

<b>Document filename: DBS User Guide</b>			
<b>Directorate / Programme</b>	Demographics	<b>Project</b>	Spine2
<b>Project Manager</b>	Tom Johnston	<b>Status</b>	Final
<b>Owner</b>	Stephen Smith	<b>Version</b>	3.0
<b>Author</b>	Shail Ravjibhai	<b>Version issue date</b>	21/04/2015

# DBS User Guide

# Document Management

## Revision History

Version	Date	Summary of Changes
1.0	11/07/2014	Final version
2.0	11/03/2015	Approved – Inclusion of new DBS Client / CIS Installation Processes
2.1	15/04/2015	Remove installation steps
2.2	16/04/2015	Updated following review
3.0	21/04/2015	Final version

## Approved by

This document must be approved by the following people:

Name	Signature	Title	Date	Version
Tom Johnston		Demographics Senior Project Manager	21/04/2015	3.0

## Glossary of Terms

Term / Abbreviation	What it stands for
DBS	Demographic Batch Service

### Document Control:

The controlled copy of this document is maintained in the HSCIC corporate network. Any copies of this document held outside of that area, in whatever format (e.g. paper, email attachment), are considered to have passed out of control and should be checked for currency and validity.

# Contents

---

<b>1</b>	<b>Introduction</b>	<b>5</b>
1.1	Purpose of Document	5
1.2	Background	5
1.3	DBS Client Version	5
<b>2</b>	<b>The Demographics Batch Service</b>	<b>6</b>
2.1	Overview	6
<b>3</b>	<b>The DBS Client</b>	<b>7</b>
3.1	Validate and Send	7
3.2	Receive	7
3.3	Notification Emails	7
3.4	Diagnostic Logs	8
<b>4</b>	<b>Getting Started with DBS</b>	<b>9</b>
4.1	Suggested File Structure	9
4.2	Test File Submission	9
<b>5</b>	<b>Application Functionality and Execution</b>	<b>10</b>
5.1	Getting Batch Files Ready for Submission	10
5.2	Application Execution	10
5.3	Scheduling Submissions	13
<b>6</b>	<b>Best Practice</b>	<b>14</b>
6.1	DBS Capacity	14
6.2	Check DBS Manually Once a Week	14
<b>7</b>	<b>Advanced Administration</b>	<b>15</b>
7.1	Viewing DBS Error Reports	15
7.2	Viewing Logs	15
7.3	Automated Tracking	15
7.4	Archiving	16
<b>Appendix A</b>	<b>- Troubleshooting</b>	<b>17</b>
1.	Client Issues	17
2.	Keystore and Certificate Issues	18
3.	File Validation Issues	18

---

<b>Appendix B - Batch Summary Report</b>	<b>20</b>
<b>Appendix C - Batch Request and Response Data</b>	<b>22</b>
1. Batch Trace Request Data File Format	22
1.1 DBS Header Record - Request File	22
2. Batch Trace Response Data File Format	27
3. Actual PDS Response Data	31
4. PDS Sensitivity Flags	31
5. Returned Data Aligned to Sensitivity Markings	32
<b>Appendix D - PDS Response Codes</b>	<b>34</b>

---

# 1 Introduction

## 1.1 Purpose of Document

This user guide is intended to enable users of the Demographics Batch Service (DBS) to operate the DBS client by submitting batch trace records.

The document is aimed at DBS users, detailing the steps that are required during day to day operations of the client.

It is assumed that users of the DBS have already installed and configured the latest version of the client.

**For instructions on how to install the new DBS client, please refer to the appropriate Windows or UNIX installation guide accessible via the Demographics Batch Service website.**

## 1.2 Background

Version 2.0 of the DBS Client introduces the following new functionality:

- Client-side support and administration of email addresses;
- Improved handling for larger files.

Note: It should be noted that the smartcard requirement to facilitate email notifications has been withdrawn as this version of the DBS Client provides functionality to nominate recipient email address(s) as part of client installation process.

## 1.3 DBS Client Version

When using the DBS Client it will automatically check whether you are using the latest version of the client. If there is a more recent version available, you will receive a warning message advising you to install the latest version downloadable from the DBS homepage.

## 2 The Demographics Batch Service

### 2.1 Overview

The DBS provides a mechanism for non-Spine compliant organisations to perform batch uploading of files to the Spine service. The DBS provides a mechanism for Spine to receive and process these files as well as to communicate the success or failure of this processing to the DBS Operators via email.

DBS ensures that batch requests do not disrupt the standard operation of the Spine service.

## 3 The DBS Client

The DBS client is used by organisations to transmit files securely to Spine for processing. It can be used in one of two modes:

- Validate and Send
- Receive

### 3.1 Validate and Send

The Validate and Send function authenticates the host with the Spine system. If the batch file fails authentication or validation, then an HTML report is created and stored in a pre-configured Reports Sub Directory i.e. <DBS\_DATA\_HOME>/Reports.

Batch files that pass the checks are then transmitted to Spine2.

### 3.2 Receive

The Receive function authenticates the host with the Spine system. The client then requests that Spine sends it all of the files that are available for the given host. The files are transmitted from Spine and a confirmation is generated and stored locally in a pre-configured directory.

Note: The users can add a file name to retrieve a specific file rather than waiting for Spine to confirm all downloads are ready for retrieval.

### 3.3 Notification Emails

Once Spine has received a DBS batch file the service will send an email notification to all nominated email recipients for the appropriate organisation to advise that the file has been accepted for processing.

Once a file has been successfully sent from the DBS Client and processed by Spine an email will be sent to all nominated email recipients for the appropriate organisation.

