

114990 POS PERSON PERFORMANCE AND SECURITY

1 INTRODUCTION

Apparel21 have made major adjustments to the storage of retail customer (person) information in the POS database. The objective of these changes is to increase performance when there are many retail customers (allow businesses to scale – e.g. 5 million people) as well as to protect the privacy of the retail customers themselves. In summary, the changes are:

1. Protect customer data – reduce risk of data breach
 - a. Customer address not stored in local POS database any more
 - b. Phone numbers and email addresses encrypted so if database stolen, information is secured
2. Performance - Make it faster to get a store up and running and to search for customers
 - a. Flatten customer data at store so faster to write into the database
 - b. Head office to POS communications – split out customer data into separate smaller files so POS database doesn't error for a full export where lots of retail customers
 - c. POS start up – allow store to start trading whilst waiting for some voucher, order and customer data to trickle down over time
 - d. Add a person search window so search / edit / sign up person user experience is less confusing

Most of these changes are hidden to the store and head office team. However, the screens for searching for customers in store have changed and there are some new behaviours required when the internet connection is down since the POS system was opened. In this case, the store team will not be able to see customer emails and phone numbers unless they type in a special password that is used to decrypt the data.

2 BENEFITS

- ✓ Apparel21 POS can scale to handle stores with millions of customers
- ✓ Improved customer data security – Reduce the risk of data breach

3 ASSUMPTIONS/LIMITATIONS

- Person data still stored at POS, just reduced level of information that is not encrypted. Only identifiable data not encrypted is first name, surname, suburb.
- When a customer signs up in store whilst the head office connection is down, their data continues to be stored in the POS database unencrypted. This is stored temporarily and is cleared off once it has been successfully communicated to the head office system.

