wind up dead. There's a reason the game is called "Team" Fortress.

Protect Medics as they are going to be targeted by the other team. A team without a Medic is easier to destroy, so make their defense a priority.

5.1 Communication Guidelines

A good team communicates well. Note that some players will have microphones while others will not - a combatant that does not have a microphone should use their voice menu commands to the best of their capacity. A good example of this would be having potential Über targets call out "Medic" when they want an Übercharge to be activated. Call out sentry positions, Spies, and unexpected enemy tactics. Combatants can let the Medic know when they are ready to receive an Übercharge, or need healing. Be aware of the presence of Spies and call out their position and disguise, if possible. But try to pay attention to teammates - if they need healing too, and the Medic is working through them, be patient and don't keep pressing the key (by default, "e") that calls the doctor (it gets annoying for the Medic). Also, be aware that while some servers have Team-Talk on, meaning only teammates can hear and speak to each other, others use All-Talk, meaning all players can communicate with each other regardless of team. If playing on an All-Talk server, it might be wise to refrain from giving out too much information, as it could aid the other team in forming appropriate countermeasures. Especially tricky combatants could use All-Talk to their advantage by giving out false information. "You are trying my patience!" Medic

5.2 Engineer-related Etiquette

Upgrade the Engineer's buildings. During the setup phase all players, except for Medics, should consider switching to Engineer and helping them build their buildings. If they are far away from spawn, combatants can help an Engineer by upgrading his building until they are out of metal, then kill themselves so that the Engineer can collect an additional 100 metal from their dropped weapons. (A player can suicide by typing `explode` into the console)

Teleporter Queuing. If two combatants reach the teleporter at the same time, they shouldn't waste time fighting over it. It is common courtesy to let the other teammate go first then take it on the next charge. Scouts should rarely use teleporters because they can run to the front lines very quickly without it.

Engineers should place teleporter entrances immediately outside of the spawn point. Teammates should try to protect the Engineer's sentries, teleporters, and dispenser.

5.3 Other Information

Medics are a necessary component of a successful team. If a team is having a difficult time progressing, a Medic should prioritize building up an Übercharge to break through a strong defensive opposition. (see the section on ÜberCharge in General Instructions [pageref](#)).

Spies are generally disguised as members of their opposing team. Using a weapon on an enemy Spy will cause damage, while using a weapon on a teammate will not. For this reason it is highly recommended that players 'Spy-check' any 'teammate' they suspect may be a Spy by firing their weapons at him. Teammates can let each other know they are not a Spy by taunting, firing their weapons, switching weapons, or using their microphone. Friendly teammates cannot collide with players on their own team, and will instead walk through them. However, they can collide with enemy spies disguised as members of their team. Thusly it is advised that they attempt to walk through everyone.

If needed, players should take the time to 'regroup' and re-form. Although it sacrifices time and possibly ground to the enemy, it allows the players to focus and work together as a team again.

6 Combatant Presentation

Combatants are expected to maintain decorum on the battlefield. Combatants wishing to deviate from standardized dress may only do so by using headgear or medals awarded by the Administrator. Hats can be obtained via random drop, or through the crafting system. They serve no function other than the visual aesthetic, and to stand apart from those who do not have hats.

6.1 Crafting

Combatants dissatisfied with the item and weapon drops bestowed upon them by the Administrator may wish to recombine them to create weapons or headgear. Crafting is accomplished through the main menu. In order to successfully craft something, one must follow a recipe. Recipes can be found online. Combatants should check for new recipes and keep up with the latest advancements in crafting technology, as some recipes and methods may become outdated over time.

Combatants who feel the need to cheat, or attempt to game the system to acquire new and prized headgear faster WILL be punished. Administrator

6.2 Taunts

The administrator encourages all classes to taunt each other in a menacing fashion. While the administrator remains indifferent to the outcome, combatants are encouraged to reward themselves for a job mildly well done by taunting their opponents. Generally, each weapon is provided with its own taunt. Combatants may find that a weapon's taunt can kill enemy combatants or themselves.