This email indicates whether the file has been processed successfully or has failed. If the file has been processed successfully the email will contain a summary report of response codes for that file and the Operator can then download the file.

Only those administrators/users nominated during the client installation process will receive emails for an organisation. Local system administrators will have the ability to add, remove or amend emails to meet the organisation's needs, which is covered in the relevant installation document.

## 3.4 Diagnostic Logs

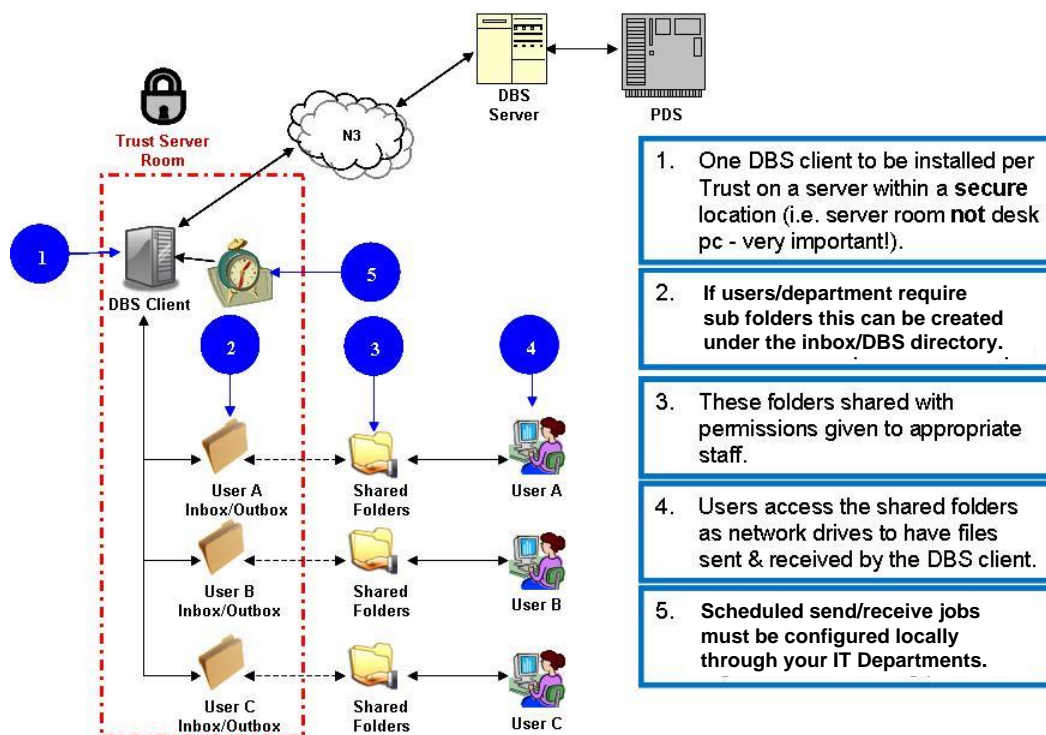
Where the transmission of the batch file fails due to authentication or connectivity issues an HTML report will be created and stored in the Reports directory.

All errors are logged in the diagnostic logs which a locally configured text editor can open. The log level can be altered, if required for issue investigation as detailed in Advanced Administration section below.



## 4 Getting Started with DBS

### 4.1 Suggested File Structure



### 4.2 Test File Submission

Once the client has been installed, configured and the network access check has been performed successfully the client can be used to transmit a DBS test file. This file can be downloaded from the Demographics/Demographics Batch Service/ DBS Installation Guidance web page.

Please refer to the following section (Application Functionality and Execution) for details on how to send and receive files via the DBS Client.

## 5 Application Functionality and Execution

Spine will process files in the sequence in which they are received.

### 5.1 Getting Batch Files Ready for Submission

Place the batch files to be submitted under the sender folders under the <DBS\_DATA\_HOME>/INBOX folder.

Note: The system will not send the file if not in a subfolder.

For example the batch files for the DBS application and user Sender001 should be placed in the <DBS\_DATA\_HOME>/INBOX/DBS/Sender001 folder. This folder would have been created during the manual folder creation procedure referenced in the Windows/Unix installation instructions. Any user with access to the application can create their own folder/subdirectory to the DBS/INBOX folder.

### 5.2 Application Execution

#### 5.2.1 Validate & Send

With the Validate & Send option, the DBS Client validates and transmits batch files from the INBOX directory (and all sub folders) to Spine. Validation failure reports are placed under the relevant Application/Sender ID folders within the <DBS\_DATA\_HOME>/REPORTS directory.

Note: If your local IT restricts access to the DBS sub-folders then you will need to be granted access to your sub-folders within Inbox, Outbox and Reports.

This section provides an example to run it manually whenever required. It functions in the same way irrespective of whether it is scheduled or manually instigated and independent of Operating System.