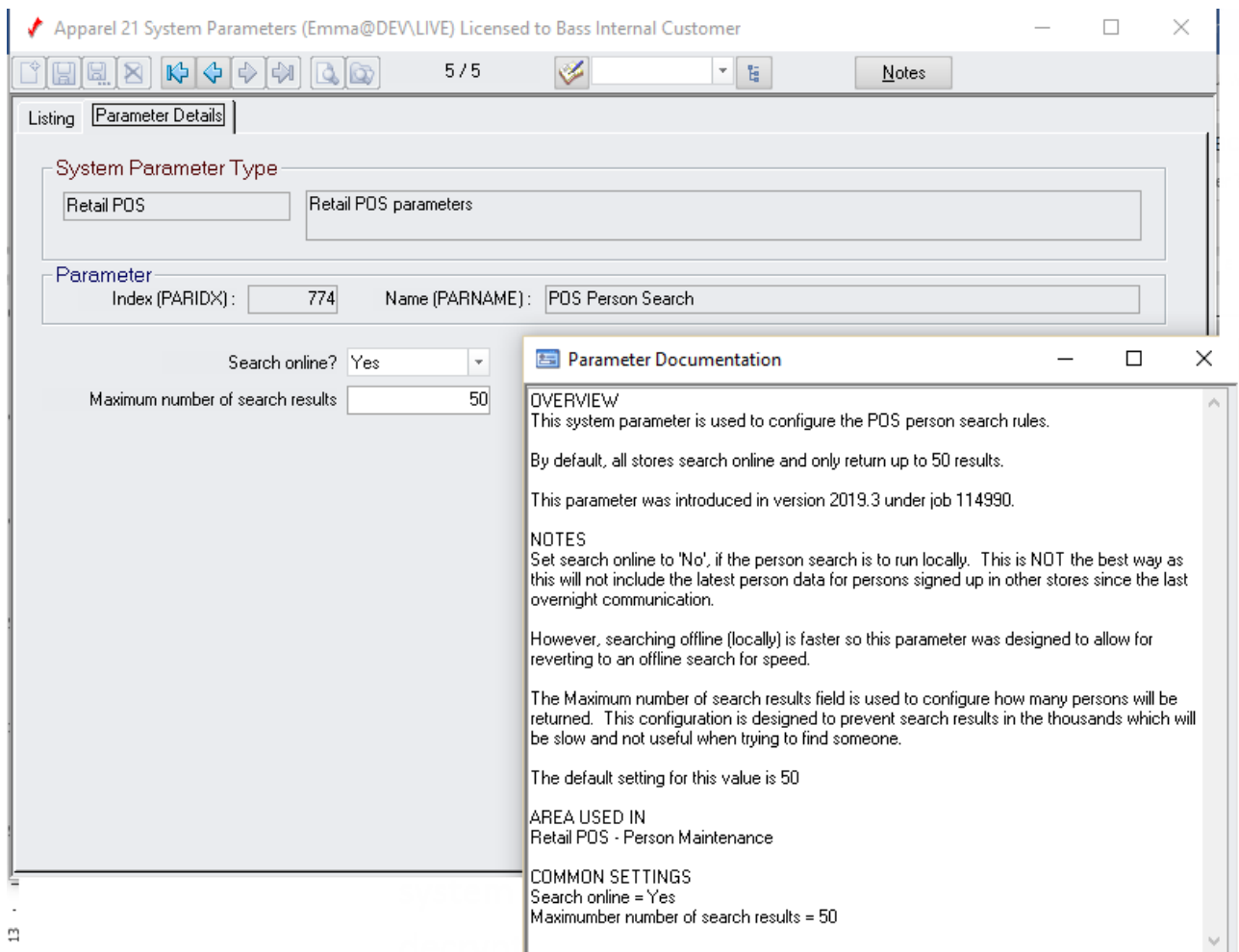
4 SETUP

There is no specific set up that needs to be actioned immediately for this project. As soon as the upgrade occurs and the stores are also upgraded, the retail customer data will be converted to the new structure in the POS database.

4.1 SYSTEM PARAMETERS

A new system parameter has been created for this project. The parameter settings are automatically configured on installation so should not need to be adjusted.

The purpose of the parameter is to provide a fallback option where the new online customer search behaviour for all stores is too slow or the 50 customer search results limit is too great or too few.



4.2 POS PERSON SEARCH – MAKING A QUICK CHANGE / SETTINGS.PROPERTIES

Where a variable rule is required at a store level for the online search / local search for persons or the maximum number of results to return, exceptions can be configured in the *settings.properties* file. This is a text file that is installed in the ...\\Program Files\\Apparel21\\Apparel21 POS\\ directory for each POS terminal.

The *settings.properties.example* file can be used as a base to create this file copy.

The properties for this feature are noted as per below.

```
# Setting to force the person search to be online[true] or offline[false].  
# This setting can override system parameter 774 (POS Person Search)  
person_search_online=false
```

```
#
# Set the maximum number of records that can be returned from a person search before forcing
the system to search locally.
# Must be greater than 0.
# This setting can override system parameter 774 (POS Person Search)
person_search_max_rows=20
```

4.3 WORKGROUP SECURITY

There is one new workgroup security entry created for this project. This is designed to be set for the system administrator to indicate whether they can view and update the store password that is used for decrypting the email and phone numbers in store when the store is offline.

R	A	E	D	Application Name	
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	Retail	U
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	Retail POS	U
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	Sales Orders	
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	Scheduler	
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	Stock Enquiry	
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	Stock Functions	
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	Stocktake Application	
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	Supplier Managed Replenishment	U
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	Suppliers Application	
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Warehouse Management	U

R	A	E	D	Form Name	
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Person Maintenance at POS	
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	Quick Receipts	
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Read/Edit POS Offline Password	
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	Receipt All / Send All Buttons	
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	Receipt items not on purchase order	

5 DESCRIPTION / USAGE

5.4 HEAD OFFICE TO STORE COMMUNICATIONS

When setting up a new store or recovering an existing POS with a full export, it is no longer a requirement for the FULL data to be completely imported before the store can start trading. The export of data to the stores is now broken up into separate files. Only the “core” data must be imported before trading can commence.

This change means that stores can be up and running quickly, even when there are millions of retail customers that need to be communicated to the stores. It is no longer a requirement for that full data to be imported into the database before commencing trading.

The splits are:

- Core
- Gift vouchers / credit notes
- Outstanding orders
- Person (retail customers)

The *POS Monitor* screen shows the different file details.

POS Monitor (BASS@intl.DOC) Licensed to Bass Internal Customer

File Edit View Utilities Help

Stores Details

Set Offline Password Refresh Utilities

Store Code	Store Name	Store No	Last Docket Number	Last Layby Number	Last Transfer Number	Last Special Order Number	Offline Password	Previous Offline Password
MELB	Melbourne	003	2495	29	29	46	GRZAKZBU81KU	

