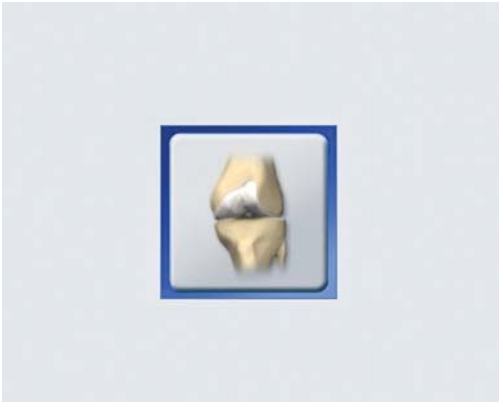


# OR SETUP

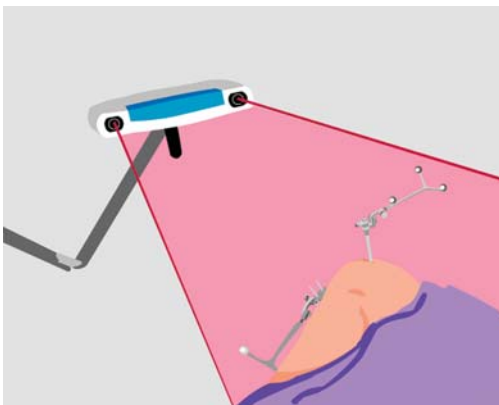
Software Versions: Ci™ knee 2.x



## PREPARE SYSTEM

- Turn the system on and press the **Ci knee essential** icon to start the software
- Insert the Zip disk, CD or USB flash drive to store patient data generated during the procedure

**NOTE:** Do not remove the storage medium until surgery is complete and the system has been shut down.



## POSITION THE SYSTEM

- Position the camera at the foot of the bed, opposite the surgeon
- Adjust the camera so that it faces the surgical site (about 6.5 feet [2 meters] away from the site)
- Ensure that the surgeon can easily view the monitor



## SELECT A PROFILE

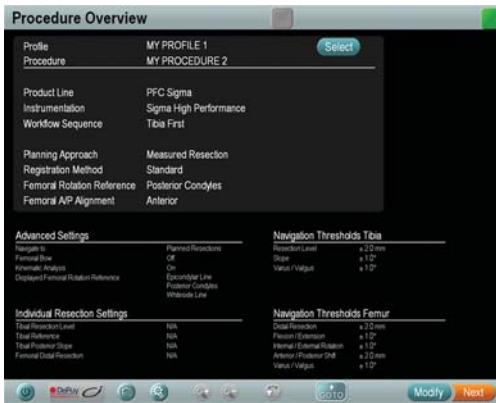
- If you have already set up a profile, select the profile in the **Welcome** dialog and press **Next** to open the **Choose Procedure** dialog
- If you have not set up a profile, press **Create a New Profile**.



## SELECT A PROCEDURE

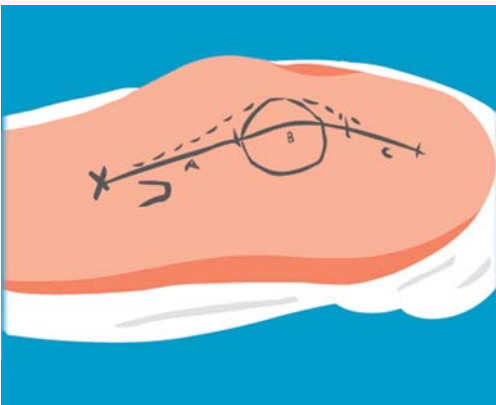
- Select the procedure and press **Next** to open the **Procedure Overview** dialog

**NOTE:** If you would like to set up a new procedure, press **Create a New Procedure**. Details on the workflows available in procedure setup are provided on the **Workflow** page.



