



Pharmacy Information System (PhIS) and Clinic Pharmacy System (CPS)

Release Note (Mirth Connect) For version 2.4

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Revision History

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1.0	08/10/2024	Mohd Hilmi Mohamad	Zainura Said	First Version

Verified and Acknowledged by:

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Peer Review

Version No	Reviewed / Verified by	List Of Changes from Previous Version
1.0	Juridah (QA)	Initial document



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1 Introduction

1.1 Project Information

Project ID	:	PHIS and CPS
Project Name	:	Pharmacy Information System and Clinic Pharmacy System
Version No	:	Mirth Connect 2.4
Client Name	:	Ministry of Health
Release ID	:	RL24/021
Release Date	:	08/10/2024

1.2 Objectives

No.	Objective	Reference
1.	Release PHIS & CPS Mirth Connect	Refer Section 3 – Refinement and Defect list



2 Purpose

The purpose of the document is to update the end-user of the changes and defects have been resolved to be included in the new version of application and will be deployed to production server.

This document outlines the list of request and issue to be delivered in the newer version of application and also the guidelines on how to deploy the new version of application in production.

3 Summary – Refinement and Defect List

3.1 Refinement List

The following are the refinement that included in Mirth Connect version 2.4.

No	CR No	Module	Function	Description	Ticket No	Facility	Reference
1.	R240007	HISKKM Integration	New integration point between PHIS and HISKKM for Patient Demographic, Cancel Discharge and TDM modules	<ol style="list-style-type: none"> 1. New integration point to update patient demographic. It will overwrite patient records based on patient MRN. <i>(to use existing ADT_A08 develop for CCMS – refer to CR-R240004)</i> 2. New integration point for Cancel Discharge 3. New integration point. PHIS to provide a new API for HIS to view TDM details. JSON API on TDM Data retrieve by Patient MRN and Visit No. 	210005964E 200001556E	Hospital Raja Permaisuri Bainun, Ipoh	Please refer to section #4.1



