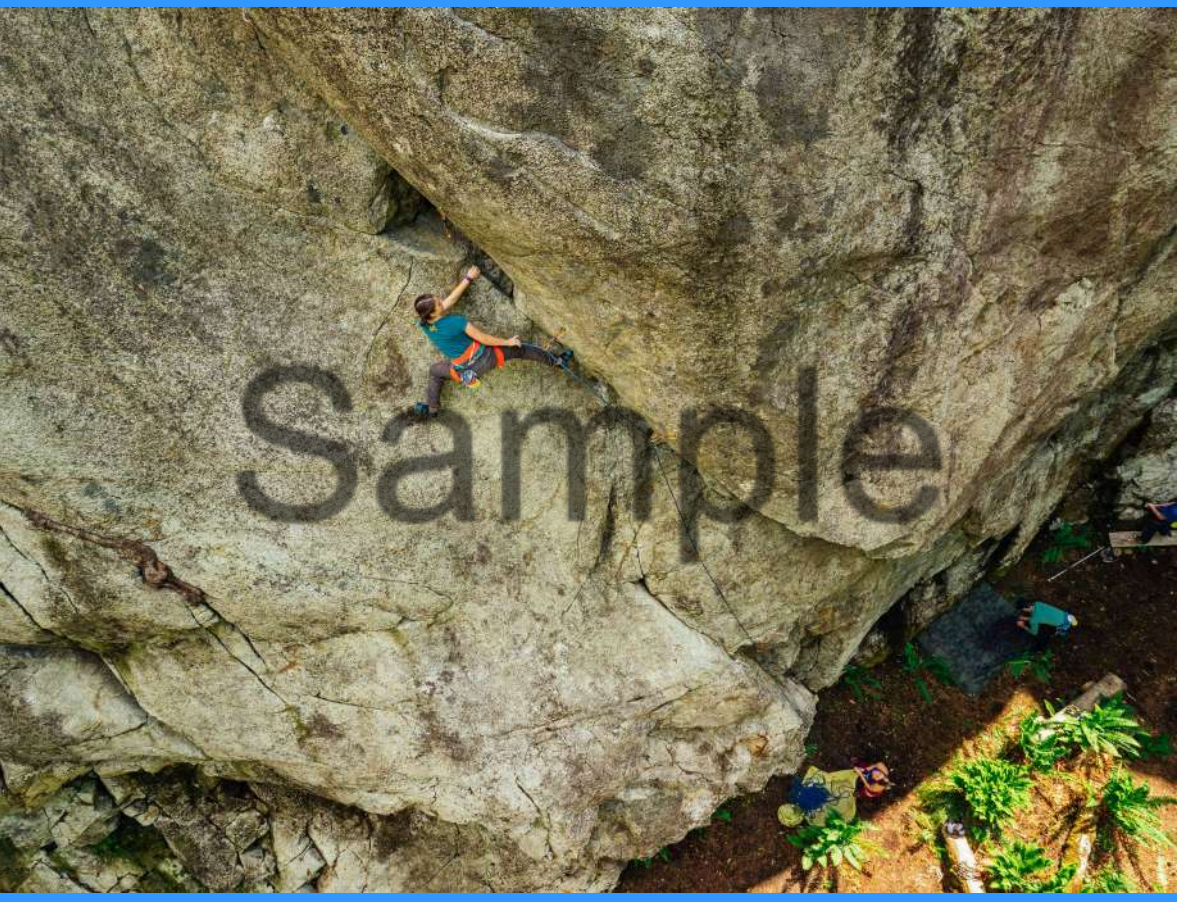
Sport Climbing Basics

Single and Multi-Pitch Bolted Routes

VDiff Climbing


Sample

Anchors

Photographer: Alex Ratson.

Anchors – What to do at the Top

Many climbs have bolted anchors at the top. This is the standard for sport climbs worldwide, but is also common at many North American trad climbing venues.

These bolted anchors will usually be equipped with maillons (quick links) or lowering rings, sometimes connected with chains. If you want to set up a top rope, you'll need to use your own gear.

