SECTION 12 - IBIS

NOTE: Section 12 is specifically for Pre-11.X systems. For 11.X and later systems, refer to Section 11 of the PM manual.

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General Requirements

Personnel Requirements: 1 Field Engineer for 2 hours
(6 hours if Supercon Shim is required)

Tools and Test Equipment: LVShim Phantom Assembly
Nesting Plate Assembly
DQA Phantom
Head Coil
Body Sphere and Loader
Service Key (necessary if Supercon Shim is required)
Shim Supply, 46-260777G3
Shim Lead Cable Kit, 2135558

Replacement Parts: None

Consumables: None

Safety: Standard Magnet Safety Procedures for personnel working in and around magnets.

Required Conditions: **Pre 11.0 release system software**

(For systems at or above 11.X release, go back to Section 11, Planned Maintenance Assist.)

Completion of a successful Shim is a prerequisite to performing the SPT procedure. Either Gradshim or LVShim are valid. Only the most recent shim file is analyzed for IBIS.

For more information about LVShim see *Direction 2333500, Signa Excite Service Methods*: Adjust and Cal / System Level Procedures / LVShim.

Objective

Install In Spec was developed to ensure that the scanner performance after installation and initial calibration meets GEMS quality standards before turning the MR scanner over to the customer. Installed Base In Spec (IBIS) was developed to ensure the quality of ongoing scanner maintenance during the lifetime of the scanner.

IBIS measures health of the installed base after installation. SPT and Shim are two of the standard PM procedures and the basis for determining if the system is in spec. PM timeliness is also important to IBIS passing. IBIS PMs are due every other month.

Flow of IBIS

A typical PM session using the IBIS feature will include the field engineer (FE) running SPT and the LVShim in Gradient Shim Mode, resolving any issues found, and then completing other tasks scheduled for the PM.

IBIS Shim Criteria

Either Gradshim or LVShim are valid. Only the most recent shim file is analyzed for IBIS, so select a valid combination of DSV and Bandwidth and keep homogeneity in spec.

	BRM or TRM Whole		Overall	CRM or TRM Zoom		Overall
Shim Type	**DSV**	**Bandwidth**	**Homogeneity**	**DSV**	**Bandwidth**	**Homogeneity**
LVShim	**45 cm**	**500Hz**	**< 80 Hz**	**40cm**	**500Hz**	**< 64 Hz**
Grad Shim	**22 cm**	**200Hz**	**< 6 Hz**	**22cm**	**200Hz**	**< 6 Hz**

LVShim Check and Calibration

1. Verify that LVShim is within specification. The shim procedure, SYSSCA8A.doc, can be found at http://3.87.118.28/optec3/common/8xdocs/system/syssca8a.pdf.
2. If Shim is within specification, no further action is required in this section. However, if all of the shim data is not within specification, adjustments must be made before proceeding to the SPT tests in the next section.

IBIS SPT Procedure and Criteria (Pre 11.X Software)