To manually run the DBS Client in Validate & Send mode:

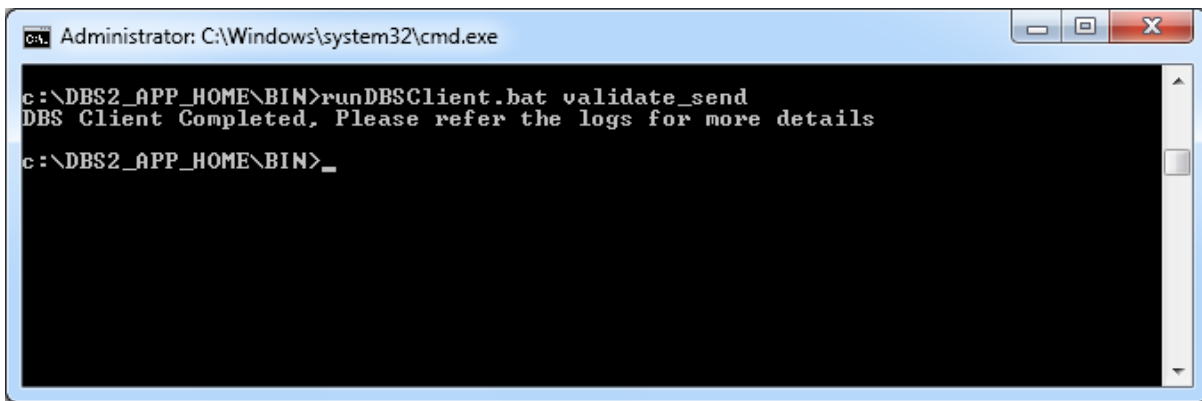
Navigate to the <DBS\_DATA\_HOME>/BIN and execute the following command at the command prompt:

Windows: `runDBSClient.bat Validate_Send`

UNIX: `./runDBSClient.sh Validate_Send`

Note: The Validate\_Send parameter is not case sensitive. It is only applicable if the user has access, as this is in the app directory that most users will not have access to.

In normal circumstances the application should exit successfully as shown in the following figure. Refer to **Appendix A – Troubleshooting** in case of failures.

A screenshot of a Windows command prompt window titled "Administrator: C:\Windows\system32\cmd.exe". The window shows the following text:

```
c:\DBS2_APP_HOME\BIN>runDBSClient.bat validate_send
DBS Client Completed, Please refer the logs for more details
c:\DBS2_APP_HOME\BIN>_
```

The Application performs the following steps in response to the above command:

The DBS Client attempts to authenticate with Spine. Authentication is retried for a set number of attempts in case of failures due to internet/other problems. The Application exits if authentication fails or is denied by Spine. Refer to the section on Log files for further details (Section **Error! Reference source not found.**)

All the batch files present under the <DBS\_DATA\_HOME>/INBOX/DBS/<your\_sub-folder> directory are processed in turn in the following steps. These steps are repeated for all applications and sender IDs.

Batch files for each subfolder are collated in alphabetical order and then recursed through all sub folders.

Each file in turn is then:

Validated – if a file fails to pass validation then it is moved to the <DBS\_DATA\_HOME>/ARCHIVE/FAILED/DBS/<SenderID> directory. Validation reports are produced in the <DBS\_DATA\_HOME>/REPORTS directory detailing the validation errors.

A successfully validated batch file is then transmitted to Spine. Submissions are retried for a set number of attempts in case of failures due to internet/other problems. If all the retry attempts are exhausted then this file is ignored and processing moves onto the next file unless the issue is due to being unable to connect to Spine in which case the Client will “fail fast”. Where the Client “fails fast” it will ignore any subsequent files in the batch and leave all files in the INBOX folder.

Batch files that are successfully transmitted are moved to the <DBS\_DATA\_HOME>/ARCHIVE/SENT/DBS/<SenderID> directory. The ones that failed to transmit remain under INBOX to be picked up after the next execution of the application.

## 5.2.2 In the case of successful interchange files for Sender001 in validate\_Send mode

The files would be moved from

<DBS\_DATA\_HOME>/INBOX/DBS/Sender001

To

<DBS\_DATA\_HOME>/ARCHIVE/SENT/DBS/Sender001

Note: Any sub-folders below the Sender001 directory would also be replicated in the equivalent OUTBOX and ARCHIVE directories.

It should also be noted that if a file already exists in the ARCHIVE folder with the same name this new file will not be moved out of the INBOX directory. It is therefore recommended to either rename the file or remove previous ones out of the archive directory before sending.

### 5.2.3 In the case of failed Interchange files for Sender001 in Validate\_Send mode

The interchanges would be moved from

<DBS\_DATA\_HOME>/INBOX/DBS/Sender001

To

<DBS\_DATA\_HOME>/ARCHIVE/FAILED/DBS/Sender001

HTML reports would be created and kept under the

<DBS\_DATA\_HOME>/REPORTS/DBS/Sender001

Note: the client treats each file independently so if there are multiple files to be submitted and the first file fails the remaining files would still be submitted to Spine in turn.

### 5.2.4 In the case of Receive mode for Sender001

The response files would be placed in

<DBS\_DATA\_HOME>/OUTBOX/DBS/Sender001

### 5.2.5 Receive

With the receive option the DBS Client requests Spine to provide a list of the files that are waiting for download. The software will download all available files; this is not visible to users. It then cycles through this list requesting Spine to transmit each file in the list.

This option should usually be scheduled to run at the required frequency. This section provides an example to run it manually whenever required. It functions in the same way irrespective of run mode (scheduled or manual) or Operating System.

Open up a command prompt and navigate to <DBS\_DATA\_HOME>/BIN and execute the following command at the prompt:

The file name is optional and can be provided to retrieve a specific file if required.