File exports split to support larger scale data

Export File	Generated	Size	Export Type	Exported	Creator
S003_export_person_2683093.zip	07/10/2019 6:24:20 PM	34 KB	Full		BASS
S003_export_outstanding_orders_2683092.zip	07/10/2019 6:24:19 PM	602 B	Full		BASS
S003_export_voucher_2683091.zip	07/10/2019 6:24:19 PM	16 KB	Full		BASS
S003_export_core_2683090.zip	07/10/2019 6:24:18 PM	670 KB	Full		BASS
S003_export_outstanding_orders_2683043.zip	07/10/2019 9:46:44 AM	600 B	Partial	07/10/2019 9:46:48 AM	BASS
S003_export_core_2683035.zip	07/10/2019 9:46:44 AM	41 KB	Partial	07/10/2019 9:46:48 AM	BASS
S003_export_person_2683027.zip	07/10/2019 9:20:36 AM	1 KB	Partial	07/10/2019 9:23:23 AM	BASS
S003_export_outstanding_orders_2683019.zip	07/10/2019 9:20:35 AM	600 B	Partial	07/10/2019 9:23:22 AM	BASS
S003_export_core_2683011.zip	07/10/2019 9:20:32 AM	305 KB	Partial	07/10/2019 9:23:22 AM	BASS
S003_export_outstanding_orders_2682990.zip	02/10/2019 4:53:11 PM	602 B	WEB Cust Orders	02/10/2019 4:53:22 PM	SYS
S003_export_outstanding_orders_2682903.zip	30/09/2019 4:23:59 PM	620 B	Partial	30/09/2019 4:24:09 PM	BASS
S003_export_core_2682895.zip	30/09/2019 4:23:59 PM	40 KB	Partial	30/09/2019 4:24:08 PM	BASS
S003_export_person_2682887.zip	30/09/2019 4:23:05 PM	486 B	Partial	30/09/2019 4:23:26 PM	BASS
S003_export_outstanding_orders_2682879.zip	30/09/2019 4:23:05 PM	620 B	Partial	30/09/2019 4:23:26 PM	BASS
S003_export_core_2682871.zip	30/09/2019 4:23:04 PM	40 KB	Partial	30/09/2019 4:23:26 PM	BASS
S003_export_person_2682863.zip	30/09/2019 4:21:05 PM	486 B	Partial	30/09/2019 4:21:23 PM	BASS
S003_export_core_2682847.zip	30/09/2019 4:21:04 PM	40 KB	Partial	30/09/2019 4:21:23 PM	BASS
S003_export_outstanding_orders_2682855.zip	30/09/2019 4:21:04 PM	620 B	Partial	30/09/2019 4:21:23 PM	BASS
S003_export_person_2682839.zip	30/09/2019 4:03:40 PM	486 B	Partial	30/09/2019 4:03:58 PM	BASS
S003_export_outstanding_orders_2682831.zip	30/09/2019 4:03:40 PM	620 B	Partial	30/09/2019 4:03:57 PM	BASS
S003_export_core_2682823.zip	30/09/2019 4:03:39 PM	40 KB	Partial	30/09/2019 4:03:57 PM	BASS
S003_export_person_2682815.zip	30/09/2019 4:01:05 PM	480 B	Partial	30/09/2019 4:01:14 PM	BASS
S003_export_outstanding_orders_2682807.zip	30/09/2019 4:01:04 PM	620 B	Partial	30/09/2019 4:01:14 PM	BASS
S003_export_core_2682799.zip	30/09/2019 4:01:03 PM	40 KB	Partial	30/09/2019 4:01:14 PM	BASS
S003_export_core_2682783.zip	30/09/2019 3:24:39 PM	40 KB	Partial	30/09/2019 3:24:43 PM	BASS
S003_export_outstanding_orders_2682791.zip	30/09/2019 3:24:38 PM	620 B	Partial	30/09/2019 3:24:44 PM	BASS
S003_export_outstanding_orders_2682775.zip	30/09/2019 3:22:38 PM	620 B	Partial	30/09/2019 3:23:00 PM	BASS
S003_export_core_2682767.zip	30/09/2019 3:22:38 PM	40 KB	Partial	30/09/2019 3:23:00 PM	BASS
S003_export_outstanding_orders_2682759.zip	30/09/2019 3:22:17 PM	620 B	Partial	30/09/2019 3:22:38 PM	BASS
S003_export_core_2682751.zip	30/09/2019 3:22:16 PM	40 KB	Partial	30/09/2019 3:22:38 PM	BASS
S003_export_outstanding_orders_2682743.zip	30/09/2019 3:19:02 PM	620 B	Partial	30/09/2019 3:19:15 PM	BASS
S003_export_core_2682735.zip	30/09/2019 3:19:01 PM	40 KB	Partial	30/09/2019 3:19:15 PM	BASS
S003_export_outstanding_orders_2682719.zip	30/09/2019 3:10:18 PM	620 B	Partial	30/09/2019 3:10:31 PM	BASS
S003_export_person_2682727.zip	30/09/2019 3:10:18 PM	1 KB	Partial	30/09/2019 3:10:31 PM	BASS
S003_export_core_2682711.zip	30/09/2019 3:10:15 PM	280 KB	Partial	30/09/2019 3:10:30 PM	BASS
S003 export outstando orders 2682683.zip	25/09/2019 1:46:25 PM	618 B	Partial	30/09/2019 2:23:23 PM	BASS