You won't be able to simply clip your rope through this type of bolted anchor like you would at the gym. Instead, you'll need untie from the rope and thread it through. After that, you can either abseil, or have your belayer lower you down.

It's important to learn how to do this in the correct order. If you thread an anchor incorrectly, you could drop your rope and be stranded at the anchor, or even become completely detached from the bolts.

Setting Up a Top-Rope

With the security of an anchored rope above, top-roping is the safest way to climb. A top-roped climber can rest on the rope whenever they are too tired to continue, safe in the knowledge that they will only fall a few inches. Top-roping is great for beginners, large groups or for experienced climbers who want to push their physical limits.

Setting Up a Top-Rope After Leading

You Will Need

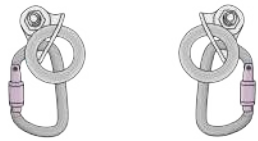
* Four screwgate carabiners.
* A cordelette/ long sling.

Best Situation to Use this Method

- If the next climber will top-rope the route.

Step 1

After leading up to the anchor, clip a screwgate carabiner directly into each bolt. They will usually be better orientated if you clip them underneath the lowering rings.

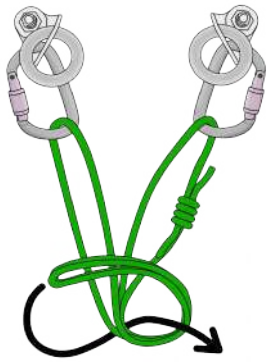


Step 2

Clip the sling or cordelette to both carabiners. Pull it down in the middle so both strands are equal.

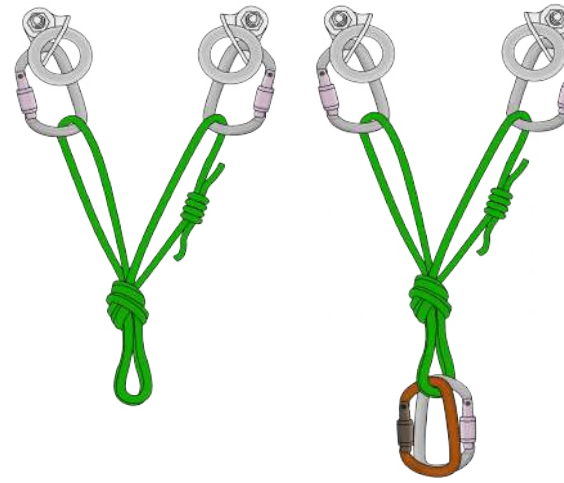
Step 3

Tie an overhand knot in it. This creates a central point.



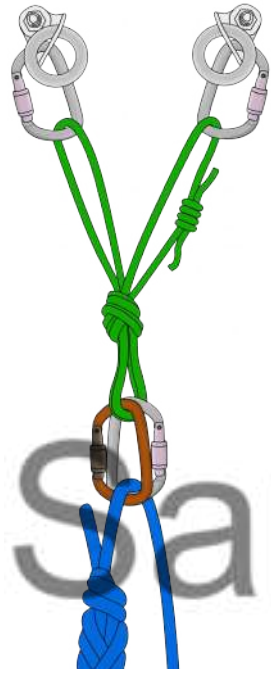
Step 4

Clip two screwgate carabiners to the central point with their gates facing in opposite directions.



Step 5

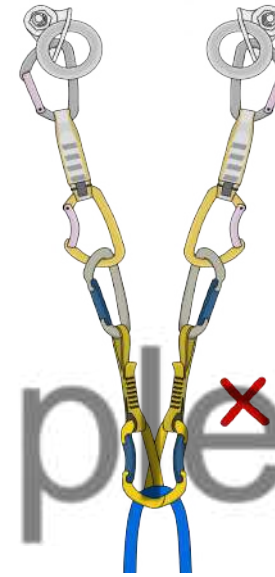
Clip the rope through the carabiners from the back so the rope is coming out towards you. Ask your belayer to take you tight. You are now ready to lower and the top-rope is set.