Windows: `runDBSClient.bat Receive [file name]`

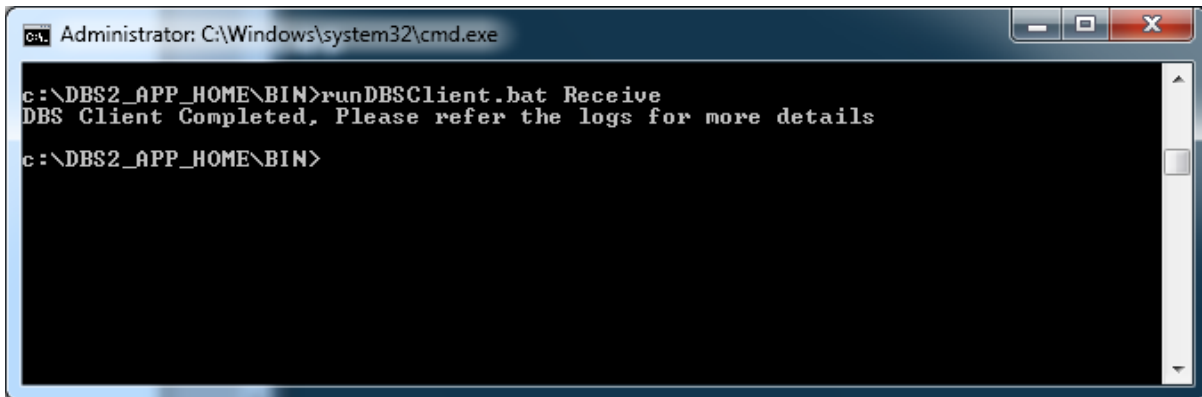
*Note: Do not include the [] brackets.*

UNIX: `./runDBSClient.sh Receive[file name]`

*Note: Do not include the [ ] brackets.*

Note the parameter “Receive” is not case sensitive.

In normal circumstances the application should exit successfully as shown in the following figure.

A screenshot of a Windows command prompt window titled "Administrator: C:\Windows\system32\cmd.exe". The window shows the following text:

```
c:\DBS2_APP_HOME\BIN>runDBSClient.bat Receive
DBS Client Completed, Please refer the logs for more details
c:\DBS2_APP_HOME\BIN>
```

Note: Larger file sizes may take longer to download.

## 5.3 Scheduling Submissions

DBS can be called by a local schedule job, if you require this functionality; this will have to be provided by your local IT department.

## 6 Best Practice

### 6.1 DBS Capacity

Processing of DBS files will be performed in the sequence they are received at Spine, with larger files being processed separately to smaller files. The processing of large files can be throttled by Spine if required. Therefore it is good practice to send small files more frequently utilising all days of the week instead of producing a weekly large file.

The transmission of duplicate files will be detected and rejected.

### 6.2 Check DBS Manually Once a Week

There is no priority when data is submitted, small batch files are normally available for collection within a few hours of being submitted, but larger files may take up to 5 days to be returned.

Checking DBS manually is good housekeeping as you are able to view all of your organisations batches. Monitoring can be performed to ensure that all batches have been downloaded.

After a file has been downloaded and the client has acknowledged receipt it is removed from the server.

## 7 Advanced Administration

### 7.1 Viewing DBS Error Reports

If a validation failure is experienced the DBS Client will generate an error report in the <DBS\_DATA\_HOME>/REPORTS folder. The filename will be of the format "Error\_Report\_<YYYYMMDDHHMISS>.html"

Typically each error report will only include the error details for a single batch file.

### 7.2 Viewing Logs

The DBS Client writes out log information to the <DBS\_APP\_HOME>/Logs directory.

These are daily rolling log files with old logs being stored with a relevant date stamp extension.

The Client will produce multiple logs – Audit, Performance and Diagnostic logs.

It should be noted that some users may not have access to these logs if it is restricted by the local system administrator.

#### 7.2.1 Configuring Log Files

The DBS Client uses the Log4J framework to produce its logs, these are configurable by editing the <DBS\_APP\_HOME>/Log4j.xml file. This should be done by the local system administrator.

The log level can be changed by updating the value attribute for priority – "info" is the default setting this can be updated to "debug" to provide further information – this is not recommended as it will produce large log files and should be reset to "info" as soon as possible.

### 7.3 Automated Tracking

Since the DBS Client is intended to be executed via a scheduler, some mechanism of detecting failures and alerting the administrators may be required. The DBS Client provides the following information in case of failure. Use this to create your own administration tools.

1. 'runDBSClient.bat' returns 0 (zero) in case of successful execution; any other value indicates a failure. Any scheduler should be configured to send an application failure alert if the return status is non-zero.
2. Upon interchange validation failure, the failed interchange is moved to <DBS\_DATA\_HOME>/ARCHIVE/FAILED directory. Poll this directory periodically to raise interchange validation failure alerts.
3. The diagnostic log file contains details of all errors. Search for the pattern "|ERROR|" in this file, if this string exists then this indicates a failure has occurred. This can be

particularly useful to detect failures that would not have been identified in the preceding steps.

Once a failure has been detected the exact nature of the issue can be determined using: DBS Error Reports, Diagnostic Logs or Audit Logs

## **7.4 Archiving**

It is the administrator's responsibility to set up the necessary procedures to archive processed interchanges, validation reports and logs.



# Appendix A - Troubleshooting

## 1. Client Version Issues

The DBS server maintains the current and minimum version numbers for the DBS Client being used. The following criteria are applied when a file is transferred and the DBS Client number is checked:

- If the client being used is not the latest but more than the minimum version allowed, the batch will be processed but no email notification will be generated;
- If the client being used is older than the minimum version defined on the server, the batch will not be processed and an error message will be generated.

“Your file <filename> has been rejected by DBS for batch tracing.\nThis was due to the following error that was detected: Client validation failed for the \nfile <filename>. It is necessary to upgrade by downloading the latest version from <DBS URL>.”

In order to avoid any issues when using DBS, the recommendation is to always use the latest version of the client.

