NatQuery
Pre-Install Checklist
For
Mainframes

NatWorks, Inc.
www.natworks-inc.com

Copyright © NatWorks, Inc. 2012
All Rights Reserved

Page 1 of 10
(T) 802 485 6112

NatQuery Pre-Install Checklist for Mainframes

Introduction

The purpose of this document is to provide the reader with an overview of both the information that must be available, and the actions that should take place, before an installation and configuration of NatQuery should be performed. While an installation of NatQuery can occur in minutes, the process of configuring NatQuery is more involved. This document therefore presents, in a checklist format, the pre-requisites and information that should be gathered and known in advance to insure an easy and rapid configuration process.

NatQuery Pre-Install Checklist for Mainframes

Workstation Requirements

NatQuery is an application that is installed onto a Microsoft Windows workstation. The requirements of this workstation are as follows:

☐ **Microsoft Windows Operating System (Any Microsoft O/S above 3.1)**
It is advised that the version of the Windows operating system be English.
Version _____ Language _____

☐ **6 MB of Free Hard Disk**
To accomplish an installation, approximately 6 MB of free space should be available on the workstation's hard drive. Additional free hard disk space should be available to hold extracted data (if extracted data is intended to be returned to the workstation).

☐ **FTP Connectivity to the Remote Natural / ADABAS platform**
In order to achieve automated integration between a NatQuery workstation and the remote Natural / ADABAS mainframe platform, NatQuery utilizes FTP over TCP/IP. If there is no intention of achieving automated integration, then TCP/IP connectivity / FTP connectivity is not a requirement.

☐ **Microsoft Internet Explorer**
In order to achieve automated integration between a NatQuery workstation and the remote Natural / ADABAS server platform, NatQuery utilizes FTP over TCP/IP. The implementation of FTP by NatQuery utilizes a Dynamic Link Library (DLL) module called WININET.DLL that is made available by an installation of Microsoft Internet Explorer.

If the remote Natural / ADABAS system is OS/390 (MVS) and it is intended that FTP operations be performed directly into the Job Entry System (JES), then the version of WININET.DLL must be version 5 or higher.
WININET.DLL version _____

For all other situations where automated FTP integration is desired, the version of WININET.DLL should be 4.0 or higher.
WININET.DLL version _____

If Microsoft's Internet Explorer product is not installed on the workstation, then either manual integration will be used or Internet Explorer should be installed. Internet Explorer is obtainable free-of-charge and is downloadable from the Microsoft website.

NatWorks, Inc.
www.natworks-inc.com

Copyright © NatWorks, Inc. 2012
All Rights Reserved

Page 3 of 10
(T) 802 485 6112

NatQuery Pre-Install Checklist for Mainframes

For further information on NatQuery's use of Microsoft's WININET.DLL, including information as to how to determine the version present on a given Windows platform, please refer to the section in the NatQuery Installation and Operations Guide entitled Microsoft's WININET.DLL.

Mainframe Requirements

The following requirements exist for the Natural / ADABAS server environment.

☐ **Software AG's Natural**
It is a requirement that Software AG's Natural 4GL must reside on the server, and it is strongly suggested that the version of Natural be under current support by Software AG. Natural version _____

☐ **Software AG's ADABAS**
While not being an absolute requirement (due to the fact that Natural can be used against data stores other than ADABAS), it is a general requirement that ADABAS exist on the server, and it is generally advised that this version be a version that is currently supported by SAG.
ADABAS version _____

☐ **Batch Natural Nucleus**
A batch Natural Nucleus must exist to support the execution of extract requests and supporting processes. It is a further requirement that this Natural Nucleus will support the Natural program editor (invoked with the "E" command).

☐ **Available Disk Space**
Sufficient disk space on the mainframe should be available to contain NatQuery-related processing files and extracted data. While tape can be used instead of disk, it is generally preferable to use disk, and the amount of disk space used can be quite substantial depending on how much data is to be extracted.

☐ **Server-Based Security**
The users of NatQuery must be authorized to access the Natural / ADABAS server platform in batch and through FTP.

For OS/390 (MVS) systems, security should enable a user to allocate and access datasets that are defined with the user's User-ID as the high-level qualifier. For VSE systems, security should be enabled for a user to access the required VSAM catalog.

NatWorks, Inc.
www.natworks-inc.com

Copyright © NatWorks, Inc. 2012
All Rights Reserved

Page 4 of 10
(T) 802 485 6112

NatQuery Pre-Install Checklist for Mainframes

☐ **User-IDs**
The administrator should have available a list of all users and their respective User-Ids, who will be initially using NatQuery to generate extracts. The User-Ids will be the Ids used by these specific individuals when accessing the server environment.

☐ **Machine Resources & Processing Time**
NatQuery is a tool that is "dual use": It can be configured to be used as an End-User query tool, it can be configured to be used as a Data Warehouse extraction tool, or it can be configured to provide both capabilities.