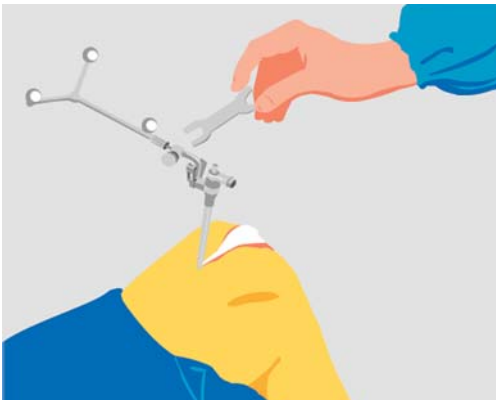
## REVIEW PROCEDURE

- In the **Procedure Overview** dialog, review the selected settings
- To continue with the selected procedure, press **Next**
- In the dialogs that follow, enter the patient's name and define the treatment side
- You can modify the procedure by pressing **Modify** in the **Procedure Overview** dialog.



## PREPARE PATIENT

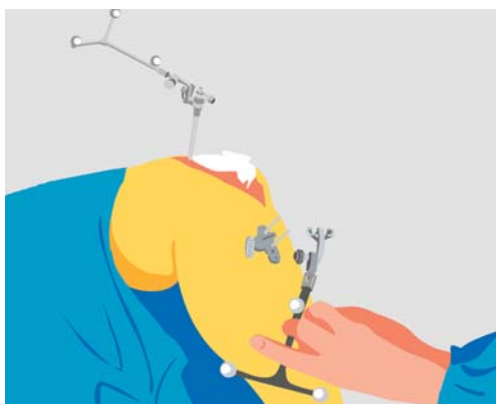
- Drape the patient
- Perform the incision
- Prepare the femur and tibia according to standard surgical procedure



## ATTACH FEMORAL REFERENCE ARRAY

- Attach the Schanz screw to the femur
- Attach the bone fixator and Y geometry reference array

**NOTE:** Position arrays to allow space for the incision and surgical steps without interfering with other instruments.



## ATTACH TIBIAL REFERENCE ARRAY

- Attach the Schanz screw to the tibia
- Attach the bone fixator and T geometry reference array

**NOTE:** Do not move the Y and T reference arrays during the procedure. This could result in inaccurate tracking and severe patient injury.

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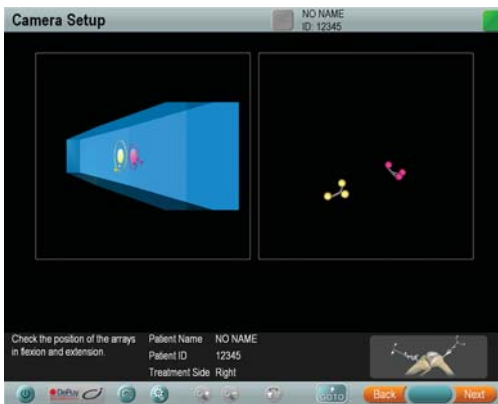
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# REGISTRATION

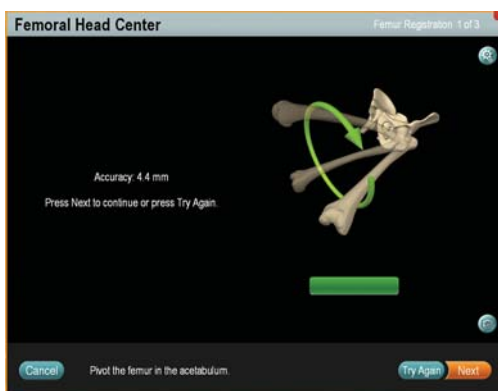
Software Versions: Ci™ Knee 2.x



## BEFORE REGISTRATION

- Remove all osteophytes
- Verify that the reference arrays are visible to both camera lenses with the leg in flexion and extension

**NOTE:** Registration can now be performed.



## FEMORAL HEAD CENTER CALCULATION

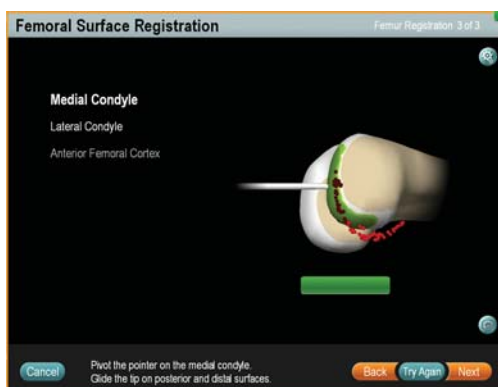
- Pivot the leg within the hip joint. Begin with smaller circles and gradually increase to larger circles.
- Make sure to avoid too much hip movement

