

## IOS Instructions for distributors

### Overview

<b>Purpose</b>	This instruction describes the technical steps involved in the handling of cases with intra oral scans (IOS) of patients' dentition obtained with a ResMed approved intra oral-scanner.
<b>Scope</b>	This instruction applies to ResMed Narval distributors who process digital impressions.
<b>Applied by</b>	Distributor personnel processing (including scan/order retrieval/verification/forwarding) Narval CC cases with digital intra oral impressions obtained from an intra-oral scanner approved by ResMed.



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## 1. Introduction: Important

- This document deals specifically with digital impressions obtained from 3Shape TRIOS, Dentsply Sirona CEREC Omnicam and Carestream CS3600 intra-oral scanners and corresponding online orders.
- All other information referenced in the “Narval CC Distributor guide” do apply.

## 2. Required configuration

### → For intra-oral scans received via a 3Shape TRIOS scanner:

- A “3Shape Communicate” account and the required 3shape software tools to retrieve and export cases to stl files.
  - **The configuration should be such that a case can be exported to two stl files with a decimation to 150000 triangles each (see also section 0).**

### → For intra-oral scans received via a Dentsply Sirona CEREC Omnicam scanner:

- A “Sirona Connect” account and the Sirona InLab ≥ 16.1 software, **with the ability to export cases to stl files.**

### → For intra-oral scans received via a Carestream scanner:

- A “CS Connect” account to retrieve and download cases to STL files.
- A way to open and decompress .zip files (it can be the tool embedded in Windows or a dedicated tool)

## 3. Workflow

Practitioner records digital intra oral impressions of patients’ dentition with:

- 3shape TRIOS®
- Sirona CEREC Omnicam running the CEREC Ortho ≥1.1 software
- Carestream CS3600

Practitioner then completes the order form. Digital impressions and order form are submitted to ResMed’s authorized Distributor who:

- Verifies that the case is suitable for the design / manufacture of a Narval CC (complete information, without error),
- If necessary, obtains additional/corrected data from practitioners,
- Forwards the case to ResMed, who covers the full manufacturing process:
  - Manufacturing of the device and the dental models
  - Final adjustments and controls
  - Shipment to end-customer

3D dental scans travel from practitioners to Distributor through the “3shape Communicate” system (for 3Shape), “Sirona Connect” system (for Sirona) or Carestream CS Connect (for Carestream). Transmission of the order form to the distributor must be agreed between practitioner and Distributor. Complete orders (with scans) are then entered by the Distributor into the Narval Easy system.

## 4. Order management

### 4.1 Connecting with practitioners

Provide practitioners with the information they need to connect with you in 3Shape Communicate (account name or email associated with the account), in Sirona Connect OR in CS Connect. For 3Shape communicate and CS Connect, practitioners will send you a request for connection that you will have to approve before they can send cases.

### 4.2 Retrieving digital impressions

#### ❖ For 3Shape intra-oral scans

When you receive an order form for a Narval CC, retrieve the corresponding scans with the 3shape Communicate Inbox.

Practitioners are asked to indicate on their order forms:

- The word "IOS" to identify cases with digital impressions,
- The scanner brand (3shape) and the unique scan ID (automatically generated by the scanner system).
- The patient identity that must be the same on the order form and the 3shape case.

Patient identity is usually sufficient to match a scan to an order form, but in case of homonyms, it may be necessary to reference the scan ID. Depending on the software you use, this ID may not be displayed. You may find it in the folder where the scans are stored on your hard drive or server. Each case is stored in a folder the name of which is the scan ID:

12345_123456789012	27/01/2017 10:48
71885_161229115201	27/01/2017 10:50

In each folder, an xml files with the same ID contains the scan metadata. If you edit that xml file, you can copy the ID (from the folder or xml file name) into the field labeled *wsModelSetComment*. Next time you reopen the 3shape Inbox software, the « comment » field of that case will display the ID you have copied.



With some other 3Shape software versions, the exact method for obtaining the scan ID may differ. If necessary, contact your 3Shape support.

#### ❖ For Sirona intra-oral scans

When you receive an order form for a Narval CC, retrieve the corresponding scans with the Sirona InLab software.

Practitioners are asked to indicate on their order forms:

- The word “IOS” to identify cases with digital impressions,
- The scanner brand (Sirona) and the unique scan ID (automatically generated by the scanner system).
- The patient identity that must be the same on the order form and the Sirona case.

Please verify that the case was scanned with a CEREC Omnicam with the full-arch scan protocol. This is for instance indicated in the attachment of email notification sent for each case, where a restoration type of “Ortho Appliance” indicates a full arch scan protocol. In case another scanning configuration was used, the case MUST NOT be processed.



#### ❖ For Carestream intra-oral scans

When you receive an order form for a Narval CC, retrieve the corresponding scans with the CS Connect Inbox.

