

Workflow guide for: 3D printing sports guards



With SprintRay 3D printing, you can fabricate high-quality, comfortable sports guards in your office. This guide will walk you through scanning, design, fabrication, preparation, and placement.

Resins compatible with this workflow:

- SprintRay SportsGuard - all shades

Workflow at a glance

1. Capture data



Tools:
- Intraoral scanner

2. Get manual design



Tools:
- Computer with internet
- Patient data
- SprintRay account

3. Create print job



Tools:
- Computer with internet
- SprintRay account

4. 3D print



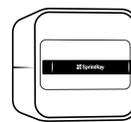
Tools:
- SprintRay Pro 2 3D printer
- SprintRay SportsGuard resin

5. Wash



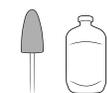
Tools:
- SprintRay wash device

6. Post cure



Tools:
- SprintRay NanoCure

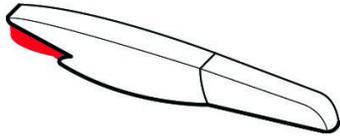
7. Process and try-in



Tools:
- Lab handpiece
- Silicone burr
- Cotton buff wheel
- Mineral oil
- Steamer or soapy water & toothbrush

1. Capture data

Tools



Intraoral scanner

1.1 Capture upper, lower, and bite scan

Perform a full upper and lower scan of the patient to capture their digital anatomy. Ensure there are no holes in your scan and capture as much surrounding tissue as possible.

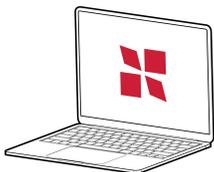
Export the scans as an STL with the upper and lower arch **in occlusion**. This is the default export style for most scanners and eliminates the need for a separate bite scan file.



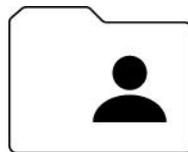
*If you're using an **iTero** scanner, select the option 'File Per Arch (Arches Oriented in Occlusion)' when exporting, or your scans will not work. [Learn How](#)*

2. Get manual design

Tools



Computer with internet



Patient data



SprintRay account

2.1 Submit treatment request

Visit dashboard.sprintray.com and sign in or sign up for a SprintRay account, then start a new treatment. Select or add your patient, then choose the 'SportsGuard' treatment type. Set the desired parameters, upload the patient files, and submit.

Make sure your scans meet the following requirements:

- Upper and lower scans are required
- Scans must be exported in occlusion
- 2 mm+ of tissue beyond the margin in the anterior buccal area

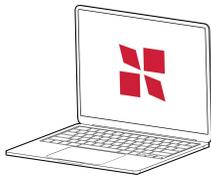
2.2 Review and approve design

SprintRay designers will design the sports guard in a few minutes. You'll receive an email notification when it's ready. Review and approve the file from your Cloud Design dashboard.

If you aren't happy with your design, try rescanning your patient and submitting a new case.

3. Create a print job

Tools



Computer with internet
access



SprintRay account

3.1 Import into RayWare

Once the sports guard design has been approved, the 'Add To Print Job' button on the Cloud Design treatment page will automatically generate a build platform in [RayWare Cloud](#).

RayWare Setup Details

Job type: SportsGuard

Material: SprintRay SportsGuard

Thickness: 100 microns

Orientation: Intaglio surface facing toward the build platform, anterior at a 60° angle

Supports: Standard supports on the gingival margin

3.2 Queue to printer

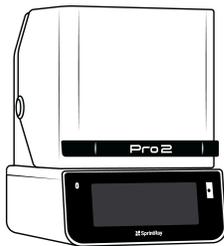
Once you're happy with your print setup, select the 'Send to Queue' button, then choose the printer you'd like to use for this print job.



You can also use the 'Print Now' button, but thoroughly inspect your printer before you start printing.

4. 3D print

Tools



SprintRay Pro 2 3D
printer



SprintRay
SportsGuard resin

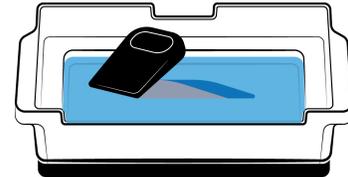
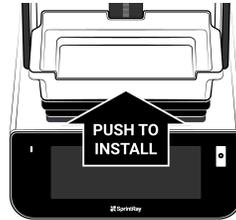


When you're not using it, remove the resin tank containing SportsGuard from the printer and store it with the resin cover secured, away from heat and light.