Import File	Received	Size	Processed	Status
T_003_1916_ret_trans.zip	07/10/2019 11:10:32 AM	1 KB	07/10/2019 11:10:54 AM	Processed
T_003_1915_ret_trans.zip	07/10/2019 11:10:12 AM	1 KB	07/10/2019 11:10:54 AM	Processed
T_003_1914_ret_trans.zip	07/10/2019 10:11:28 AM	1 KB	07/10/2019 10:12:11 AM	Processed
T_003_1913_ret_trans.zip	07/10/2019 10:07:25 AM	1 KB	07/10/2019 10:07:45 AM	Processed
T_003_1912_ret_trans.zip	02/10/2019 1:09:16 PM	1 KB	02/10/2019 1:09:55 PM	Processed
T_003_1911_ret_trans.zip	02/10/2019 1:06:55 PM	1 KB	02/10/2019 1:07:36 PM	Processed
T_003_1910_ret_trans.zip	01/10/2019 6:23:59 PM	1 KB	01/10/2019 6:24:13 PM	Processed
T_003_1909_ret_trans.zip	01/10/2019 6:23:38 PM	1 KB	01/10/2019 6:24:13 PM	Processed
T_003_1908_ret_trans.zip	01/10/2019 10:12:44 AM	1 KB	01/10/2019 10:13:25 AM	Processed
T_003_1907_ret_trans.zip	30/09/2019 2:33:09 PM	1 KB	30/09/2019 2:37:44 PM	Processed
T_003_1906_ret_trans.zip	30/09/2019 2:28:48 PM	1 KB	30/09/2019 2:29:26 PM	Processed
T_003_1905_ret_trans.zip	18/09/2019 4:21:55 PM	1 KB	18/09/2019 4:22:32 PM	Processed
T_003_1904_ret_trans.zip	18/09/2019 4:13:13 PM	1 KB	18/09/2019 4:14:01 PM	Processed
T_003_1903_ret_trans.zip	18/09/2019 3:49:50 PM	1 KB	18/09/2019 3:50:27 PM	Processed
T_003_1902_ret_trans.zip	18/09/2019 2:18:26 PM	1 KB	18/09/2019 2:17:05 PM	Processed
T_003_1901_ret_trans.zip	18/09/2019 2:09:42 PM	1,011 B	18/09/2019 2:10:18 PM	Processed
T_003_1900_ret_trans.zip	18/09/2019 2:07:41 PM	1 KB	18/09/2019 2:08:25 PM	Processed
T_003_1899_ret_trans.zip	18/09/2019 2:05:41 PM	1 KB	18/09/2019 2:06:18 PM	Processed
T_003_1898_ret_trans.zip	17/09/2019 3:05:45 PM	1 KB	17/09/2019 3:06:29 PM	Processed
T_003_1897_ret_trans.zip	17/09/2019 1:25:45 PM	1 KB	17/09/2019 1:26:34 PM	Processed
T_003_1896_ret_trans.zip	11/09/2019 6:01:31 PM	1 KB	11/09/2019 6:02:11 PM	Processed
T_003_1895_ret_trans.zip	11/09/2019 6:00:30 PM	1 KB	11/09/2019 6:01:05 PM	Processed
T_003_1894_ret_trans.zip	11/09/2019 5:58:30 PM	1 KB	11/09/2019 5:59:10 PM	Processed
T_003_1893_ret_trans.zip	11/09/2019 5:57:49 PM	1 KB	11/09/2019 5:58:25 PM	Processed
T_003_1892_ret_trans.zip	11/09/2019 5:54:29 PM	1 KB	11/09/2019 5:55:09 PM	Processed
T_003_1891_ret_trans.zip	11/09/2019 5:52:08 PM	1 KB	11/09/2019 5:52:45 PM	Processed
T_003_1890_ret_trans.zip	11/09/2019 5:51:28 PM	1 KB	11/09/2019 5:52:04 PM	Processed
T_003_1889_ret_trans.zip	11/09/2019 5:48:47 PM	1 KB	11/09/2019 5:47:29 PM	Processed
T_003_1888_ret_trans.zip	11/09/2019 9:47:45 AM	1 KB	11/09/2019 9:48:25 AM	Processed
T_003_1887_ret_trans.zip	11/09/2019 9:02:38 AM	1 KB	11/09/2019 9:03:20 AM	Processed
T_003_1886_ret_trans.zip	11/09/2019 8:49:15 AM	1 KB	11/09/2019 8:49:58 AM	Processed
T_003_1885_ret_trans.zip	11/09/2019 8:41:34 AM	1 KB	11/09/2019 8:42:18 AM	Processed
T_003_1884_ret_trans.zip	11/09/2019 8:30:08 AM	1 KB	11/09/2019 8:30:58 AM	Processed
T_003_1883_ret_trans.zip	03/09/2019 3:02:37 PM	1 KB	03/09/2019 3:03:22 PM	Processed
T_003_1882_ret_trans.zip	03/09/2019 7:45:16 AM	1 KB		Failed to Process
T_003_1881_ret_trans.zip	03/09/2019 7:42:35 AM	834 B	03/09/2019 7:43:36 AM	Processed
T_003_1880_ret_trans.zip	30/08/2019 6:18:45 AM	1 KB	30/08/2019 6:19:10 AM	Processed