Practitioners are asked to indicate on their order forms:

- The word “IOS” to identify cases with digital impressions,
- The scanner brand (Carestream) and the unique scan ID (automatically generated by the scanner system).

The Scan ID communicated by the practitioner on the order form will be required in order to identify the corresponding.

### 4.3 Verifying digital impressions

Verify the scan by checking for the following:

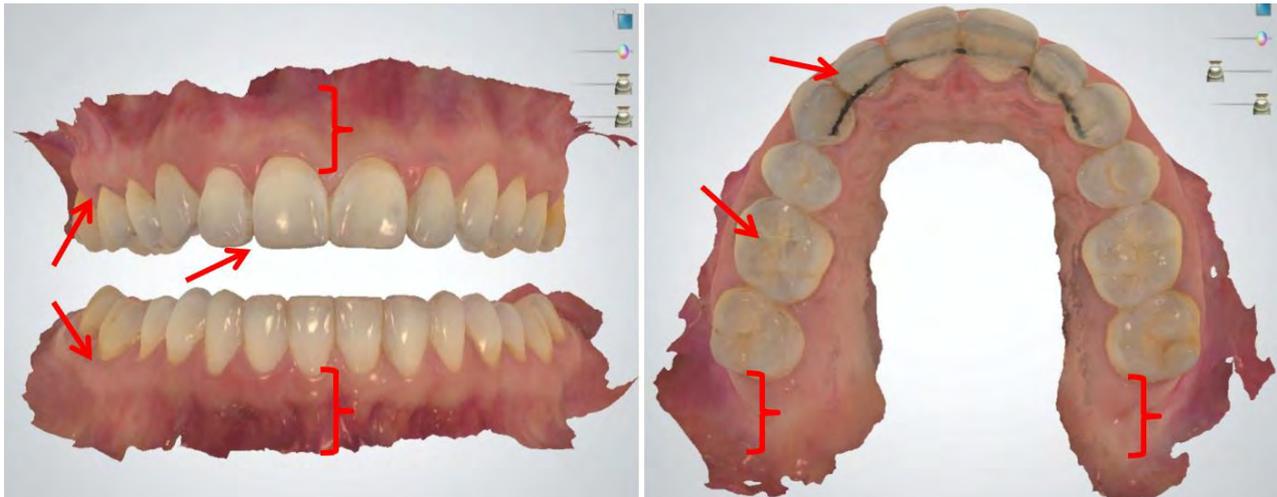
- Verify the scans for totality and make sure there is no missing data or defects/artifacts.
- Make sure the scan area extends 1 cm beyond the gingival margin (minimum is 5 mm) in all directions.
- All teeth must be scanned (including wisdom teeth if present). If the last molar is not entirely scanned, you should inform the practitioner that:
  - o He cannot request an appliance with full teeth coverage,
  - o In case of technical necessity (to improve retention for instance), more complete impressions, digital or traditional, may be required.

**In all cases, scans must include at minimum:**

- **For the upper arch:**
  - o 50% of the last present molars
  - o If all molars are missing, 100% of the second premolars AND 15mm of soft tissue extension after distal
- **For the lower arch:**
  - o 100% of the second molars AND 5mm of soft tissue extension distal to them
  - o If second molars are missing, 100% of first molars AND 15mm of soft tissue extension after distal.

**Make sure that gingival margins, undercuts, incisal edges and occlusal surfaces are correctly scanned and well-defined.**

**Example of correct scans:**



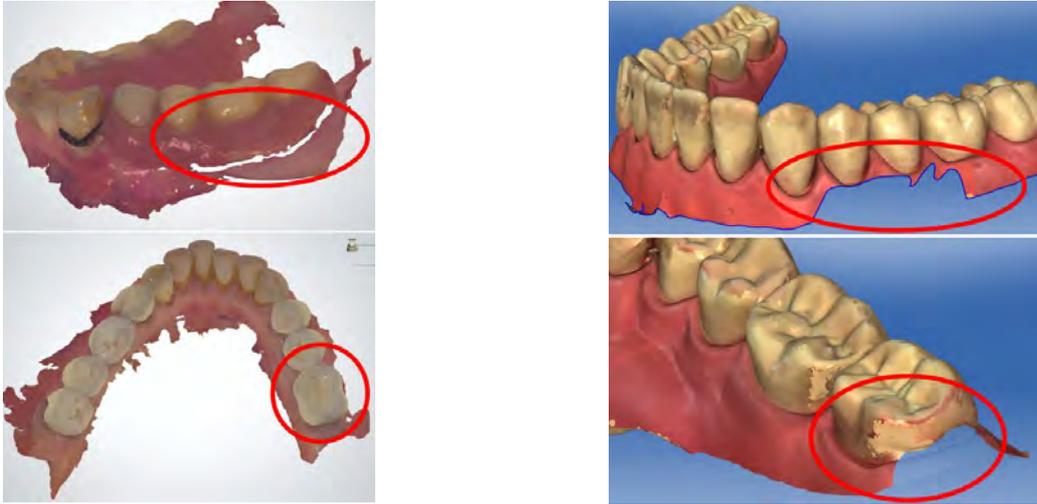
Check to ensure there is no surface distortion that may be caused, for instance, by an excess of saliva or highly reflecting dental restoration. Also make sure no soft tissue (lip, cheek) or foreign body (bite material) has been captured in the scan.