In its capacity to serve as an End-User Query tool, one of NatQuery's features is the ability to determine the optimal access path (Descriptor / Super-Descriptor) to use in resolving a given extract based on user-entered data-selection criteria. In order to accomplish this, NatQuery utilizes "Descriptor Statistics", with these "Descriptor Statistics" being created as a result of executing NatQuery-generated Natural programs that capture the required information.

If NatQuery is going to be used as an End-User query tool, then processing time will be required on the Natural / ADABAS server machine so that the required "Descriptor Statistic" capture program(s) can execute. The time required to execute a given NatQuery-generated Descriptor Statistic capture program will vary from file to file, dependent upon the number of records and the number of Descriptors and Super Descriptors present in that given file.

In situations where NatQuery is to be used solely for Data Warehousing, then accurate "Descriptor Statistics" become non-critical due to the fact that in most DWH situations the required data extraction programs will need to read through entire files (I.E. the Natural READ PHYSICAL I/O statement will be utilized – or an ADABAS utilities approach may alternatively be used). In this situation, having accurate Descriptor Statistics is not required, and NatQuery provides the capability to bypass their capture.

☐ **Server Disk Files**
The naming convention in use for files on the Natural / ADABAS server should be known.
Sample naming convention _____

For OS/309 (MVS) systems, NatWorks suggests that disk files associated with individual users be defined so that they have a high-level qualifier that equates to the individual user's User-ID.

NatWorks, Inc.
www.natworks-inc.com
Copyright © NatWorks, Inc. 2012
All Rights Reserved
Page 5 of 10
(T) 802 485 6112

NatQuery Pre-Install Checklist for Mainframes

For VSE systems, NatWorks suggests that a VSAM Catalog be created to contain all server-side files, and within this catalog, disk files associated with individual users be defined so that they have a high-level qualifier that equates to the individual user's User-ID.

☐ **Server Disk Attributes**
When NatQuery generates batch Job Control Language (JCL) streams, NatQuery has the capability to estimate disk space requirements which can then be dynamically substituted into that JCL. Unless your site has the capability to automatically calculate record sizes and disk usage, then you should know the general attributes for the disk drive that will be used to hold extracted data. Specifically, you will need to know:

o **Device Blocksize** _____
The NatQuery default value for this will be 28332.

o **Blocks per Track** _____
The NatQuery default value for this will be 2.

o **Tracks per Cylinder** _____
The NatQuery default value for this will be 15.

o **Cylinders per Volume** _____
The NatQuery default value for this will be 2226.

FTP Requirements

In order to achieve automated integration between NatQuery on a workstation and the remote Natural / ADABAS server, FTP connectivity must be available against the remote mainframe. Without FTP connectivity, integration can only be accomplished manually.

If FTP connectivity is available, then the following information is required for NatQuery configuration:

☐ **Server IP Address**
The IP address or URL of the Natural / ADABAS server environment should be known.
IP Address is _____
URL Address is _____

☐ **FTP Accessibility to Internal Reader Queues**
On both OS/390 (MVS) systems and VSE systems, FTP can be configured to allow FTP

NatWorks, Inc.
www.natworks-inc.com

Copyright © NatWorks, Inc. 2012
All Rights Reserved

Page 6 of 10
(T) 802 485 6112

PUT operations initiated from a workstation to place files (JCL) directly into the remote mainframe system's internal reader.

Prior to configuring NatQuery, it should be ascertained whether or not FTP operations are already configured (or this configuration can be allowed) so that PUT operations from a workstation into the Natural / ADABAS server platform's internal reader. For OS/390 systems, this would be the Job Entry System (JES), for VSE systems, this would be POWER.

If FTP PUT operations are allowed or can be allowed against the server's internal reader queue, then the NatQuery "Direct-FTP" method can be utilized which will greatly simplify the configuration and subsequent request execution.

If FTP PUT operations ARE NOT allowed against the server's internal reader, then either "Just FTP" methods of integration can be utilized.

Natural Requirements

The following are considerations and requirements for the Natural environment.

☐ **Natural Environment Values**
Various aspects of any given Natural Environment are parameterized to accommodate internationalization and operational flexibility. The following values should be known:

- **Decimal Character** _____
  This would be the value of the Natural Parameter DC (Decimal Character); the NatQuery default for this is "." (Period).

- **Variable Prefix Character** _____
  This is a character that is typically used to prefix "local variables" in a Natural program; the NatQuery default for this value is "#".

- **Natural Command Delimiter** _____
  This would be the value of the Natural Parameter ID (Input Delimiter); the NatQuery default for this is "," (comma).

☐ **Data Definition Modules (DDMs)**
DDMs should be available on the server for the source files intended for extraction. In situations where a Trial or Proof of Concept (POC) is to be conducted, it is highly desirable that DDMs be available on the workstation environment prior to even beginning the Trial or Proof of Concept, as this will speed the delivery of generated Natural objects

NatWorks, Inc.
www.natworks-inc.com

Copyright © NatWorks, Inc. 2012
All Rights Reserved

Page 7 of 10
(T) 802 485 6112

required to conduct such activities.