**NOTE:** Do not move the camera during this step.



## FEMORAL LANDMARK REGISTRATION

- Register the mechanical axis point
- Register the medial epicondyle point, followed by the lateral epicondyle point
- Register the most proximal point of the implant location on the anterior cortex
- Register the Whiteside line by holding the pointer along it in the AP direction



## FEMORAL SURFACE REGISTRATION

- Register points on the medial condyle, followed by the lateral condyle. Make sure to acquire sufficient posterior points.
- Register points on the anterior cortex (not required for **Express** registration)

**NOTE:** When femoral registration is complete, the software prompts you to verify registration accuracy.

Note: This guide does not replace reading the user manuals.



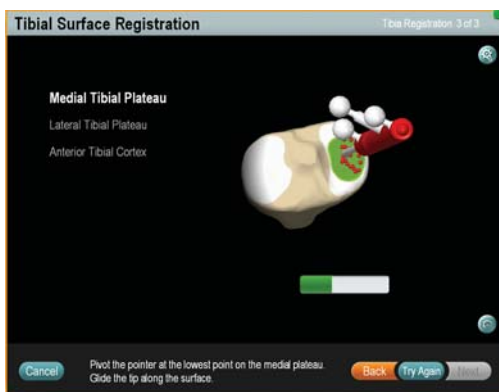
## TIBIAL MALLEOLI REGISTRATION

- Register the medial malleolar point
- Register the lateral malleolar point



## TIBIAL LANDMARK REGISTRATION

- Register the mechanical axis point
- Register the medial contour point, followed by the lateral and anterior contour points
- Register the tibial AP direction by holding the pointer parallel to the tuberculum intercondylare without any internal or external rotation



## TIBIAL SURFACE REGISTRATION

- Register points on the medial tibial plateau, followed by the lateral plateau
- Register points on the anterior cortex (not required for **Express** registration)

**NOTE:** When tibial registration is complete, the software prompts you to verify registration accuracy.

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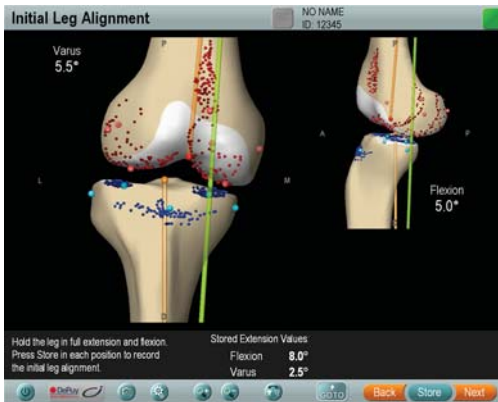
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# LEG ALIGNMENT

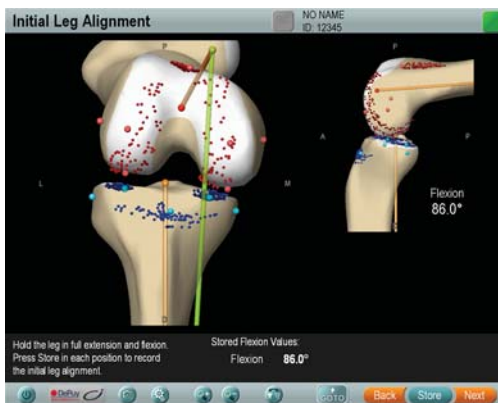
Software Versions: Ci™ Knee 2.x



## INITIAL LEG ALIGNMENT EXTENSION

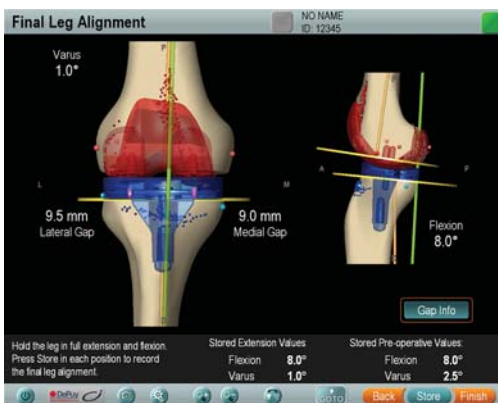
Initial leg alignment is always the first step in the workflow.