3. From the Common Service Desktop, select the Image Quality icon. See Figure 1.

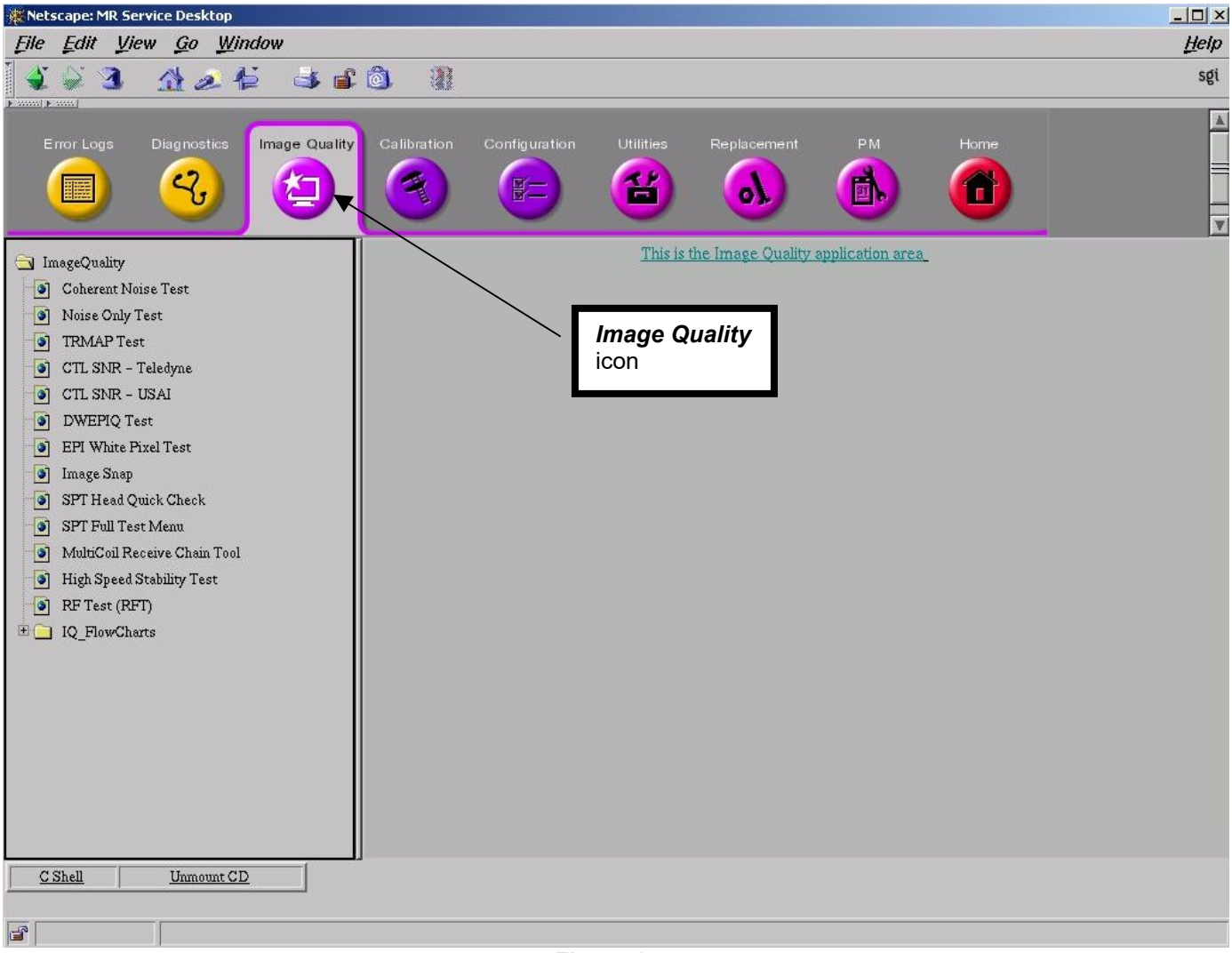


Figure 1

4. Click on the “SPT Full Test Menu” found in the Image Quality folder in the left column of the screen. See Figure 2.

5. Click on this link: “Click here to start this tool” (shown in Figure 2) to launch the SPT tool.

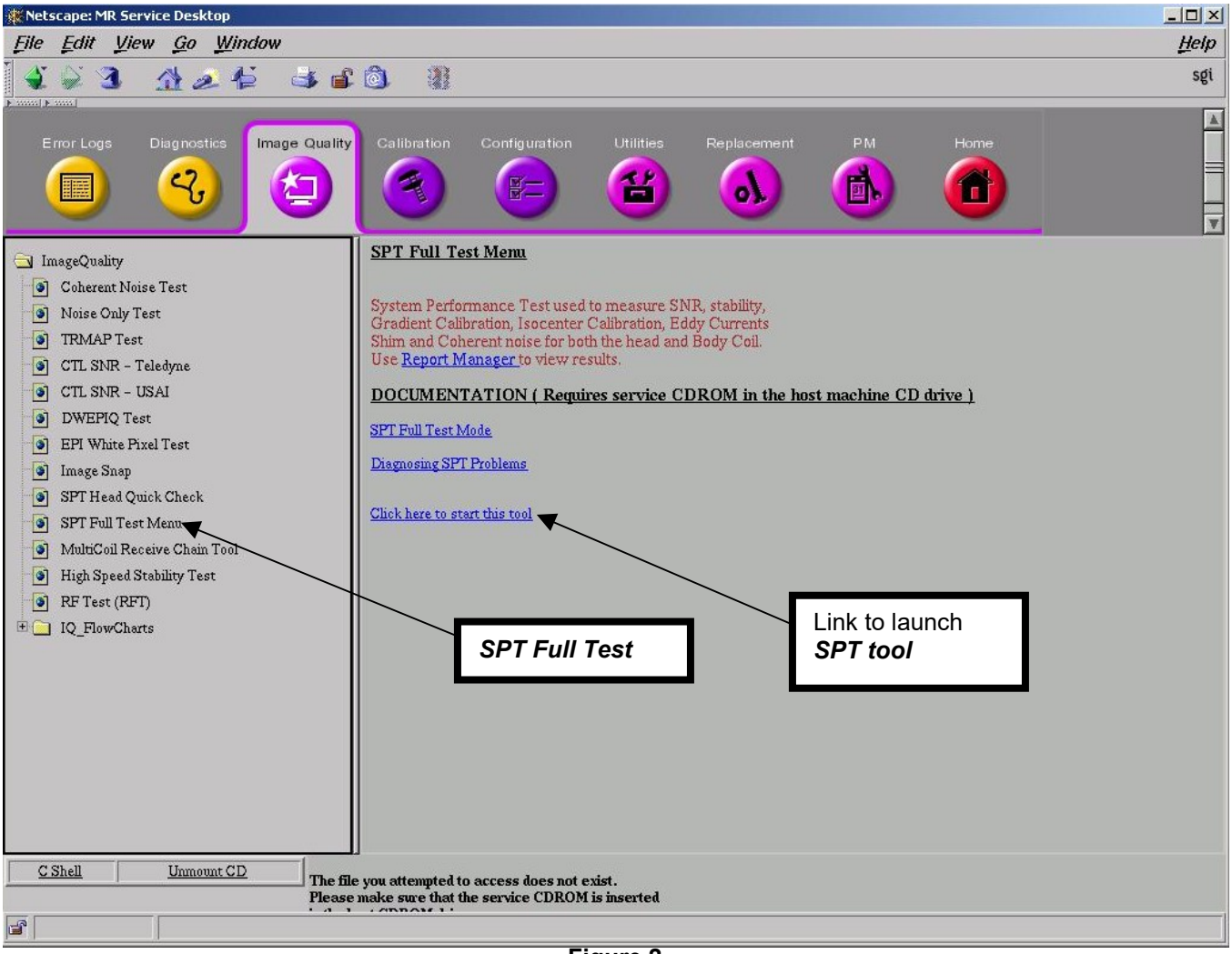


Figure 2