3.2 Resolved Defect List

N/A

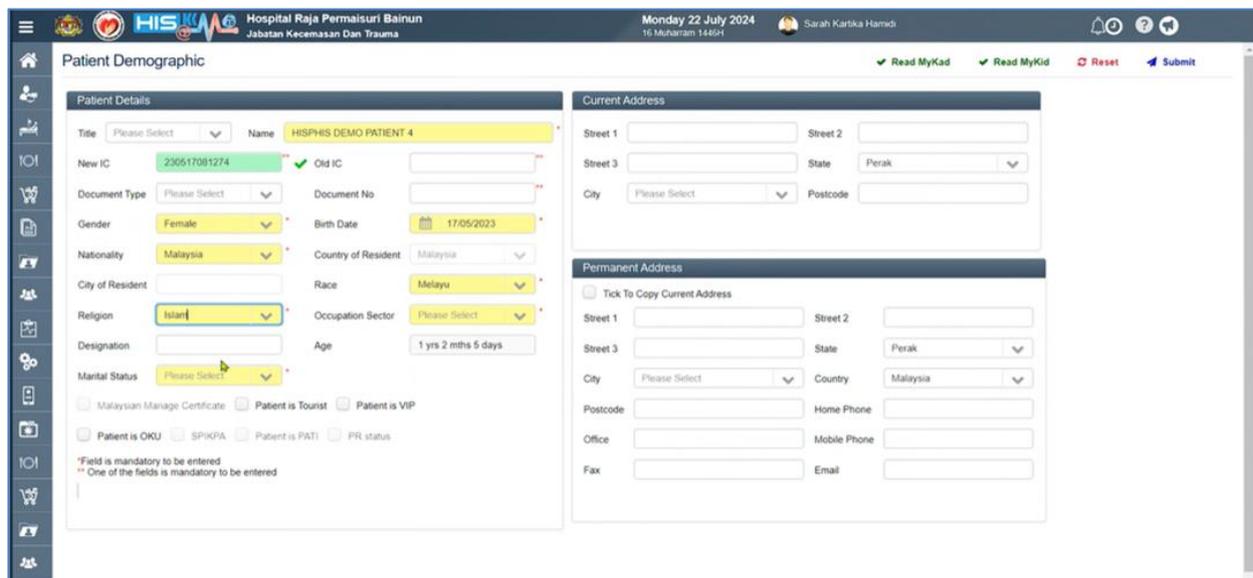
4 Refinement List – Detail Changes

4.1 HISKKM New Integration Point

CR No	Module	Function	Description
R240007	HISKKM Integration	New integration point between PhIS and HISKKM for Patient Demographic, Cancel Discharge and TDM modules	<ol style="list-style-type: none"> 1. New integration point to update patient demographic. It will overwrite patient records based on patient MRN. <i>(to use existing ADT_A08 develop for CCMS – refer to CR-R240004)</i> 2. New integration point for Cancel Discharge 3. New integration point. PhIS to provide a new API for HIS to view TDM details. JSON API on TDM Data retrieve by Patient MRN and Visit No.

a) Patient Demographic

Update patient demographic at HISKKM:





Patient information updated at PHIS:

WARD MANAGEMENT								
Patient Demographic Patient Label Patient Label Visit Label Visit Label Sample Label Sample Label Visit List Visit Activity								
HISPHER DEMO PATIENT 4	MyKid	230517081274	Age	01 Years 02 Months 05 Days	Gender	Female	MRN	HRPB5000110
	Address	Phone And Email	Diagnosis	Allergy	Need To Be Assessed	Vital Sign		
Upload Photo	Height	cm	Weight	kg	BMI/BSA	0/0 m ²	Update	(Last Updated :) Nationality : Warganegara
Visit Type	Inpatient	Admitting Doctor			Referral Encounter :Main Encounter			
Encounter No	0619	Visit Created Date/Time	22/07/2024 03:35:13 PM	Actual Visit Date/Time	22/07/2024 03:35:13 PM			
Department/Discipline	Paediatric Surgery			Full Paying Patient				
Location	W5D Pembedahan Pediatri			(MFlex In)				
Room No		Bed No	BED 25	Facility RN Number				
Specialist		Attending Doctor						
Collection Mode		Referred By						
Payment Category/Class Type	No Class	Police Custody						
Visit Case	<input type="checkbox"/> New Case <input type="checkbox"/> Follow-Up							
HOME LEAVE								
Home Leave	<input type="checkbox"/>	Doctor						
Date From		Date To						
TRANSFER DETAILS LIST								
+ New Patient Transfer								



b) Cancel Discharge

Do cancel discharge at HISKMM:

Depart Utility

Identification:

Encounter Type:

Identification	MRN	Name	Gender	Age
220707080468 (New IC)	HRPB5000105	HISPHIS TESTING PATIENT1 Encounter Date: 19/07/2024 Location: Pembedahan Pediatrik KWKK View	Female	2 yrs 12 days

HISPHIS TESTING PATIENT1
220707080468(New Ic) | HRPB5000105 (MRN) | 2 yrs 12 days | Female
Location: PEMBEDAHAN PEDIATRIK KWKK(Pembedahan Pediatrik) | Bed 30 (Kelas 3) Encounter Type:
Encounter Date & Time: 19/07/2024 10:40

Discharge Summary

Discharge Type:

Date/Time:

Allergy and Adverse Reaction:

Allergies
 Not Recorded No Allergy Allergies

Medical Alert

Medical Alert	Status	Onset Date	Resolved Date	Audit Trail	+
Please Select	Please Select	<input type="text"/>	<input type="text"/>		-

Isolation Precautions

Category	Subcategory	Status	Onset Date	Resolved Date	Audit trail	+
Please Select	Please Select	Please Select	<input type="text"/>	<input type="text"/>		-