## 2. Client Issues

If an issue is experienced then the output of the Client can be used to perform initial diagnosis of the problem.

There are a number of self-assessment steps that can be performed to resolve most issues, these are outlined below:

In the following examples the client directory is <DBS\_DATA\_HOME>.

Confirm that the file to be sent was placed in the <DBS\_DATA\_HOME>/INBOX/DBS/<sender folder> only files within this directory or its sub-directories will be sent.

Check the <DBS\_DATA\_HOME>/ARCHIVE/SENT folder if the file was sent successfully then it will have been transferred to this folder i.e. in the same folder name it was sent from.

Check the <DBS\_DATA\_HOME>/ARCHIVE/FAILED folder, if the file failed to send it will have been transferred to this directory i.e. in the same folder name it was sent from.

Check the <DBS\_DATA\_HOME>/REPORTS directory – a report related to the sent file will be available.

Check the email inbox for your organisation for any email notifications from Spine for this file.

If this is not sufficient to resolve your issue then contact your local system administrator in the first instance. If they are unable to resolve the issue then it will be necessary to contact the National Service Desk.

The following steps can be undertaken to provide further information to assist in the diagnosis of issues.

When contacting the National Service Desk please provide the following information about the issue:

- 1) Any error messages displayed
- 2) The file name that was uploaded
- 3) The sequence ID from the uploaded file
- 4) The time that the file was sent.
- 5) If possible please provide the file that was sent to aid in investigation.  
Note. This file must be sent via a secure email as it is likely to contain patient identifiable data.

### 3. Keystore and Certificate Issues

- The keystore should not be changed as this is generated while associating the certificates with your DBS Client installation.
- Once the Client signed certificate has expired it will be necessary to delete the certificate and make a new request for the signed certificate and repeat the association of the new certificate with the DBS Client.
- The keystore is specific to the machine it was installed on and cannot be used anywhere other than the machine it was originally installed on. Note, if using virtual machines please make sure that the MAC address does not change.

***As previously indicated keep the keystore directory.***

***It is recommended that you take and store copy the keystore to another location and then copy back after the new installation/upgrade is complete.***

### 4. File Validation Issues

If you experience issues with batch files then the file may have failed validation. The following validation messages may be returned if the File Header is invalid.

(Note: The {0} are placeholders for the value which has been extracted from the incoming file).

- 'Expected header record Type is 00 and encountered as {0}'
- 'Expected file format is 0 or 1 and encountered as {0}'
- 'Missing Requesting Organisation Code'
- 'Missing File Sequence Number'
- 'Sequence Number must be a valid integer, encountered as {0}'
- 'Missing Record Count'
- 'Record Count must be a valid integer, encountered as {0}'

Descriptive Text:

These sentences will appear within the Rejection email. The body of the email will be as follows ({0} == file name & {1} == error message):

Your file {0} has been rejected by DBS for batch tracing.\

'This was due to the following error that was detected: Header validation for the '\  
'file {0} failed. {1}.

## Appendix B - Batch Summary Report

The following report will be included in the email that notifies DBS Operators that the batch file has been processed and is ready for collection.

Demographics Batch Service

=====

Customer Reference: 532945652147

Sequence No: 00000550

Batch Response File Name: NHS101-  
X0920080807125044002\_response.txt

User Name: DBS001

DBS Run Date: THURSDAY 7th AUG 2008 12:47

Stated Number of Records: 1489

Actual Number of Records: 1489

Match Results:	Number	%
-----	-----	-

Single Match:

=====

Type 20	0	0
Type 24	0	0
Type 26	0	0
Type 30	669	44.93
Type 33	0	0
Type 36	0	0
Type 39	0	0
Type 40	0	0
Type 44	0	0
Type 45	0	0
Type 50	0	0
Type 53	0	0
Type 54	0	0

Type 55	0	0
Type 56	0	0
Type 57	0	0

Total single match: 669 44.93

Multiple Match:

=====

Type 22	0	0
Type 32	0	0
Type 35	0	0
Type 42	0	0

Total multiple match: 0 0

No Match:

=====

Type 21	0	0
Type 31	0	0
Type 34	0	0
Type 41	0	0

Total no match: 0 0

Other:

=====

Type 80	0	0
Type 81	820	55.07
Type 82	0	0

Total Other: 820 55.07

\*\*\*\*\* End of Report \*\*\*\*\*

# Appendix C - Batch Request and Response Data

## 1. Batch Trace Request Data File Format

This section provides details of batch header, request file and trailer and that information that will be required when submitting files to the DBS.

Note: The DBS will accept either comma separated value (CSV) or fixed length file formats.

### 1.1 DBS Header Record - Request File

Batch Header Record				Information Required?	
Field	Format	Values	Descriptor	Yes	No
* Record Type	N(2)	0	Denotes a header record	✓	
* File Type	N(1)	0 = request	Denotes either a request or response file	✓	
		1 = response		✓	
* File Version	N(3)	001, 101 or 201	001 signals no address & GP data to be returned	✓	
			101 signals return of extra trace data (person address & registered GP)	✓	
			201 signals return of extra trace data (person address & registered GP) and additional Response Codes	✓	
* File Format	N(1)	0: Fixed Length	Denotes format of original input file	✓	
		1: CSV		✓	
* Requesting Organisation Code	X(14)	Valid organisation codes	Supplied by organisation sending the request	✓	
* Tracing Service Code	X(14)	DBS	Supplied by organisation sending the request – must equal DBS	✓	
* File Preparation: Time and Date	X(14)	HHMMSSYY YYMMDD	Date and time the file was prepared	✓	
* File Sequence Number	N(8)	00000001-99,999,999	Number of the batch sent by the Organisation	✓	
* Number of Request Records	N(6)	000001-999,999	Number of trace request records between header and trailer	✓	