5.5 POS PERSONS

The POS person screens have changed, and the in-store team members need re-training so the understand the new customer / person search and editing functions. In summary, the changes are:

- Searching for existing customers has a new screen (see image below)
 - o Can search partial email, if enter all characters up to and including the @ symbol
 - o Phone number will match the last 8 characters
 - o If more than 50 results from a search, user will be forced to enter more information

Person Search

Person Search

First Name Surname

Phone or Email Postcode

First Name	Surname	Contact #	Email	Post Code
Helen	Watson	04 00 000 000		3136

- When enter a new customer, the first name / surname fields have been swapped

Person - Status OFFLINE

Helen W - Account: HELENWS

Customer History

Summary History

Gender Offline

TopSize

BotSize

PriceGrp

Terr.

First Name * Helen

Surname * Watson

Contact # 04 00 000 000

Email

Title Offline

Birthday Offline

Address 1 Offline

Address 2 Offline

City Offline

State Offline

Post Code 3136

Country Offline

Job Title Offline

Business # Offline

Other # Offline

Offline heading to indicate that data not available for view and editing as connection to head office is not available

Rewards Program

Sign Up

Period	Total Spend

Loyalty

F5 Add New F6 Edit

Program	Card Number	Expiry Date	Balance	Credit Status

Alt+A History Cancel F12 Search

F10 Delete Person Alt+N New Person F9 Accept

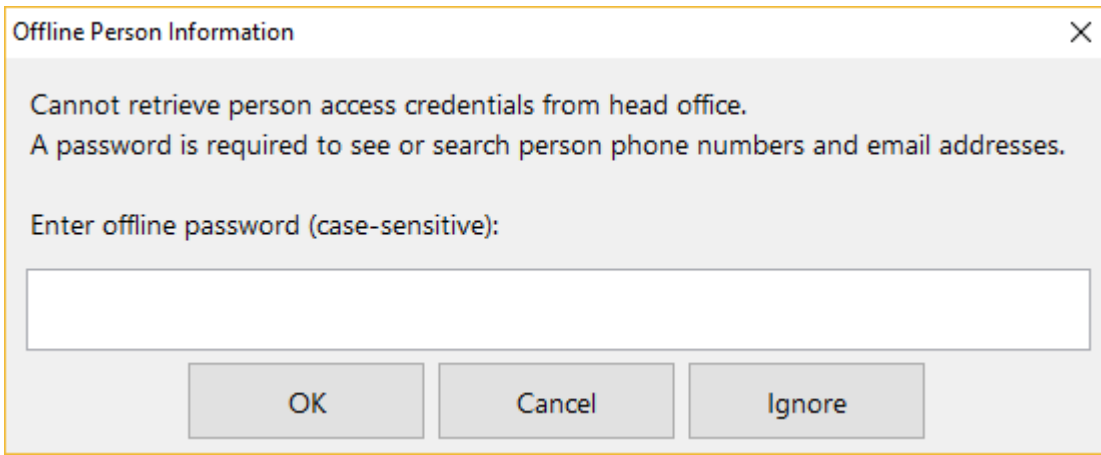
Alt+F Turn formatt...

- When the head office connection is down (internet down or head office doing a system upgrade), new customers CAN be signed up.

5.6 HEAD OFFICE CONNECTION OFFLINE

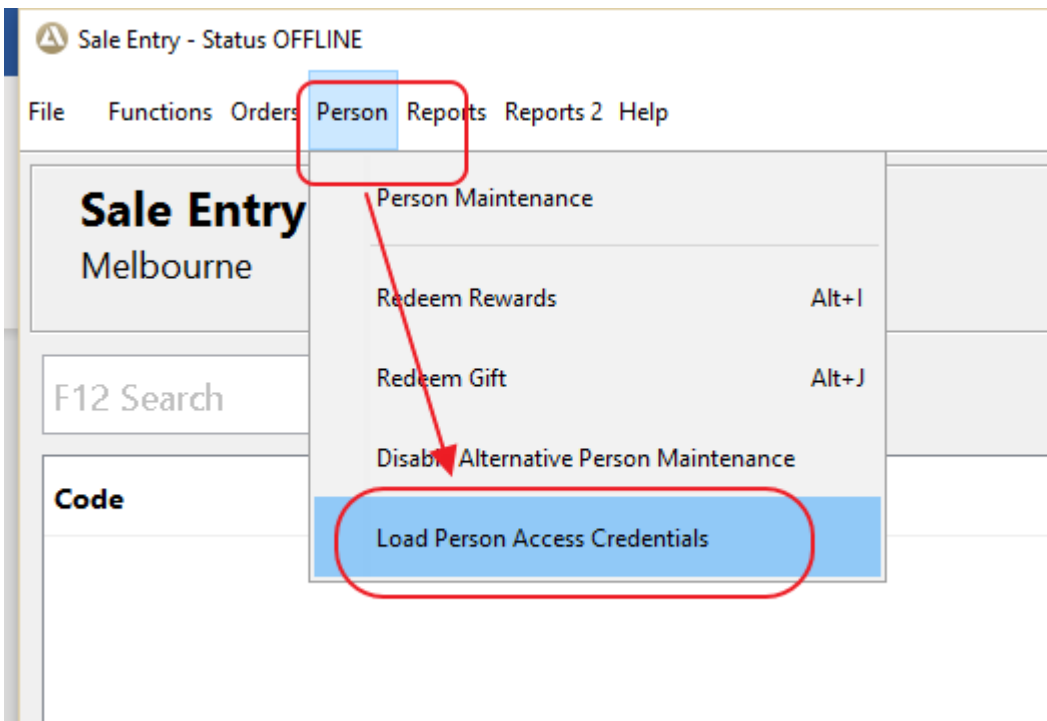
The POS person emails and phone numbers are now encrypted at the stores. This is to protect the privacy of individuals. Decrypting this data is automatically done by the POS application so the store team can still see the emails and phone numbers on the screen.