The following considerations apply to these DDMs:

- o **Sub-Descriptors and Super-Descriptor Component Definitions**
  It is a REQUIREMENT that DDMs be generated so that the components of Sub-Descriptors and Super-Descriptors are described for each DDM that will be made available to NatQuery. To enable the generation of this component information from Predict, when a DDM is generated from Predict, the DDM should be generated so that the generation option **General Comments** is set to "Y".

- o **Occurrence Information**
  It is STRONGLY RECOMMENDED that DDMs be generated so that any documented occurrence information in Predict (if present) will be in the DDM under the Remarks column.

  If this information is not documented in Predict, or Predict is not present, then the maximum number of occurrences for each Multi-Value Field (MU) or Periodic-Group (PE) should be known.

  To enable the generation of any documented occurrence information from Predict into a DDM, when a DDM is generated from Predict the DDM should be generated so that the generation option **Line Comments** is set to "O" (the letter "O").

- o **DDMs Must Exactly Match FDTs (NatCDC requirement only)**
  When NatQuery will be used with NatCDC it is a REQUIREMENT that DDMs be generated DIRECTLY from File Definition Tables (FDTs).

- o **Negative Numeric Fields**
  DDMs that contain numeric fields and will have negative numbers should be identified beforehand. Unless otherwise instructed, NatQuery will assume that all numeric fields will not need a preceding sign byte when these elements are extracted.

- o **File Relationships**
  If the intent of using NatQuery is to produce multi-file extracts or extracts with automatic "File Lookups", then NatQuery will need to be provided with information on the "File Relationships" that will then support this automatic file linking (I.E. "joins"). This means that the Administrator must have an understanding of the Descriptors or Super-Descriptors that support the "File Relationships" (the cardinality of these relationships), and must further know how

NatWorks, Inc.
www.natworks-inc.com

Copyright © NatWorks, Inc. 2012
All Rights Reserved

Page 8 of 10
(T) 802 485 6112

these Descriptors or Super-Descriptors should be initialized.

☐ **NatQuery Natural Library Name**
A Natural Library should be designated that will be used to contain all NatQuery generated programs.

☐ **NATRJE Availability**
This is not a requirement for using manual integration or "Direct-FTP" (the ability to FTP directly into JES or POWER).

☐ **Batch Natural JCL Example**
In order to achieve integration between NatQuery on a workstation and a remote Natural / ADABAS server environment, NatQuery utilizes Job Control Language (JCL) that will execute in a batch environment.

To facilitate the configuration of NatQuery, a working example of a batch Natural JCL stream that executes against the appropriate environment should be available for reference purposes.

With the intent to speed up the configuration process NatWorks would be happy to begin the building of the initial templates needed for basic operation of NatQuery, please submit a sample of your working Batch Natural JCL to NatWorks for consideration. These ready-to-execute and transparent templates will be used by NatQuery to perform basic integration tasks and allow for Natural program generation.

Natural Security

The following are considerations and requirements when the Software AG product, Natural Security is utilized.

☐ **Access to designated NatQuery Natural Library**
All Administrators and Users of NatQuery should be defined through Natural Security to access the designated NatQuery Natural Library.

☐ **Administrator Access to SYSTRANS / SYSOBJH Utility**
In order to facilitate the capture of DDMs (and possibly FDTs) into NatQuery, NatQuery can utilize the SYSTRANS or the SYSOBJH utility of Natural, executed through Batch. If it is desired to use NatQuery's capability to process SYSTRANS / SYSOBJH requests, then at least one Administrator must be given access to the SYSTRANS / SYSOBJH utility.

NatWorks, Inc.
www.natworks-inc.com

Copyright © NatWorks, Inc. 2012
All Rights Reserved

Page 9 of 10
(T) 802 485 6112

NatQuery Pre-Install Checklist for Mainframes

Providing NatWorks with several DDM's that have been generated from their corresponding FDT's will greatly enhance configuration of NatCDC.

☐ **Administrator Access to the NATLOAD (NatCDC only)**
In order to install the core NatCDC module, an administrator must have access to the NATLOAD utility of Natural. This utility will be needed to load the NatCDC module (provided in object form).

☐ **Administrator Authorized To Have Read Access To All Desired Source Files**
In situations where NatQuery is to be used as an End-User query tool, it is strongly recommended that "Descriptor Statistic" capture programs be run that will capture the required information. In order to accomplish this, at least one NatQuery Administrator must be given "Read Access" to all desired sourced files.

☐ **Users Authorized To Have Read Access to Allowed Source Files**
In order to allow an End-User to retrieve data from a given ADABAS source file, each user (either individually or as a group) must be given access to the desired ADABAS source files.

NatWorks, Inc.
www.natworks-inc.com

Copyright © NatWorks, Inc. 2012
All Rights Reserved

Page 10 of 10
(T) 802 485 6112