- Bring the leg into full extension
- If desired, press **Store** to record the preoperative varus/valgus and extension angles



## INITIAL LEG ALIGNMENT FLEXION

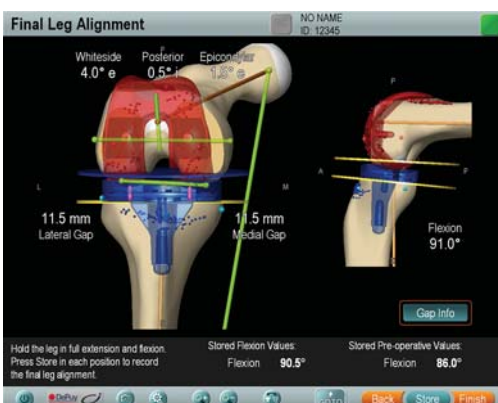
- Bring the leg into flexion
- If desired, press **Store** to record the preoperative flexion angle



## FINAL LEG ALIGNMENT EXTENSION

Final leg alignment is always the last step in the workflow. This step allows you to compare the final values to the stored preoperative values.

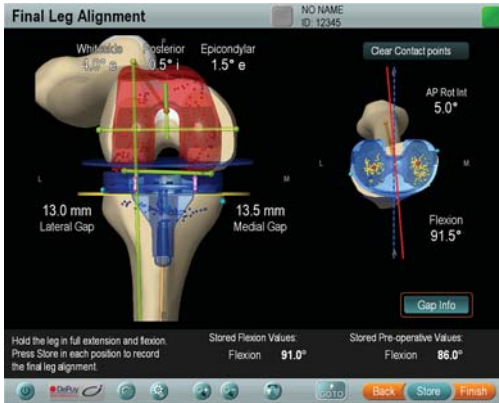
- Bring the leg into full extension
- To display medial and lateral gaps, press the **Gap Info** checkbox
- If desired, press **Store** to record the postoperative varus/valgus and extension angles



## FINAL LEG ALIGNMENT FLEXION

- Bring the leg into flexion
- If desired, press **Store** to record the postoperative flexion angle

Note: This guide does not replace reading the user manuals.



## KINEMATIC ANALYSIS

If you selected **Kinematic Analysis** during profile setup, the upper right view displays the contact points (red spheres) between the femoral implant and the tibial implant during final leg alignment.

**NOTE:** As you move the leg in flexion and extension, the contact points are tracked and displayed on the screen (yellow spheres).

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# TIBIA FIRST WORKFLOW

Software Versions: Ci™ Knee 2.x



## TIBIAL PLANNING

- If required, use the arrow buttons to adjust the implant size, varus/valgus angle, anterior/posterior slope, and resection level
- Press **Next** to proceed to tibial resection



## TIBIAL RESECTION

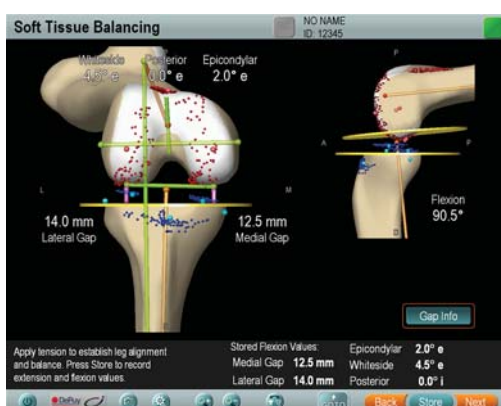
- Insert the cutting block adapter into the cutting block
- Navigate the cutting block to match the actual plane (blue) to the planned plane (yellow)
- Following resection, press **Next** to verify the plane



## TIBIAL VERIFICATION

- Place the cutting block adapter on the resected plane and hold it still for 2 seconds. The software calculates the resected plane and displays the deviations between the planned and verified resection planes.
- Press **Next** to proceed to soft tissue balancing

**NOTE:** If you are performing split registration, you are prompted to perform femoral registration once tibial verification is complete.