Warning — Connecting Quickdraws

Never connect quickdraws together like this.

If you need to extend the anchor for lowering or any other reason, make sure to use a sling or cordelette instead, as described on the previous pages.



Setting Up a Top-Rope from Above

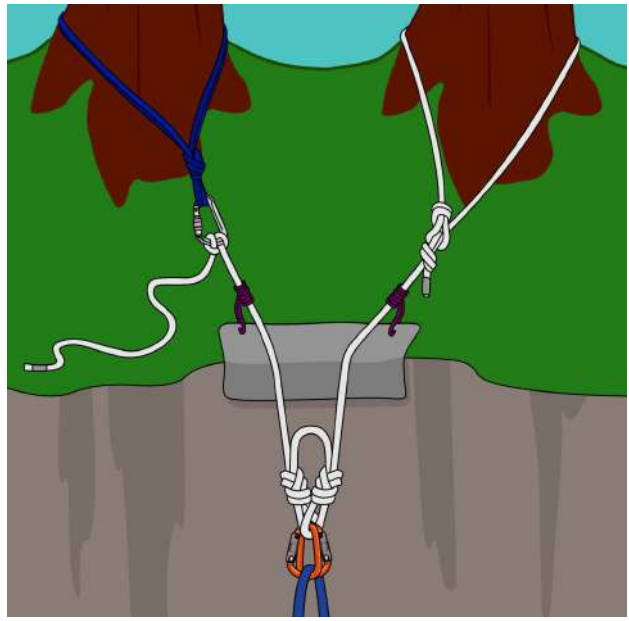
At some crags it is possible to set up a top-rope by walking to the top and equalizing anchor bolts or trees.

Be careful when walking around the top of a crag un-roped. You may need to make an anchor further back from the cliff edge and then be put on belay while you set up the top-rope anchor.

If the bolts are set back on a ledge, or situated in a place which causes the rope to rub over an edge, you should extend the anchor and pad the edge.

Make sure to double up the slings or cordelettes which extend the anchor over the edge. An old piece of carpet, foam pads or garden hose pipes (without metal lining) make good padding.

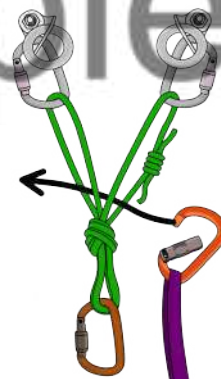
Even if your anchor is bomber, extended and well padded, it is wise to check it periodically if it is being used repeatedly. Setting up a trad anchor using trees or other trad gear is explained in *Trad Climbing Basics*.



Attaching to the Anchor

The Top Shelf

To free up space at the central point, you can clip in to the top shelf of the cordelette.

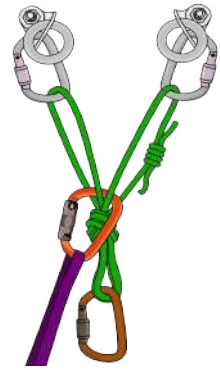


This is useful when:

- Belaying in guide mode.
- Using a redirected belay.
- There will be more than one other climber attaching to the central point.

Step 1

Cinch the cordelette tight and attach a screwgate to the central point. This ensures the knot cannot roll.



Step 2

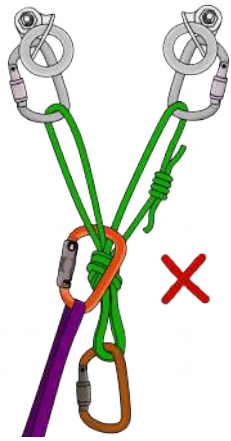
Clip each individual loop of the cordelette with another screwgate as shown.