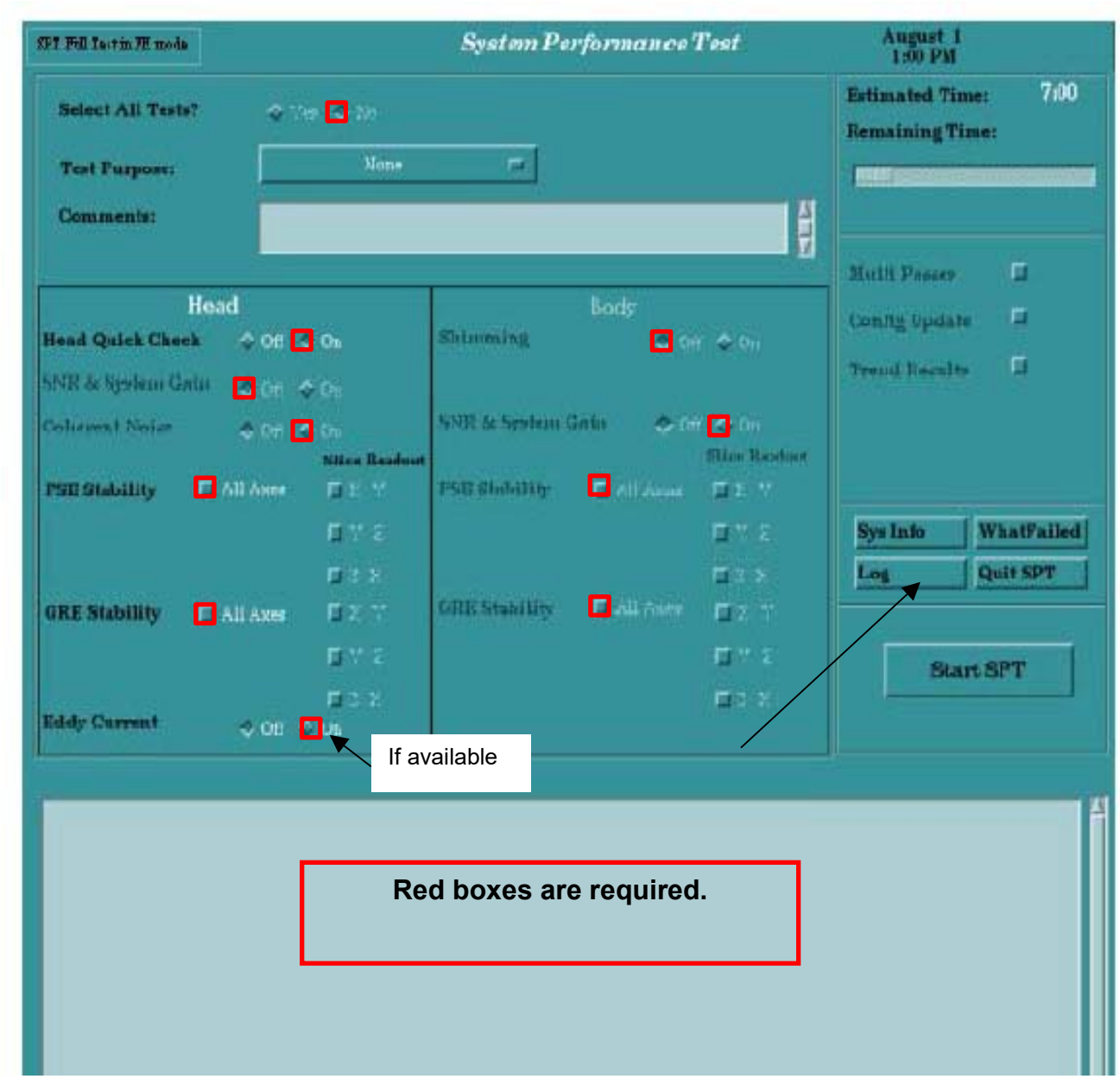
The following tests are selected and run as part of the SPT:

- Head Quick Check
- Coherent Noise
- Head FSE and GRE Stability
- Eddy Currents (only if available in SPT menu)
- Body SNR
- Body FSE and GRE Stability
- For TRM: Select either "Whole" or "Zoom" and alternate each PM.

6. Select the tests by clicking “On” to the right of the corresponding test as shown in Figure 3.

   Note: Do NOT select *Shimming* while in SPT, since results can conflict with prior LVShim.

7. To initiate the SPT testing, click on “Start SPT” located in the lower right of the screen. See Figure 3.**Figure 3**



8. To view test results, the Report Manager must be accessed. Click the Utilities icon on the Common Service Desktop, and then click on “Report Manager” in the left column. See Figure 4.