However, if the store hasn't connected successfully to the head office system since the POS application was first opened (OFFLINE since start up) a password will need to be entered by a store team member. This password is used to decrypt the data. If this password not entered, email and phone number won't be visible (if OFFLINE since start up). The store team will be prompted with the following dialog.

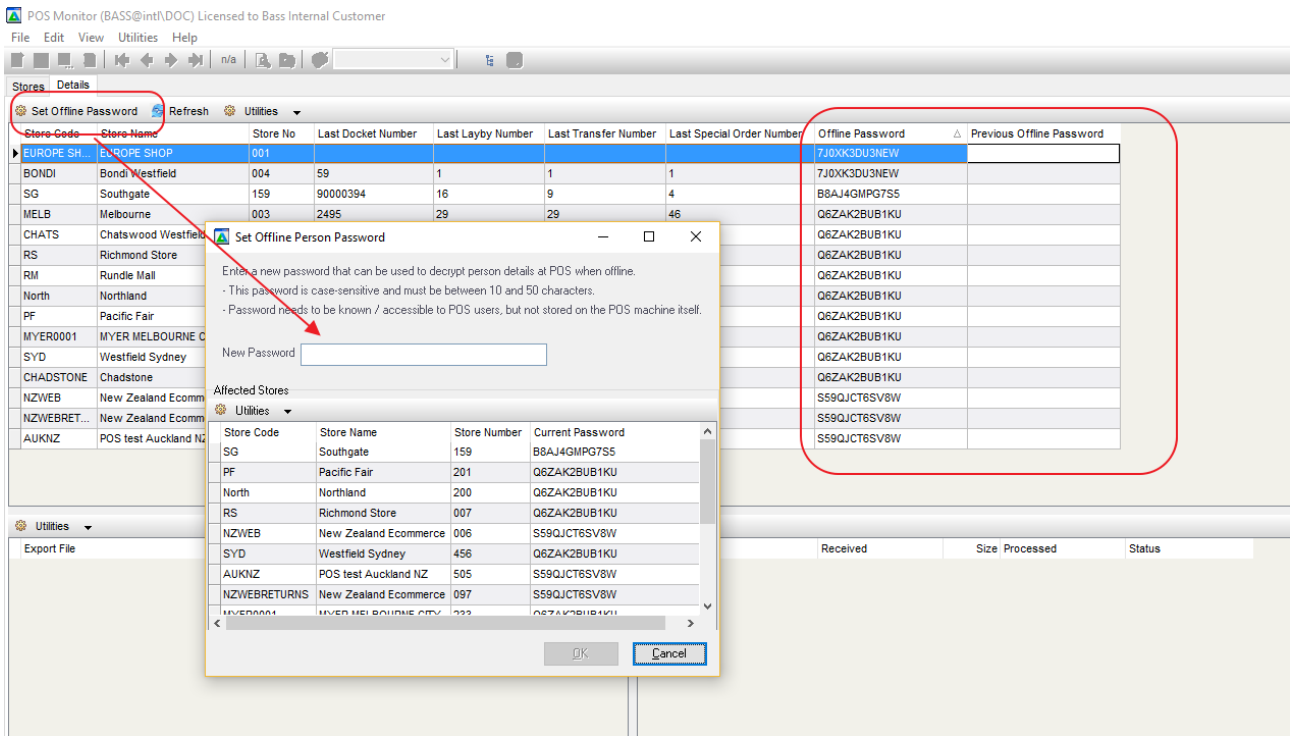


They will need to get this password from head office.