6.3 Achievements

The Administrator will recognize certain milestones by combatants, and in some cases, reward this achievement with new weapons. Combatants recognized by the Administrator in battle will have a trophy appear over their head. Achievements that have been earned and progress towards others can be seen by selecting "Achievements" at the main menu. Unattained Achievements can even be displayed on the HUD by checking the "Show on HUD" box in the Achievement screen. Achievements are organized under 'General Achievements', which most classes can achieve, and Class specific achievements, which are only possible with the specified class, and usually relate to a special ability or weapon of that class.

7 Appendices

7.1 Appendix A - Console

Combatants who wish for more advanced control during combat may wish to use the Console, which can be accessed using the "" key. To do so, check "Enable Developer Console" under the advanced keyboard options.

Helpful commands:

Display frames per second, ping and other statistics in the bottom right corner

```
net_graph 1
```

Turn off the above display

```
net_graph 0
```

Display only fps in smaller text in the top right corner of the screen

```
cl_showfps 2
```

Play personal voice communications back through the computer

```
voice_loopback 1
```

Used for creating or overwriting key binds in the game

```
bind [key] [command]
```

Kill the player character

```
kill
```

Explode the player character

```
explode
```

Reload the Heads-Up-Display, removing HUD errors.

```
hud_reloadscheme
```

Any commands can be inserted into a configuration file in order to be executed automatically upon program start.

7.2 Appendix B - Launch Options

Combatants can alter the way they are launched into battle. They do this by right-clicking "Team Fortress 2" in their library and selecting "Properties". Here, they navigate to "Launch options", found in the "General" tab.

The following is a list of some of the more commonly used options and the launch flag used to trigger them:

Remove the Valve introduction video:

```
-novid
```

Open the console when the game opens:

```
-console
```

Launch the game in a window:

```
-window
```

Remove the window border in windowed mode:

```
-noborder
```

Open the game in fullscreen mode:

```
-full
```

Manually set the horizontal resolution of the window:

```
-width (or -w)
```

Manually set the vertical resolution of the window:

```
-height (or -h)
```

Manually set the amount of RAM the game will use:

```
-heapsize [kilobytes]
```

Tip: Using a borderless window (with "-window -noborder") is useful for quickly switching applications (a.k.a "alt+tabbing"). A borderless window set to the exact resolution of the monitor's desktop will look exactly the same as the default full screen mode.

7.3 Appendix C - Configuration Files

There are two types of configuration files: general and class specific. General configurations apply to all classes, while class specific configurations apply only to that class.

Example script, for servers with both Team-Talk and All-Talk:

```
alias +teamonly "+teamtalk;+voicerecord"  
alias -teamonly "-teamtalk;-voicerecord"  
bind f +teamonly  
bind v +voicerecord  
voice\_loopback 1
```

This script will find the "f" key to Team-Talk only, so only teammate communication will be enabled, while "v" will be for communication with both teams. Finally, it will play back personal voice communications.

7.4 Appendix D - Bots

Bots are players controlled by AI. They generally aren't as sophisticated as human-controlled players, but they can be used when other humans aren't available. Some servers use bots so both Red and Blu teams have a good number of players, even though only a few live people are actually connected. Bots are also useful for those who wish to practice on their own. This can be done by starting up a local server and loading any of Valve's King of the Hill TF2 maps. These maps are Viaduct, Nucleus, and Sawmill. (While Harvest is also an official KOTH map, it does not have Bot support.) Once the server is started, open up a console and type:

```
tf_bot_add <number> <class> <team>
```

Replace <number> with the number of bots wanted, <class> with the class they will play (if omitted, a random class will be chosen), and then the team, Red or Blu.

From this point forward, the match will proceed normally, although beware that the more bots in the game, the slower the game will run.

TF2 has the ability to use bots on any map, although their functionality is not perfect. In order to do this, there are a few additional steps:

Start a server From the main menu choose "Create Server." The map can be chosen here as well. Alternatively, open the console and type:

```
map <map name>
```

It will start a server loaded up with that map.

Open up the console and turn cheats on:

```
sv_cheats 1
```

Run the navigation generation command:

```
nav_generate
```

This will take a few minutes to complete. Once the process completes, the server will restart. Bots can be added right away, but for stat tracking and achievements to work, cheats must be turned back off:

```
sv_cheat 0
```

With cheats off, progress can be made towards Achievements. To prevent this from happening, leave cheats turned on.