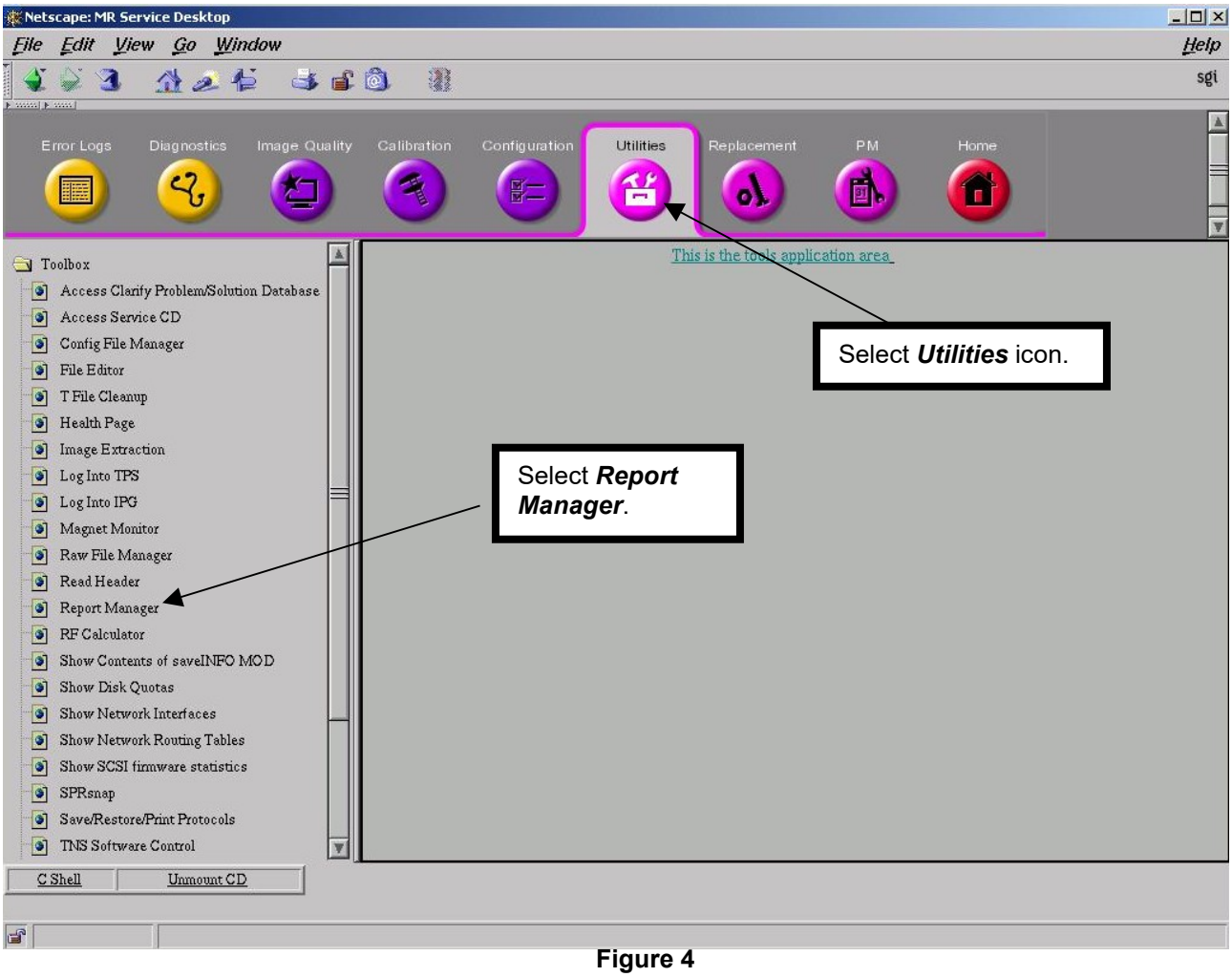


Figure 4

9. To launch the Report Manager tool, click the link: "Click here to start this tool" located on the right side of the Report Manager window as shown in Figure 5.