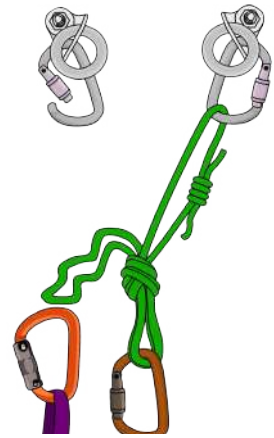
Step 3

Attach yourself to this screwgate.

Warning!

Make sure you have clipped through each cordelette loop individually. It is dangerous to clip around the loops as shown. If one part of the anchor fails, you will become completely detached.





Slings, PAS's and Daisy Chains

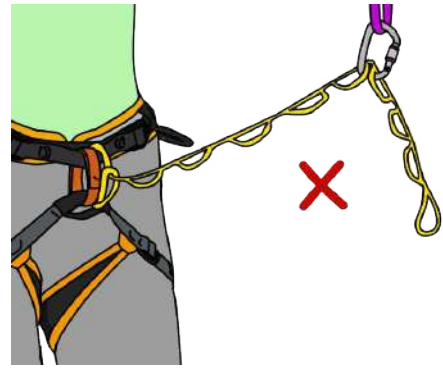
Personal Anchor Systems

A Personal Anchor System (PAS) is a series of very short sewn slings connected in a chain-link-style. They are designed as an idiot-proof anchor attachment.

Once girth hitched to your harness, any part of the PAS can be clipped to an anchor to provide a full strength attachment.

Daisy Chains

Daisy chains look and function in a similar way to the PAS, but they are only full strength when clipped end-to-end. The stitching between daisy chain loops is very low strength. If you connect to an anchor by clipping a carabiner through two consecutive loops, the stitching could break, causing you to become completely detached from the anchor.

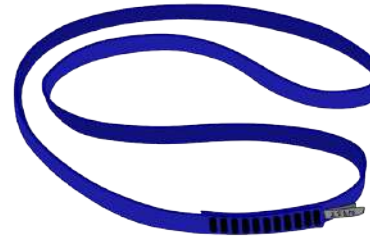


Adjustable Daisy Chains

Adjustable daisy chains are not full strength (usually rated to around 5kN) and should never be used as your primary anchor attachment.

Slings

Slings are designed to be used with a dynamic rope in the system to lessen the impact on them. Much higher forces can be generated when they are used alone.



Moving Above the Anchor

It's only safe to attach yourself to an anchor with a sling, daisy chain or PAS if you won't be moving above it (such as when setting up an abseil).

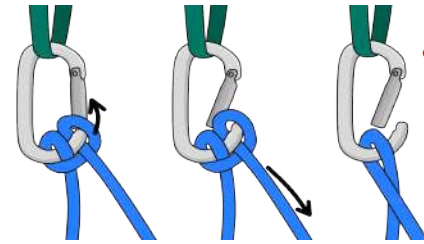
If you fall when above an anchor (even if you are only 30cm above), unusually large forces will be generated. This is because slings (especially those made of Dyneema) do not absorb much energy — think of it as similar to falling when attached to a length of steel cable. You can damage internal organs with just a 10kN force — falling onto a sling directly is likely to be much higher than this.

It could also break the sling, or the anchor. If there is any chance that you will move sideways or above the anchor, make sure to attach to it with the rope.

Common Mistakes

Tying Clovehitches on Snapgates

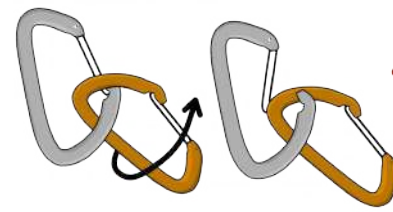
Part of the clovehitch could easily snap through the gate, making the knot useless. Never tie clovehitches on snapgate carabiners. Use a screwgate, or two opposite and opposed snapgates (see next page) instead.



Clipping Snapgates Together

A slight twist can cause the carabiner's gate to open.