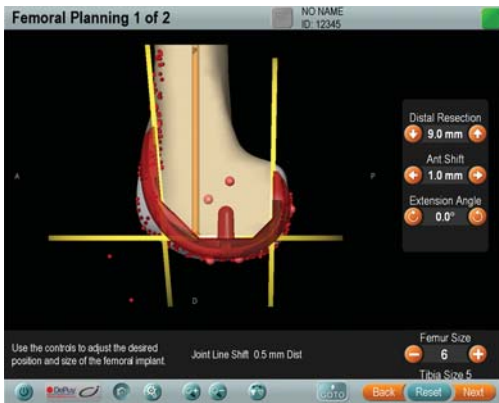


## SOFT TISSUE BALANCING

- Perform soft tissue balancing in flexion and extension
- In flexion, store the medial/lateral gaps and internal/external rotation (required for **Gap Balanced**)
- In extension, store the medial/lateral gaps and varus/valgus angle (required for **Gap Balanced**)

**NOTE:** Store the gaps after you have performed all soft tissue releases. Re-store the gaps if necessary.

Note: This guide does not replace reading the user manuals.



## FEMORAL PLANNING (FIRST STEP)

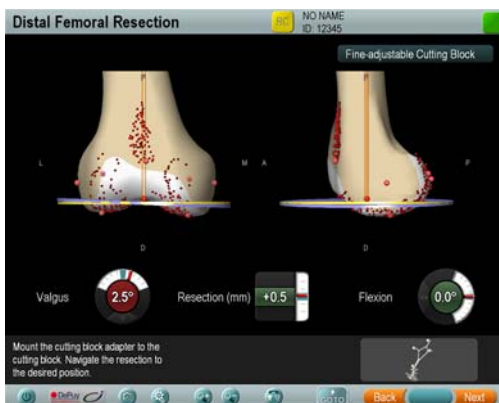
- If required, use the arrow buttons to adjust the distal resection, implant anterior/posterior direction, flexion/extension angle, and implant size
- For **Gap Balanced** workflows, the femoral implant size and position is based on the flexion/extension gaps stored in soft tissue balancing. If you make changes in planning, press **Optimize** to recalculate the distal resection level.
- Press **Next** to proceed to the next planning step



## FEMORAL PLANNING (SECOND STEP)

- If required, use the arrow buttons to adjust the implant internal/external rotation, and varus/valgus angle
- Press **Next** to proceed to femoral resection

**NOTE:** In **Gap Balanced** procedures, the femoral implant size and position is based on stored flexion/extension gaps. The implant rotation is based on the stored internal/external rotation (parallel to tibia).



## DISTAL FEMORAL RESECTION

- Insert the cutting block adapter into the cutting block
- Navigate the cutting block to match the actual plane (blue) to the planned plane (yellow)
- Following resection, press **Next** to verify the plane

**NOTE:** Depending on the selected implant and toolset, the anterior femoral resection may be performed first.



## ANTERIOR FEMORAL RESECTION

- Insert the cutting block adapter into the cutting block
- Navigate the cutting block to match the actual plane (blue) to the planned plane (yellow)
- Following resection, press **Next** to verify the plane
- After femoral verification, press **Next** to proceed to **Final Leg Alignment**

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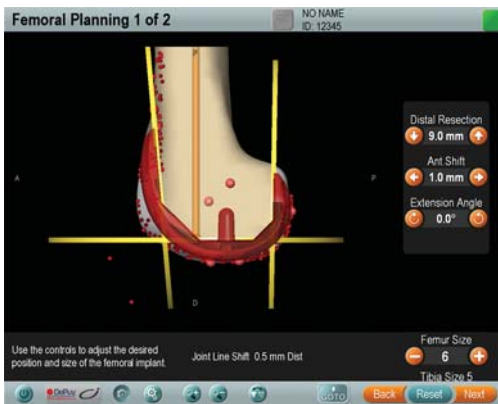
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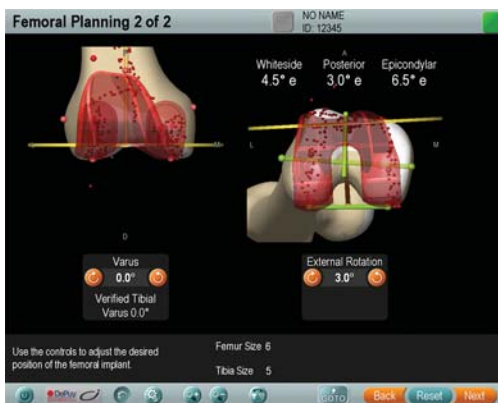
# FEMUR FIRST WORKFLOW