To keep bots from changing classes after they die, type this into the console:

```
tf_bot_keep_class_after_death 1
```

7.5 Appendix E - Map Installation

Maps can be installed three ways:

1. Through official Valve updates
2. Through automated downloads from servers
3. Manually through various websites which host them

The easiest way to get a map is to search the server browser for a server that is running it (arrange results by map name). Connect to that server, and it will automatically download the map and place it into the correct directory. That map can then be played on the hosting server, or on a new user-created server. (There are, however, a few maps that can only be played on the hosting servers.)

If it is difficult to find a desired map being played, or a map is taking too long to download, it can be downloaded and installed manually. Maps are usually compressed using the RAR or ZIP format and need to be uncompressed first. The .bsp map file can then be copied into the \tf\maps directory, found in the steam installation folder:

Program Files\Steam\steamapps\<user name>\Team Fortress 2\tf\maps

Once the .bsp file is placed there, the map can be played.

7.6 Appendix F - Additional Battlefields

There are a few other types of battlefields created by fellow combatants. Combatants wishing to try these need to either download them and run them locally, or find a server that runs them.

A few of the most popular appear below.

Capture the Flag - Attack/Defend (ctf_*)

Also called "Deposit the Flag." In this variant of capture the flag, the BLU team tries to sabotage the RED team's plans by planting a briefcase of fake intel in the RED base. The intel briefcase spawns near the BLU team and the BLU team must carry it into the red base and plant it in the intel rooms. The RED team tries to stop the BLU team from planting the briefcase until time runs out.

Dodgeball (db_*)

This custom game type pit two teams of all Pyros against each other. Homing rockets are launched from a central area of the map and the Pyros must use their Airblast to to reflect the projectiles at the opposing team.

Prop-hunt (ph_*)

In this custom game type, one team consists of nothing but Scouts disguised as random in-game props that cannot attack. The other team is made up of Pyros, and their objective is to hunt all the props down before the match ends. BLU loses health by attacking, although standing on the Control Point heals them.

Training Maps (tr_*)

Those combatants who wish to hone their skills in "safe" battlefields can do so using some of the many practice maps that are available. The most popular practice map is "tr_walkway" which needs to be downloaded. See Appendix E: Map Installation on pageref.

Jump Maps (jump_*)

Jump maps are not actual maps, but rather courses where the players can practice their skills for jumping with the Soldier, Demoman and Scout. There is no actual combat going on in these maps.

7.7 Appendix G - Screenshots and Demo Recording

Team Fortress 2 has the useful ability to record screenshots of the battle as well as record the entire battle for later playback. The default screenshot key is 'F5.' Pressing this key will save an image of whatever is on the screen to an image in your TF directory inside of Steam.

```
Program Files\Steam\steamapps\<user name>\Team Fortress 2\tf\screenshots
```

Demos record combat for later playback. They can be used to study one's own combat, or the combat of others. To record a demo, simply type 'record' into the console. To name the demo, add it after the command. Example:

```
record shanings
```

The command to stop recording is simple:

```
stop
```

Demos are played back in a similar manner:

```
playdemo <demoname>
```

And the command to stop playback:

```
stopdemo
```

The interface for controlling playback can be displayed with the command:

```
demoui2
```

Note: Demos are often broken after updates. That is, the software is unable to playback demos recorded by previous versions of the software.

Demo recordings are stored in the 'tf' directory:

```
Program Files\Steam\steamapps\<user name>\Team Fortress 2\tf\
```

There are many demos available of professional and highly skilled players that are available for study. Demos are also a standard way of combating cheaters. If a combatant is suspected of cheating, a demo recording of their behavior can be used to verify the accusation.

There are two types of demos: a player demo and a server demo. A player demo is played back through the player's view. A server demo is a recording of all players and the viewer is able to 'fly' around the battlefield and view all actions.

7.8 Appendix H - Glossary and Jargon

Back Capping Usually done by a Scout or a Spy, it's when a player is able to sneak behind the enemy team and capture a point before the team can get back to stop him.

Body Shot A shot to the body instead of the head. Refers to a shot made by a Sniper or a Spy with the Ambassador.

Buff A property of a character or weapon being strengthened, such as an overheal from a Medigun or the mini-crit effect of the Soldier's Buff Banner.