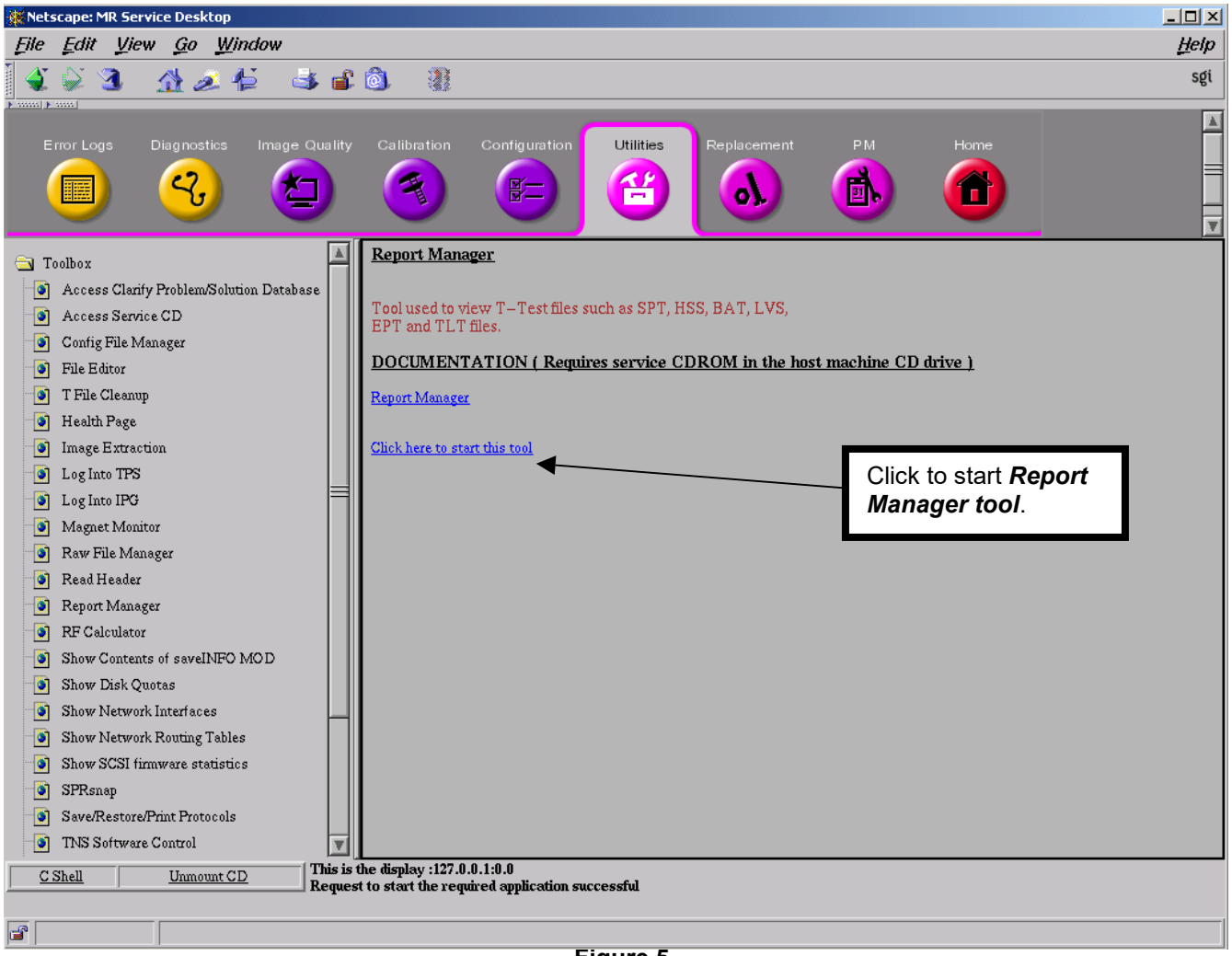


Figure 5

The Report Manager and Password windows open. See Figures 6 and 7.