Software Versions: Ci™ Knee 2.x



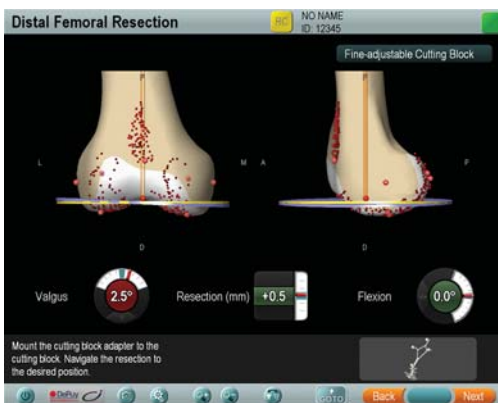
## FEMORAL PLANNING (FIRST STEP)

- If required, use the arrow buttons to adjust the distal resection, implant anterior/posterior direction, flexion/extension angle, and implant size
- Press **Next** to proceed to the next planning step



## FEMORAL PLANNING (SECOND STEP)

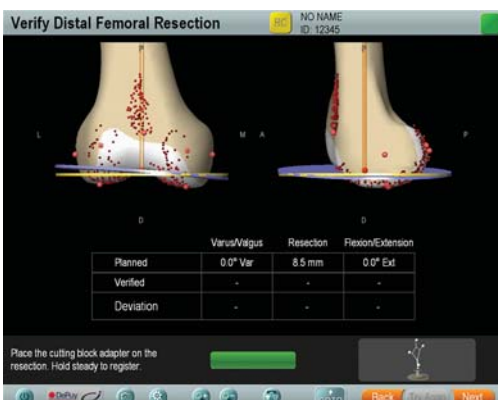
- If required, use the arrow buttons to adjust the implant internal/external rotation, and varus/valgus angle
- Press **Next** to proceed to femoral resection



## DISTAL FEMORAL RESECTION

- Insert the cutting block adapter into the cutting block
- Navigate the cutting block to match the actual plane (blue) to the planned plane (yellow)
- Following resection, press **Next** to verify the plane

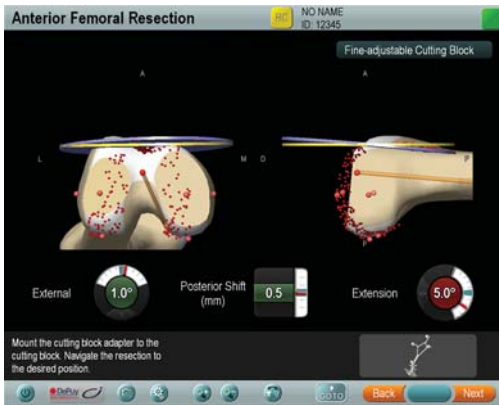
**NOTE:** Depending on the selected implant and toolset, the anterior femoral resection may be performed first.



## DISTAL FEMORAL VERIFICATION

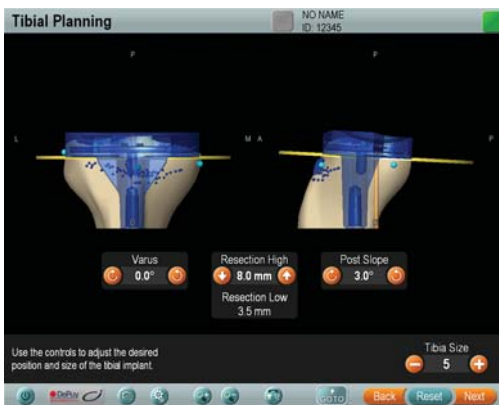
- Place the cutting block adapter on the resected plane and hold it still for 2 seconds
- The software calculates the resected plane and displays the deviations between the planned and verified resection planes
- Press **Next** to proceed to the next step in the workflow

Note: This guide does not replace reading the user manuals.