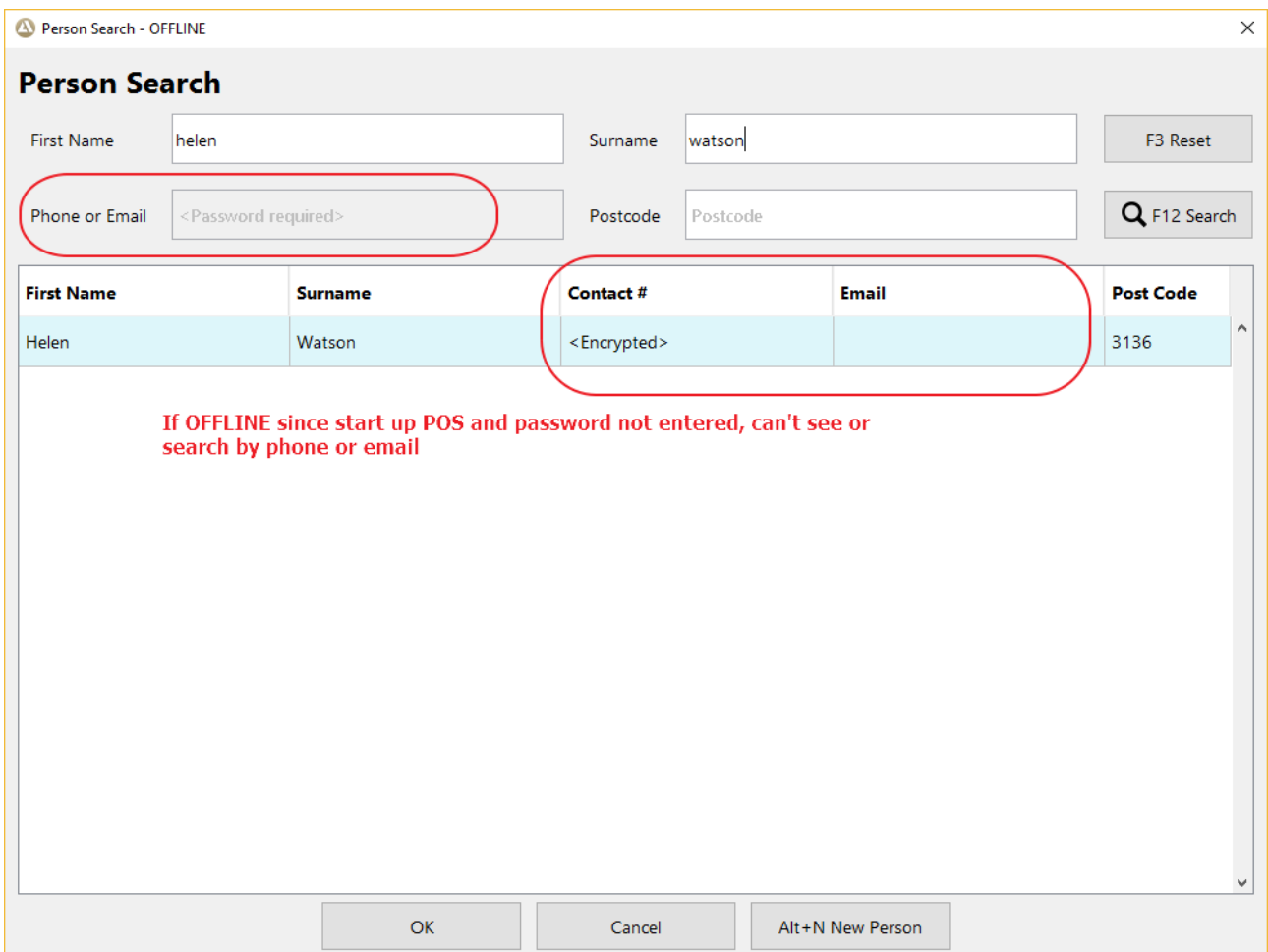
The password can be entered either when prompted or can invoke password prompt manually from *Person* menu:



At head office, the passwords can be viewed and maintained by a head office user in the *POS Monitor* screen. They are found in the *POS Monitor* screen on the *Details* tab. By default, there is a different password for each company. Passwords can be edited by store using the *Set Offline Password* option (if have security).



If the store don't enter the password, they can continue to operate but they will not be able to search or view email addresses and phone numbers.





Person Maintenance - Status OFFLINE


Helen W - Account: HELENWS

Customer History

Summary History

First Name * Helen
 Surname * Watson
 Contact # <Encrypted>
 Email 
 Title Offline
 Birthday Offline 
 Address 1 Offline
 Address 2 Offline
 City Offline
 State Offline
 Post Code 3136
 Country Offline
 Job Title Offline
 Business # Offline
 Other # Offline

Gender Offline
 TopSize
 BotSize
 PriceGrp
 Terr.
 Sales Person
 Code
 Password
 Confirm

Rewards Program


Period	Total Spend

Loyalty

Program	Card Number	Expiry Date	Balance	Credit Status

Alt+F Turn formatt...

If they don't enter the password, the phone / email data of persons will not be able to be decrypted and used to locate a person.