Finally, verify the relative positions of the jaws whether they have been scanned in centric occlusion or in protrusion. Especially, for registration in centric occlusion, it is necessary to check that there is sufficient contact but no overocclusion or collision. In case of doubts please ask the practitioner for confirmation.

**In case of incorrect scans, please ask for new/corrected scans, and remind the practitioner that he should provide you the ID of the new scan he submits. DO NOT edit/correct the scans.**

**Examples of defects (non-exhaustive list):**

Incomplete scans and missing data in the mandatory capture area



Surface flaws



Incorrect scan of the occlusion



Problem with occlusion registration: no contact

Problem with occlusion registration: collision / overocclusion

#### 4.4 Downloading Digital Impressions

##### ❖ For 3Shape intra-oral scans

Scans must be downloaded **without modification** from the 3Shape Communicate cloud. The settings must be such that each case is exported as **two STL files**, one for the upper arch, one for the lower. **Each file should be 7±1 MB**. Smaller files would provide insufficient resolution, while larger files may contain too much information that will take longer to process.

##### ❖ For Sirona intra-oral scans

Scans must be downloaded **without modification** from the Sirona Connect cloud. Export a case from Sirona InLab as "**Small stl files**"; this will result in **two STL files**. Smaller files would provide insufficient resolution, while larger files may contain too much information that will take longer to process.

##### ❖ For Carestream intra-oral scans

Scans must be downloaded from CS Connect into **two STL files**.

File names must include "IOS" and indicate whether it is the upper or lower arch. Example: "1234\_lower\_IOS.stl".

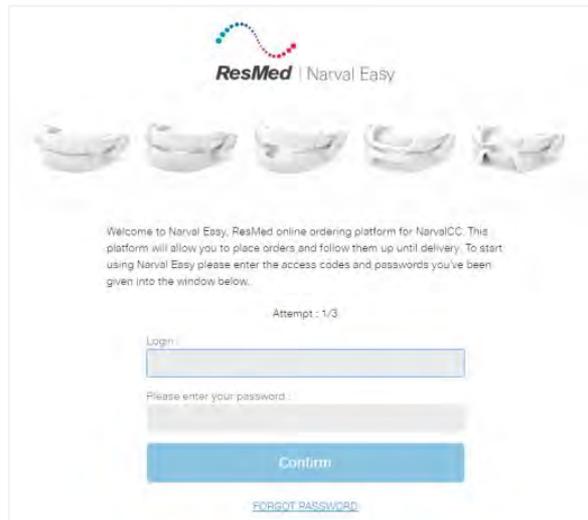
Once files are downloaded, **they MUST NOT be modified** (mesh editing, model trimming, base addition, change in orientation, or other preparation) before sending them to ResMed.

#### 4.5 Verifying order forms

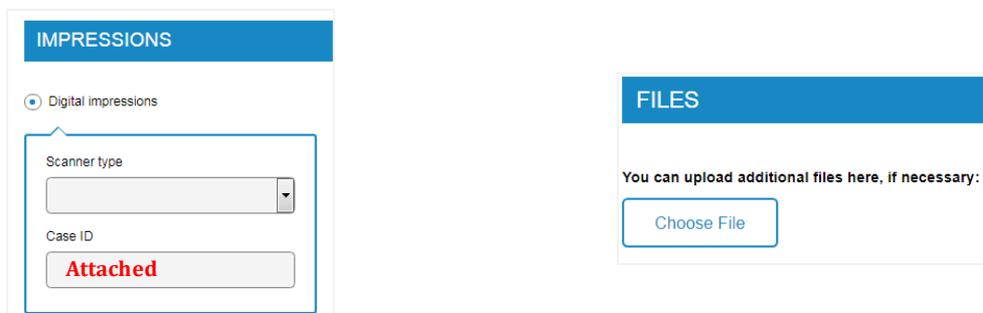
Please verify the order forms for completeness, as described in the distributor guide (LT- 02 - Narval CC Distributor Guide).

#### 4.6 Placing the order

Place the order in Narval Easy as you normally do.



In the section about digital impressions, **select “3Shape” OR “Sirona” in the “Scanner type” dropdown list, and type “Attached” in the field labeled “Case ID”.** Then upload the stl files in the “Files” section.



Enter all the other required information as for a normal case, and then submit the order.