## ANTERIOR FEMORAL RESECTION

- Insert the cutting block adapter into the cutting block
- Navigate the cutting block to match the actual plane (blue) to the planned plane (yellow)
- Following resection, press **Next** to verify the plane



## TIBIAL PLANNING

- If required, use the arrow buttons to adjust the implant size, varus/valgus angle, anterior/posterior slope, and resection level
- Press **Next** to proceed to tibial resection



## TIBIAL RESECTION

- Insert the cutting block adapter into the cutting block
- Navigate the cutting block to match the actual plane (blue) to the planned plane (yellow)
- Following resection, press **Next** to verify the plane
- After tibial verification, press **Next** to proceed to **Final Leg Alignment**

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# HYBRID WORKFLOWS

Software Versions: Ci™ Knee 2.x



## TIBIAL PLANNING

**NOTE:** This page describes a **Tibia First Hybrid** workflow. You can also select a **Femur First Hybrid** workflow during procedure set up.

- If required, use the arrow buttons to adjust the implant size, varus/valgus angle, anterior/posterior slope, and resection level
- Press **Next** to proceed to tibial resection



## TIBIAL RESECTION

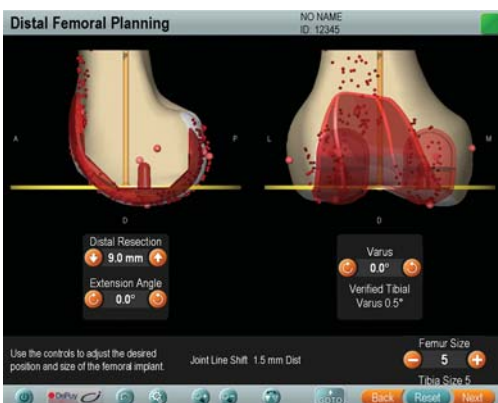
- Insert the cutting block adapter into the cutting block
- Navigate the cutting block to match the actual plane (blue) to the planned plane (yellow)
- Following resection, press **Next** to verify the plane



## TIBIAL VERIFICATION

- Place the cutting block adapter on the resected plane and hold it still for 2 seconds
- The software calculates the resected plane and displays the deviations between the planned and verified resection planes
- Press **Next** to proceed to the next step

**NOTE:** If you are performing split registration (tibia first workflow only), you are prompted to femoral registration once tibial verification is complete.



## DISTAL FEMORAL PLANNING

- If required, use the arrow buttons to adjust the distal resection, implant varus/valgus angle, flexion/extension angle, and implant size
- Press **Next** to proceed to distal femoral resection

Note: This guide does not replace reading the user manuals.



# WORKFLOW OPTIONS

Software Versions: Ci™ Knee 2.x



## CHOOSE SURGICAL TECHNIQUE

The workflow is determined by your settings in the **Choose Surgical Technique** dialog (selected when a procedure is set up).

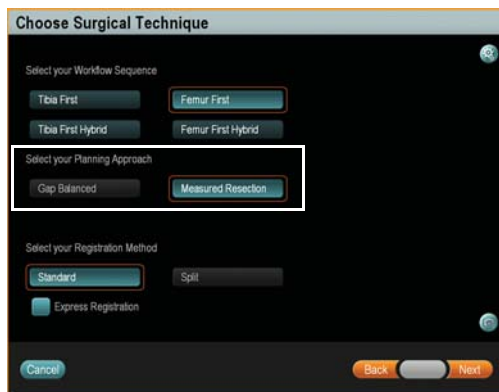
- Workflow Sequence (resection order)
- Planning approach
- Registration method

**NOTE:** Availability of settings depends on the selected implant and toolset.



## WORKFLOW SEQUENCE

- **Tibia First:** Proximal Tibia, Soft Tissue Balancing, Distal Femur, Anterior Femur (anterior cut may also be performed first)
- **Femur First:** Distal Femur, Anterior Femur, Proximal Tibia (anterior cut may also be performed first)
- **Tibia First Hybrid:** Proximal Tibia, Distal Femur, Soft Tissue Balancing, Anterior Femur
- **Femur First Hybrid:** Distal Femur, Proximal Tibia, Soft Tissue Balancing, Anterior Femur