Key: \* = Mandatory

Note: File Version 301 and 401 are not supported by the PDS/DBS

## 1.2 DBS Trace Request File Content

Batch Request File Content				Information Required?	
Field	Format	Values	Comments	Yes	No
* Record Type	N(2)	10	Value required in the request file as the DBS will validate this prior to submission to the PDS, any variance on this value and the file will be rejected.	✓	
* Local PID	X(20)		End User's Patient Identifier Not used by the PDS, returned if provided.		✓
* Date of Birth	N(8)	YYYYMMDD	Occurs 1 time - must be present in YYYYMMDD format. No time element i.e. hhmmss	✓	
Date of Death	N(8)	YYYYMMDD	Occurs 0 or 1 time YYYYMMDD format - a specific convention is in place to allow the user to fill in blanks.	✓	
[*] Old NHS Number	X(17)		Occurs 0 or 1 time Where both Old and New numbers are included ONLY use New NHS Number. Note: All types of NHS number are supported but Cross Check Trace will only be invoked where a new style NHS number is present.	✓	
[*] New NHS Number	N(10)		NHS number of patient should be populated if available. All types of NHS number are supported but Cross Check Trace will only be invoked where a new style NHS number is present. Note: Must be populated with New NHS Number if either Gender Code or Person Name not present.	✓	
* Surname	X(35)		Occurs 0 or 1 time <b>Should be populated if available.</b> Must be populated if Person ID (New NHS Number) not present.	✓	
Previous/Alternative Surname	X(35)		Previous / Alternative Surname [Data can be submitted but the PDS will not use this for tracing as it is not supported by the PDS trace algorithm].		x

Batch Request File Content				Information Required?	
Field	Format	Values	Comments	Yes	No
* First Forename	X(35)		Occurs 0 or 1 time Must be populated if Person ID (New NHS Number) not present.	✓	
Alternative Forename	X(35)		Alternative Forename [Data can be submitted but the PDS will not use this for tracing as it is not supported by the PDS trace algorithm].		×
Sex	X(1)	0,1,2,9	Not known, male, female, not specified Occurs 0 or 1 time 0, 1, 2, 9. Must be populated if Person ID (New NHS Number) not present.	✓	
Address Line 1	X(35)		Occurs 0 or 1 time streetAddressLine (first part) <b>Do Not Include</b>		×
Address Line 2	X(35)		Occurs 0 or 1 time streetAddressLine (second part) <b>Do Not Include</b>		×
Address Line 3	X(35)		Occurs 0 or 1 time streetAddressLine (third part) <b>Do Not Include</b>		×
Address Line 4	X(35)		Occurs 0 or 1 time streetAddressLine (fourth part) <b>Do Not Include</b>		×
Address Line 5	X(35)		Occurs 0 or 1 time streetAddressLine (fifth part) <b>Do Not Include</b>		×
[*] Postcode	X(8)		Occurs 0 or 1 time postalCode This must be sent if available. Outbound postcodes are acceptable on their own if a wildcard is supplied. <b>Note: The postcode MUST have a single space between the two components.</b>	✓	
Previous Address Line 1	X(35)		Previous Address Line 1 details [Data can be submitted but the PDS will not use this for tracing as it is not supported by the PDS trace algorithm].		×
Previous Address Line 2	X(35)		Previous Address Line 2 details See comment at: Previous Address Line 1		×



Batch Request File Content				Information Required?	
Field	Format	Values	Comments	Yes	No
Previous Address Line 3	X(35)		Previous Address Line 3 details See comment at: Previous Address Line 1		x
Previous Address Line 4	X(35)		Previous Address Line 4 details See comment at: Previous Address Line 1		x
Previous Address Line 5	X(35)		Previous Address Line 5 details See comment at: Previous Address Line 1		x
Previous Postcode	X(8)		Previous Postcode See comment at: Previous Address Line 1		x
Registered GP	X(8)		Occurs 0 or 1 time. A Patient's registered GP (National code) Note: PDS does not hold Registered GP (in line with the GMS Contract). <b>Do Not Include</b>		x
Registered GP Practice	X(6)		Occurs 0 or 1 time. Id GP Practice Code. <b>Do Not Include</b>		x
Previous Registered GP	X(8)		Previous Registered GP details [Data can be submitted but the PDS will not use this for tracing as it is not supported by the PDS trace algorithm].		x
Previous Registered GP Practice	X(6)		Previous Registered GP details [Data can be submitted but the PDS will not use this for tracing as it is not supported by the PDS trace algorithm].		x

### 1.3 DBS Trailer Record - Request File

Batch Trailer Record				Information Required?	
Field	Format	Values	Comments	Yes	No
* Record Type	N(2)	99	Denotes trailer record	✓	
* File Type	N(1)	0: request	Denotes trace request or response file	✓	
		1: response		✓	
* File Version	N(3)	001, 101 or 201	Version Number for file type, same as in header record	✓	
* Requesting Organisation Code	X(14)	Valid organisation code	Supplied by organisation sending the request	✓	
* Tracing Service	X(14)		As supplied in the Header	✓	
* File preparation time/date	N(14)	HHMMSSYY YYMMDD		✓	
* File Sequence Number	N(8)	N(8) 00000001- 99,999,999	Number of the Batch sent by the Organisation	✓	
* No. of Request/Response Records	N(6)	N(6) 000001- 999,999	Number of either request or response records between header and trailer	✓	

Key: \* = Mandatory

Note: File Version 301 and 401 are not supported by the PDS/DBS

## 2. Batch Trace Response Data File Format

The following tables detail the information that will be contained in the response files from the DBS. Where specific data items cannot be supported, these are clearly indicated.