6 TECHNICAL NOTES / TROUBLESHOOTING

6.7 POS PERSON SEARCH TOO SLOW

One change in this project is that the store person search is running on the head office database (over the internet).

If the stores all connecting to the head office system to search for retail customers is running very slowly, the system can be set to search in the POS database instead of head office. This is likely to be faster but not as up to date.

This is done using the system parameter > Retail POS > Person search.

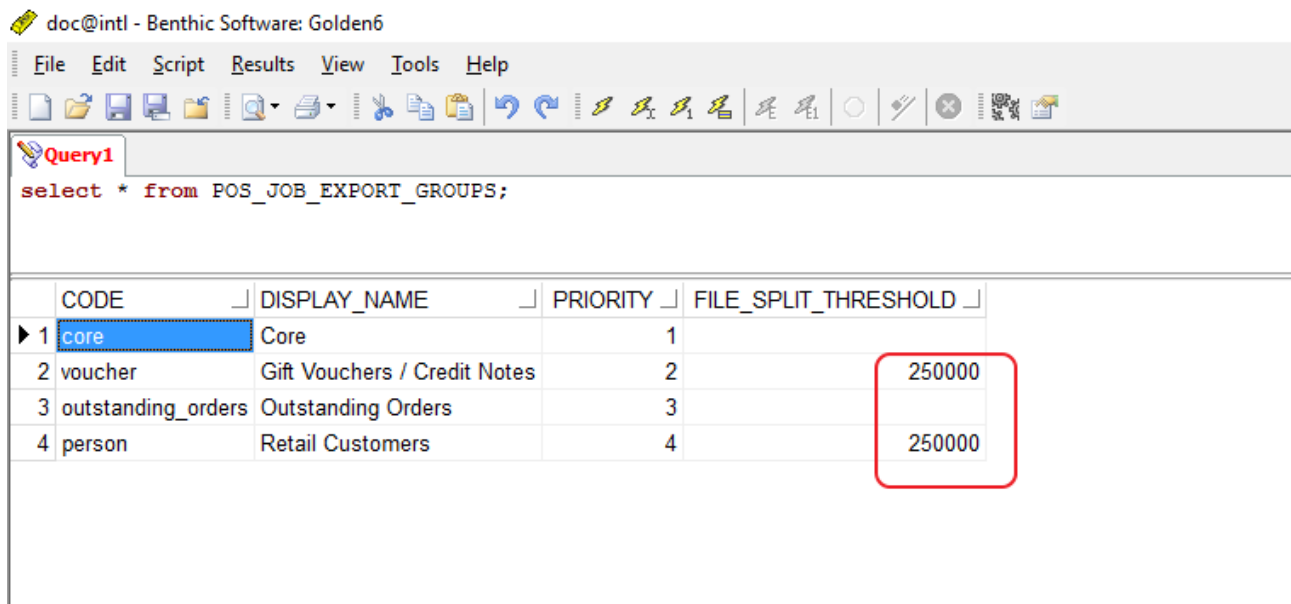
Set the *Search online?* option to *No*.

Alternatively, create / update the *settings.properties* file in the store application folder to adjust the setting for *person_search_online=false*

6.8 ADJUSTING SIZE OF FILE SPLITS

Under this project, the export of data is split out into smaller files so that very large data sets don't cause memory issues. This split occurs for the large data sets – persons and vouchers. By default, the files are split into 250,000 records per file. This setting comes from the table *POS_JOB_EXPORT_GROUPS*.

If this needs to be adjusted (by an Apparel21 team member only), adjust the *FILE_SPLIT_THRESHOLD* column.



doc@intl - Benthic Software: Golden6

File Edit Script Results View Tools Help

Query1

```
select * from POS_JOB_EXPORT_GROUPS;
```

	CODE	DISPLAY_NAME	PRIORITY	FILE_SPLIT_THRESHOLD
1	core	Core	1	
2	voucher	Gift Vouchers / Credit Notes	2	250000
3	outstanding_orders	Outstanding Orders	3	
4	person	Retail Customers	4	250000

6.9 SCRIPT TO CHECK VALIDITY OF EMAIL / PHONE ENCRYPTION

If need to check if the encrypted data is valid, this query can be used.

```
SELECT PERIDX, CODE,  
       PRIMARY_EMAIL, ENCRYPTED_EMAIL,  
       CryptoUtils.ValidatePersonEncryption(PRIMARY_EMAIL,  
       ENCRYPTED_EMAIL) AS EMAIL_VALID,  
       PRIMARY_PHONE, ENCRYPTED_PHONE,  
       CryptoUtils.ValidatePersonEncryption(PRIMARY_PHONE,  
       ENCRYPTED_PHONE) AS PHONE_VALID  
FROM PERSON WHERE PRIMARY_EMAIL IS NOT NULL  
AND ROWNUM <= 50;
```