4.1 Prepare and start the print job




Locked
Ready to print



A) Check that the platform is clean, locked, and ready

B) Install the resin tank and make sure it's fully seated

C) Fill the tank with SportsGuard resin, then stir

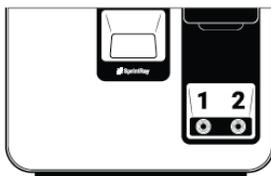
D) Go to the queue and press 'Start Print.'

You can monitor the progress on the printer touchscreen or SprintRay Cloud.



5. Wash

Tools



SprintRay wash device

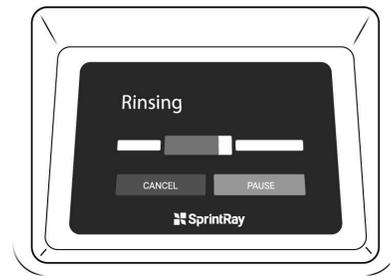
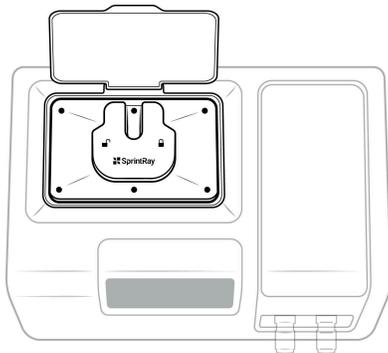
5.1 Wash in SprintRay wash device

Use the following custom cycle:

Wash 1 - 3 mins

Wash 2 - 5 mins

Dry - 3 mins

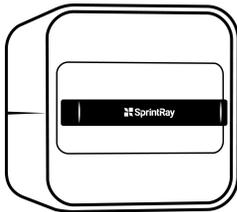


A) Place the build platform and run a standard cycle

B) Run the indicated wash cycle

6. Post cure

Tools



SprintRay NanoCure

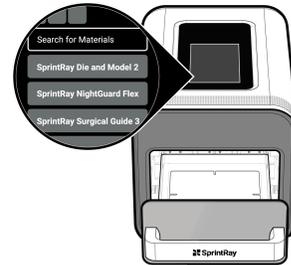


SprintRay SportsGuard is only compatible with NanoCure. Attempting to use another curing device may result in an unsafe appliance.

6.1 Cure

Place the sports guard in your NanoCure and close the drawer. Make sure to leave the supports on for this step.

Choose the **SportsGuard** curing profile from your NanoCure touchscreen, which will run the following cure cycle:



Preheat - 30 sec

UV Cure - 15 mins , 30 sec

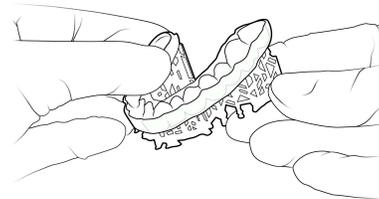
Cool - 5 mins



Make sure the sports guard has fully cooled before removing the supports. If you remove the supports before it has cooled down, you may ruin the sports guard.

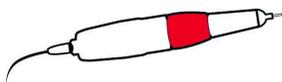
6.2 Remove supports

Twist the supports away from the sports guard to remove them. Don't worry if small support nubs are left on the sports guard; you'll remove them in the next step.

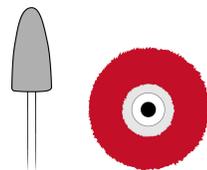


7. Process and try-in

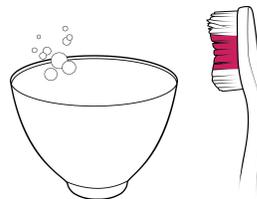
Tools



Lab handpiece



Silicone or carbide
burr



Bowl of soapy water
& toothbrush

7.1 Remove support stumps and clean

Use low RPM with a silicone burr or carbide burr to remove any stumps from supports.



Rinse the sports guard with warm, soapy water. Brush with a toothbrush to remove residue.