### 2.1 Batch Trace File - Response Content

Batch Trailer Record				Information Returned?	
Field	Format	Values	Comments	Yes	No
* Record Type	N(2)	20, 21, 22, 30, 31, 32, 33, 40, 80 or 81	Indicates the type of trace response (see PDS Response Codes for full description)	✓	
* Local PID	X(20)		As provided in the request. End User's Patient Identifier - not part of trace data	✓	
No of Multiple Matches	N(3)		Either 0 or 1 Total number of matches found for the request	✓	
Trace Result new NHS Number	N(10)		New NHS Number provided by NSTS	✓	
Date of Birth	N(8)	YYYYMMDD	As provided in the request	✓	
Date of Death	N(8)	YYYYMMDD	As provided in the request	✓	
Old NHS Number	X(17)		As provided in the request	✓	
New NHS Number	N(10)		As provided in the request	✓	
Surname	X(35)		As provided in the request	✓	
Previous/ Alternative Surname	X(35)		As provided in the request, if supplied	✓	
Forename	X(35)		As provided in the request	✓	
Previous/ Alternative Forename	X(35)		As provided in the request, if supplied	✓	
Sex	X(1)	0,1,2,9	As provided in the request	✓	
Address Line 1	X(35)		Value not returned as it was not submitted in the request.		x
Address Line 2	X(35)		Value not returned as it was not submitted in the request.		x
Address Line 3	X(35)		Value not returned as it was not submitted in the request.		x
Address Line 4	X(35)		Value not returned as it was not submitted in the request.		x
Address Line 5	X(35)		Value not returned as it was not submitted in the request.		x

Batch Trailer Record				Information Returned?	
Field	Format	Values	Comments	Yes	No
Postcode	X(8)		As provided in the request	✓	
Previous Address Line 1	X(35)		As provided in the request, if supplied	✓	
Previous Address Line 2	X(35)		As provided in the request, if supplied	✓	
Previous Address Line 3	X(35)		As provided in the request, if supplied	✓	
Previous Address Line 4	X(35)		As provided in the request, if supplied	✓	
Previous Address Line 5	X(35)		As provided in the request, if supplied	✓	
Previous Postcode	X(8)		As provided in the request, if supplied	✓	
Registered GP	X(8)		Value not returned as it was not submitted in the request.		x
Registered GP Practice	X(6)		Value not returned as it was not submitted in the request.		x
Previous Registered GP	X(8)		As provided in the request, if supplied	✓	
Previous Registered GP Practice	X(6)		As provided in the request, if supplied	✓	

Key: \* =Mandatory

## 2.2 Batch Trace File - Response Content (Additional Information)

Batch Trailer Record				Information Returned?	
Field	Format	Values	Comments	Yes	No
Returned Date Of Birth	N(8)	yyyymmdd		✓	
Date field last modified	N(8)	yyyymmdd	The date when the preceding field was last updated		x
Returned current Central Register posting	N(3)	Org Code or X or D	Either a: Valid Organisation Code or X (Exit) or D (Dead)	✓	
Date field last modified	N(8)	yyyymmdd	The date when the preceding field was last updated		x
Return date of current posting (or death, if dead)	N(8)	yyyymmdd		✓	
Date field last modified	N(8)	yyyymmdd	The date when the preceding field was last updated		x
Returned surname	AN(35)			✓	
Date field last modified	N(8)	yyyymmdd	The date when the preceding field was last updated		x
Returned first forename	AN(35)			✓	
Date field last modified	N(8)	yyyymmdd	The date when the preceding field was last updated		x
Returned alternative or previous surname	AN(35)			✓	
Date field last modified	N(8)	yyyymmdd	The date when the preceding field was last updated		x
Returned other forename(s)	AN(35)		Other Forename(s) and/or initials	✓	
Date field last modified	N(8)	yyyymmdd	The date when the preceding field was last updated		x
Returned sex	N(1)	0, 1, 2, 9		✓	
Date field last modified	N(8)	yyyymmdd	The date when the preceding field was last updated		x
Returned address line 1	AN(35)		Current detail only Populated address lines are only returned if request File Version = 101 or 201 in Batch Header Record	✓	
Date field last modified	N(8)	yyyymmdd	The date when the preceding field was last updated		x
Returned address line 2	AN(35)		See comment at address line 1	✓	
Date field last modified	N(8)	yyyymmdd	The date when the preceding field was last updated		x

Batch Trailer Record				Information Returned?	
Field	Format	Values	Comments	Yes	No
Returned address line 3	AN(35)		See comment at address line 1	✓	
Date field last modified	N(8)	yyyymmdd	The date when the preceding field was last updated		x
Returned address line 4	AN(35)		See comment at address line 1	✓	
Date field last modified	N(8)	yyyymmdd	The date when the preceding field was last updated		x
Returned address line 5	AN(35)		See comment at address line 1	✓	
Date field last modified	N(8)	yyyymmdd	The date when the preceding field was last updated		x
Returned postcode	AN(8)		See comment at address line 1	✓	
Date field last modified	N(8)	yyyymmdd	The date when the preceding field was last updated		x
Returned current registered GP	AN(8)	Valid GP codes	No value returned, as this data is not held on PDS.		x
Date field last modified	N(8)	yyyymmdd	The date when the preceding field was last updated		x
Returned current registered GP practice	AN(6)	Valid GP practice codes	Current detail only Current registered GP practice is only returned if request File Version = 101 or 201 in Batch Header Record	✓	
Date field last modified	N(8)	yyyymmdd	The date when the preceding field was last updated		x
Date Of Birth Source	AN(5)	Valid Organisation Code (NHSCR or Cipher)	No value returned		x

### 3. Actual PDS Response Data

The following table details the specific response data for the appropriate response codes, else a trace error response will be returned and the user will have to perform a manual PDS on-line trace or re-submit records for a further batch trace with more information.