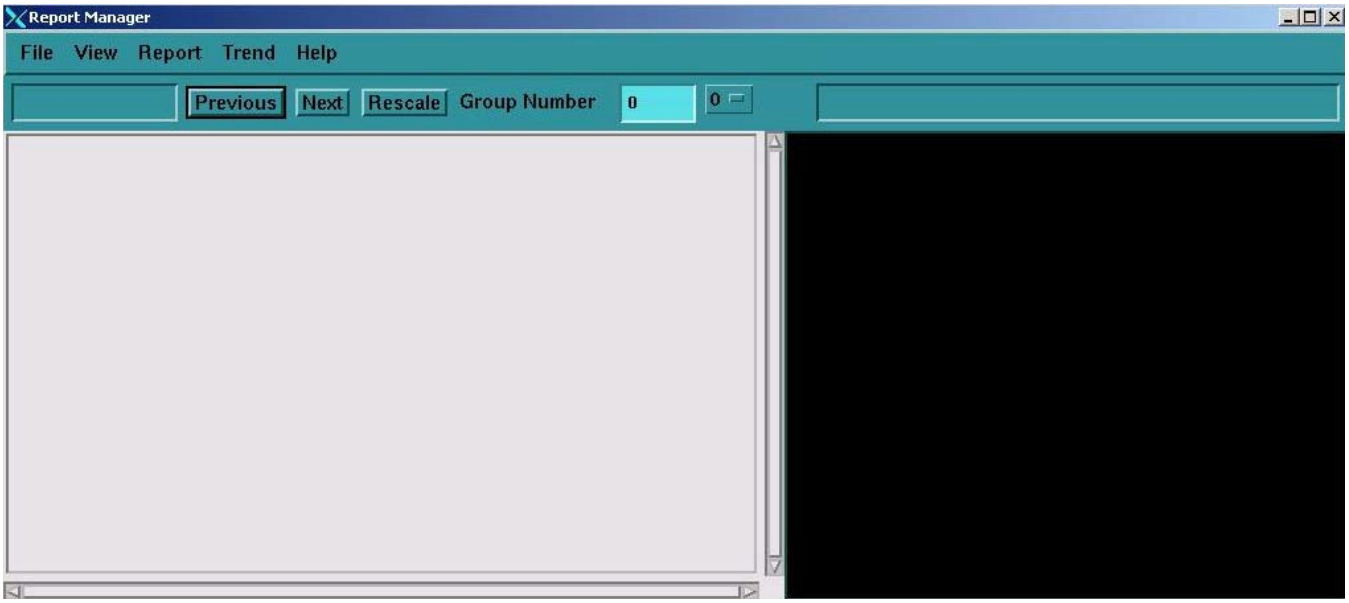


Figure 6

10. Enter the password and click "OK" to close the Password window. See Figure 7.

Figure 7

11. Enter “9” in the Group Number field, click the “File” pull-down menu, and select “Open” to display SPT results. See Figure 8.