## PLANNING APPROACH

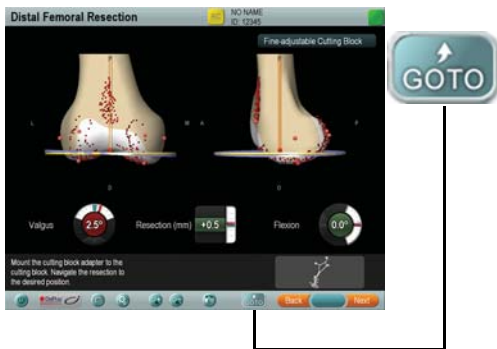
- **Measured Resection:** The default implant position and planned resections are based on points registered on the bone
- **Gap Balanced:** The femoral implant size and position is based on gaps stored during soft tissue balancing. The implant rotation is based on the tibial cut.



## REGISTRATION METHOD

- **Standard:** Register Femur, Register Tibia, perform navigation according to the selected workflow
- **Split:** Register Tibia, Navigate Tibia, Register Femur, Navigate Femur
- **Express Registration:** Fewer points are acquired on femur and tibia. The software calculates a scaled bone model rather than a morphed model.

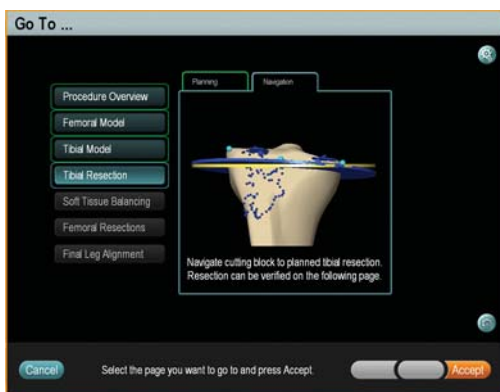
Note: This guide does not replace reading the user manuals.



## THE GO TO BUTTON

This button allows you to jump to different steps in the workflow.

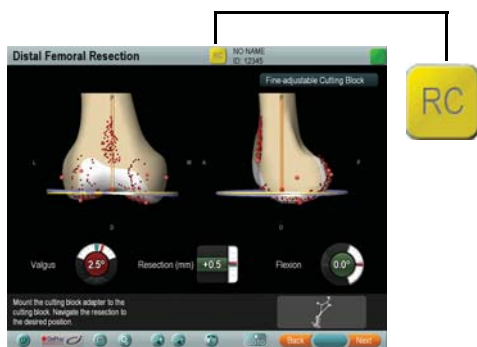
Pressing the **GoTo** button opens the **Go To** dialog.



## THE GO TO DIALOG

The steps are listed according to the order defined by the workflow.

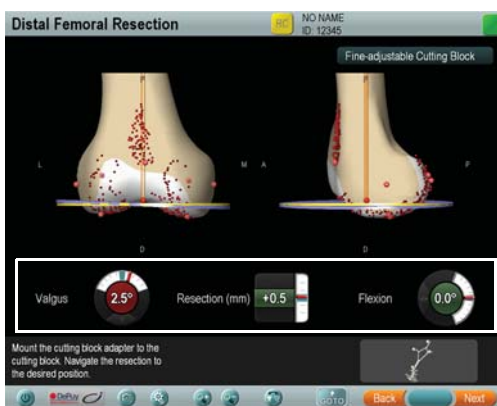
- Buttons outlined in blue indicate the step is available
- Buttons outlined in green indicate the step has been completed
- Buttons outlined in gray indicate the step is not accessible



## REMOTE CONTROL (OPTIONAL)

Remote control allows you to proceed through the navigation workflow without using **Next** and **Back** buttons.

- Hold the instrument to the required position on the bone
- The remote control indicator turns yellow, indicating that the instrument is detected by the software
- The indicator flickers green and the relevant screen opens



## NAVIGATION THRESHOLDS

You can define **Navigation Thresholds** in the **Advanced Settings** dialog during procedure setup. During navigation, the meters indicate whether the navigated instrument is within the defined thresholds.

- When the instrument is within defined thresholds, the meter is green (red needle within shaded area)
- When the instrument is outside of defined thresholds, the meter is red

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