The information returned will be dependent on the Information Sensitivity Indicator used to specify any sensitivity or data suppression conditions that may apply to a patient record.

Furthermore, as part of the data quality on the PDS, the PDS has a record merge facility to assign one NHS Number where it is identified that one or more NHS Number may exist for the same patient. What this means to the end user is that a Trust will submit one NHS Number in the batch trace file but are returned with a different number. In these instances an appropriate response code is returned [Code 40].

### 4. PDS Sensitivity Flags

The following table contains information of the three values for the Information Sensitivity Indicator supported by the PDS:

Code	Description
<b>N</b>	<p><b>Not flagged</b></p> <p>This is the default value and indicates that the record does not have any flagged record or data suppression restrictions.</p> <p>The 'N' value for the Information Sensitivity Indicator is not returned in the trace or the retrieve response.</p>
<b>I</b>	<p><b>Invalid (Logically Deleted)</b></p> <p>This is used to denote a record that has been logically deleted from the PDS i.e. it has been marked as deleted on the database but has not been physically removed. Records may be logically deleted for a number of reasons, including change of identity (e.g. adoptions, witness protection schemes), the resolution of badly confused records or the removal of records created in error.</p> <p>PDS excludes 'I' type records from being traced or retrieved hence are not returned in the trace or retrieve response.</p>
<b>S</b>	<p><b>Sensitive</b></p> <p>A value of 'S' signifies that the record is a flagged record and the PDS will not return any information relating to the geographic location of the patient, e.g. address, contact details. Other details, such as the patient's name, gender and date of birth will be returned.</p>

## 5. Returned Data Aligned to Sensitivity Markings

The following section contains the level of information returned based on the Information Sensitivity Indicator.

DBS Response Codes	Response Data NHS Number X-Check with no Sensitivity Data Filtering
30 or 40	NHS Number (and associated NHS Number Type) Name Data (Name Type, Family Name, Given Name, Other Given Name, Title and Suffix, and Business Effective Dates for name types Main Registered, Preferred and Alias/Also Known As) Gender Date and Time of Birth Birth Order Date and Time of Death Death Notification Status Suppress Data Indicator (if not equal to 'N') Previous NHS Contact GP Registration (Patient Cares of Patient Care Type 1, Patient Care Type and Patient Care Code, Patient Care Provision Id, and Business Effective Dates) Address Data (Address Type, Address Lines 1-5, Postcode, PAF Key, and Business Effective Dates) Telecom Data (Telecom Type, Telecom Address and Business Effective Dates)

DBS Response Codes	Response Data NHS Number X-Check where Information Sensitivity Indicator = 'S'
30 or 40	NHS Number (and associated NHS Number Type) Name Data (Name Type, Family Name, Given Name, Other Given Name, Title and Suffix, and Business Effective Dates for name types Main Registered, Preferred and Alias/Also Known As) Gender Date and Time of Birth Birth Order Date and Time of Death Death Notification Status Suppress Data Indicator (if not equal to 'N') Previous NHS Contact



DBS Response Code	Response Advance Trace (Alphanumeric) where Information Sensitivity Indicator = 'N'
20 or 33	NHS Number, NHS Number Type Name Data Type Family Name, Given Name, Other Given Name Title Suffix Business Effective Dates System Effective Dates(only returned where historical data is included in the response) Transaction Source Gender Date and Time of Birth Date and Time of Death Birth Order Death Notification Status Patient Care Data (Type (Only Type 1 – Primary Care is returned), Provider Code, Business Effective Dates, System Effective Dates(only returned where historical data is included in the response), Transaction Source, Address Data (Type, Line 1, Line 2, Line 3, Line 4, Line 5,Postcode, PAF Key, Business Effective Dates, System Effective Dates(only returned where historical data is included in the response), Transaction Source) Telecom Data (Type, Address, Business Effective Dates, System Effective Dates (only returned where historical data is included in the response),Transaction Source) Previous NHS Contact, Place of Birth (DSA Only)

## Appendix D - PDS Response Codes

The following table details the trace result codes that are returned by the DBS.

Code	NHS Number Supplied?	Trace Results	Data Returned
20	N	Successful Single exact match (Alphanumeric Trace)	Traced details
21	N	No match (Alphanumeric Trace)	Nothing
22	N	Multiple match (Alphanumeric Trace)	Nothing
30	Y	Successful NHS Number found & verified using cross-check.	Traced details
31	Y	Failed cross check. Alphanumeric trace initiated. NHS number not found & no match	Nothing
32	Y	Failed cross check. Alphanumeric trace initiated. NHS numbers not returned as multiple matches found.	Nothing
33	Y	Successful Failed cross check. Alphanumeric trace initiated. Single exact match	Traced details. May return a different NHS Number
40	Y	NHS number not valid but replacement traced & verified	Traced details and replacement NHS number
80	N/A	Invalid record type in request	Nothing
81	N/A	Insufficient data to perform search	Nothing