Camping While usually used in a derogatory way to refer to players who hide in one place waiting for an enemy, Team Fortress 2 includes many legitimate reasons to camp. Players should camp the point, the cart, and the intel room.

Capping Capturing a point or moving the cart along its track.

Crocket From the words 'crit' and 'rocket'. Describes a rocket fired that has a critical hit boost. Crockets glow in color of the Soldiers' team.

Engie nest An Engineer and his various buildings. Dislodging and breaking up Engie nests is vital to team, and by extension combatant, success.

Facestab The act of being stabbed in the front by a Spy which the game registers as a backstab. This is very frustrating to the victim because Butterfly Knife damage to anywhere other than the back shouldn't instantly kill. Usually caused by lag, although "legitimate" face stabs do still exist as a result of the collision boxes used for the Spy's backstab attack.

Gib Explode a player into chunks of flesh.

Highlander A special competitive gamemode. A highlander match consist of two teams with one of each class.

HUD Heads Up Display. The display the user can see which shows attributes such as ammunition levels and health level.

Invuln From the word 'invulnerable'. Describes how many Übercharges the Medic has used in a single life.

Juggling Bouncing an enemy in the air with either rockets, pipebombs/stickies or the Pyro's compression blast.

Killcam The picture a combatant receives of their murderer after they die.

Meat Shot A point-blank shotgun shot that deals maximum damage. Generally refers to the Scout with his primary shotguns.

Medic chaining A tactic where two Medics equip the Medigun and Übersaws. Medic 1 übers Medic 2, who then tries to land 4 hits with the Übersaw; if successful, Medic 2

can then über Medic 1 and they trade positions.

Nerf The act of a character, weapon, or property being weakened, usually as a result of balance issues. If a new weapon is released and found to be too powerful, it will be 'nerfed', weakening it to make it more balanced.

PUG Stands for "Pick Up Game" where one or both teams start a match with a pre-determined set of rules

Pub Game/Server From the word 'Public'. Describes playing in a public game or server, a game which is open to anyone, and is not a competition or a match that uses pre-set teams.

Rush/Class Rush Describes the act of most of or an entire team switching to a single class and rushing out to the objective. Common rush classes include the Scout and Heavy. By doing this, the team tries to overwhelm the enemy team quickly and before they can react or muster counter classes. This is easily countered by a well organized team.

Spyro A Spy disguised as a Pyro.

Spy Check Act of checking for Spies. A Spy Check involves shooting or meleeing the surrounding area to see if a Spy is nearby. Teammates especially should be fired upon to look for Spies in disguise.

Spy Crab A graphical glitch which causes a Spy to walk similarly to a crab. It is achieved by equipping the disguise kit, looking into the sky, crouching and walking around. Etiquette states that a Spy Crab should never be harmed, whether friend or foe.

Stairstab An advanced Spy tactic which involves a Spy on a staircase or slope, jumping over the head his opponent and getting a backstab.

Sticky Carpets The act of placing stickies all over a given area, instead of concentrated in an area. This can work well if the stickies are spread out enough for the enemy team to not consider them a threat and walk into the carpet. This strategy is best done with the Scottish Resistance because of the ability to lay 14 stickies and selectively detonate them.

Telefrag The death that occurs when a player stands on the exit side of a teleporter when an enemy uses the teleporter. The enemy will arrive at the exit and kill the player standing on the teleporter. Worth 1 kill to the Engineer.

Turtling An Engineer who has setup his nest in a choke point, and stays there. They are usually reinforced by other Engineers or teammates.

W+M1 A tactic used by the Pyro. It involves rushing forward with the Flamethrower with no plan except to light as many of the opposition on fire as possible.

7.9 Appendix I - Additional Notes and Credits

Useful Links

<http://teamfortress.com/> - Valve's official Team Fortress 2 blog

<http://tf2wiki.net/> - For everything anyone could need to know about TF2

<http://forums.steampowered.com/forums/forumdisplay.php?f=80> - Valve hosted forums

<http://tf2maps.net/> - A great site to access community developed maps

<http://tf2stats.net/> - A site "dedicated to collecting data and statistics on TF2"

<http://tf2items.com/> - This site tracks backpacks and current loadouts

<http://www.reddit.com/r/tf2/> - The Reddit TF2 community

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