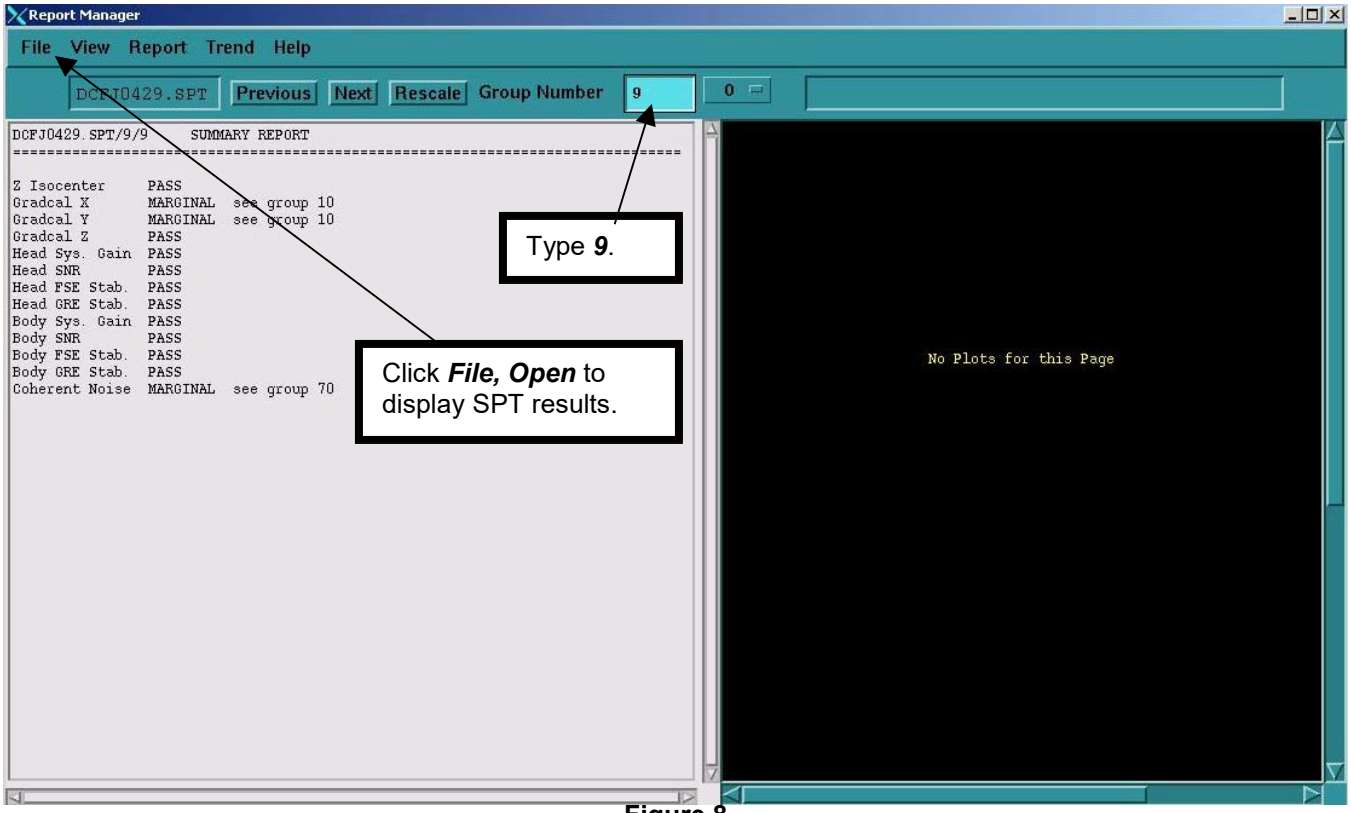


Figure 8

12. Severe failures are not acceptable. Correct severe failures and rerun the SPT testing. See Figure9.

IBIS SPT Criteria

Example system health report		IBIS Requirements
Z Isocenter	PASS	- No Severe Failures
Gradcal X	PASS	- No Severe Failures
Gradcal Y	PASS	- No Severe Failures
Gradcal Z	PASS	- No Severe Failures
Head Sys. Gain	PASS	---------- IBIS ignores results
Head SNR	PASS	- No Severe Failures
Head FSE Stab.	PASS	- No Severe Failures
Head GRE Stab.	PASS*	- No Severe Failures
Body Sys. Gain	PASS	---------- IBIS ignores results
Body SNR	PASS	- No Severe Failures
Body FSE Stab.	PASS	- No Severe Failures
Body GRE Stab.	PASS*	- No Severe Failures
Coherent Noise	PASS	- No Severe Failures
†Eddy Current X	SEVERE see group 40	- IBIS ignores results
†Eddy Current Y	SEVERE see group 41	- IBIS ignores results
†Eddy Current Z	MARGINAL see group 42	- IBIS ignores results

Notes:

* IBIS ignores SR20 results for GRE stability due to uncompensated ramps in plots

† Eddy Currents not available in all software releases

Figure 9