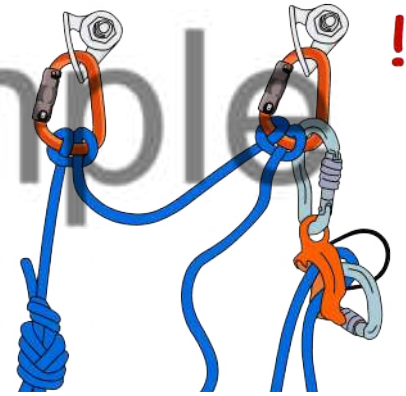
Instead, use a quickdraw, sling or screwgate depending on the situation.



Non-Equalized Anchor Attachment

If one bolt fails, everything will swing onto the other bolt. This presents a real danger of losing control of the belay.

Always make sure your anchor is equalized.

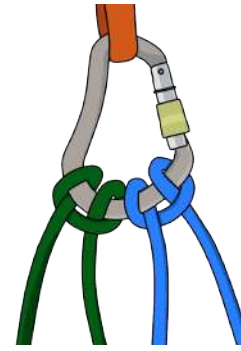


Too Many Knots on one Carabiner

This is bad because:

- If the blue rope is weighted, it will be impossible to remove the green rope.
- If the green rope is a climber's attachment point and you open the gate to remove the blue rope, the climber will only be attached by an open carabiner — this is very dangerous.

If you need to attach more than one knot to an anchor, use a separate screwgate for each.



Slab Climbing

Climbing slabs (rock which is less than vertical) requires less strength and more balance than steeper angles of rock.

Your body should remain in the same upright position as when you're walking. With gravity forcing the weight onto your shoes, you have more friction on the rock. Essentially, you will hold onto features for balance while pushing up with your legs.

Friction slabs are generally devoid of any positive features to crimp or edge on. To climb a friction slab, you must rely on the surface contact beneath your palms and feet. Small steps are generally more efficient. High steps tend to disrupt the delicate balance needed to stop you from sliding off.

On sustained slab climbs, where most of your weight is on your feet, it's common to get 'calf pump' or 'disco leg'. Rest on any good footholds by standing with your heel on the hold and your leg straight, so that your center of gravity is over your heel.

Climb: Patrick Deacon on The Marmolada, Italy. **Photographer:** James Rushforth.

Vertical Rock

It is invariably more strenuous on the arms to climb a vertical rock than it is to climb a slab of the same grade.

It's much more efficient to keep the weight off your arms as much as you can. This is done by pushing your hips and chest close to the wall and by using the minimum amount of energy to complete each move as possible. Remember that your feet provide the upwards thrust, while your hands primarily pull you into the rock.

Keep your hips perpendicular to the rock by standing on the inside edge of one foot and the outside edge of the other. Known as back-stepping, this allows you to use footholds on either side of your body with either foot.

Take advantage of any rests. Opposing your feet against each other across a corner (stemming) allows you to keep the weight off your arms. If you can't get a two-hands rest, then alternately shake out your arms when you find a good handhold.

It's often better to do a series of small moves, instead of a long one. Being stretched out tends to disrupt your balance and often makes the next move more strenuous.

Climb: Lynne Hempton on Mondviole, Frea, Italy. **Photographer:** James Rushforth.

Overhanging Routes

To climb efficiently on overhanging rock, you need to keep your hips close to the rock and your arms straight whenever possible. Bent arms will tire out much faster.

One way to do this is to use the dropknee. Place the outside edge of your shoe on a hold and twist your knee downward. Be careful though, dropknees put a lot of tension on the ligaments in your knee.

As with other angles of rock, it is more efficient to pull yourself into the rock with your arms and push yourself up with your legs. This is much more physically demanding on steep routes, but even the poorest footholds will help ease the strain on your arms and give you something to push from.

Core Strength

Your core is the area between your lower chest and your mid-thighs. Engaging the core while climbing keeps you in control. Without a tight core, you are likely to 'sag' beneath your arms, causing you to lean out from the rock, butt first.

Think of your core as something which dictates the movements of your arms, rather than something which you are simply dragging up the crag.

Climb: Tim Rankin on Moby Dick, The Fin, Scotland. **Photographer:** Fraser Harle.