High Risk
 High Risk

Clinical Summary:

HISKMM Hospital Raja Permaisuri Bainun
Jabatan Kecemasan Dan Trauma Friday 19 July 2024 10:50
13 Muharram 1446H Sarah Kartika Hamdi

HISPHIS TESTING PATIENT1
220707080468(New Ic) | HRPB5000105 (MRN) | 2 yrs 12 days | Female
Location: PEMBEDAHAN PEDIATRIK KWKK(Pembedahan Pediatrik) | Bed 30 (Kelas 3) Encounter Type: Elective
Encounter Date & Time: 19/07/2024 10:40

FIRST SEEN

Doctor:

Specialist:

DIAGNOSIS

Diagnosis	ICD10	DSM5	Type	Created Date
fever			Admission Diagnosis	19/07/2024 10:54

CLINICAL NOTES

Active Notes | Notes History

View	Note Name	Date	Status	Created By	Discipline	Encounter Type	Note Tag	Atta
No Records Available								

MEDICATION LIST

Medication Name	Status	Order By	Order Date
Paracetamol 120 mg/5 ml Syrup	Submitted	SARAH KARTIKA HAMIDI	19/07/2024 10:50



Patient visit is active at PHIS and able to proceed with new order:

MEDICATION ORDER

HISPHIS TESTING PATIENT1 Others: B123456 Age: 18 Days Gender: Male MRN: HRPB5000105

Address: Phone And Email: Diagnosis: Allergy: Need To Be Assessed Vital Sign: **Update** (Last Updated: 19/07/2024) Nationality: Warganegara

Encounter No: 0614 Actual Admission Date: 19/07/2024 Attending Practitioner: SARAH KARTIKA HAMIDI Visit Location: Pembedahan Pediatrik KWKK Prescriber Dept: General Medicine Pensioner: **Update**

NORMAL ORDER **DRUG DETAILS** **View Order** **Confirm** **Draft** Total Price: RM 0.00

Drug: Dose: Admin Route: Frequency: Dose Schedule: Duration: Start Date / Time: 19/07/2024 11:27 AM End Date / Time: 19/07/2024 11:27 AM Order Quantity: Drug Indication: Drug Remarks: Drug Category: Dispense Location:

Alert **Drug Name** **Order Details** **Order Qty** **Drug Info**

1st Dose to Serve Patient Own Medication Patient Require Counselling

PHIS & CPS: v2.6.3.14 Last Modified: 25/04/2024 11:18 AM User: MUHAMMAD NUR AIMAN BIN AHMAD MOKHTAZA ; Unit: WKD 6A

c) TDM

TDM verification at PhIS:

PHARMACY INFORMATION SYSTEM
HOSPITAL RAJA PERMAISURI BAINUN, IPOH

Home | TDM Verification x

ORDER VERIFICATION

Ordered Date From: [] Order Date To: []
 Location Type: [] Location: []
 TDM Order No: TDM2400003429 Status: []
 IC No/Other Identification: []
 TDM Drug: [] Ordered By: []
 Acknowledged By: [] MRN: []

Basic Search [Search]

Search Results [1 - 1 / 1]

TDM Order No	TDM Drug	MRN	Patient Name	IC No/Other Identification	Ordered By	Ordered Date/Time	Order Status	Drug Info
TDM2400003429	Gentamicin 80mg/2ml Injection	HRPB5000084	HISPHIS TESTING TDM3	654321	SARAH KARTIKA HAMIDI	05/09/2024 02:23 PM	Verified	Drug Info

Information at HISKMM:

No	Sampling Date And Time	Order Number	Tdm Order Number	Drug Name	Indication Request	Sampling Type	Order By	Status
1.	2024-08-30T09:50:00+08:00	W5D0002754577	11-0805001ITDM2400003407	Bromazepam 3 mg Tablet	Non Compliance	Random	MUHAMMAD NUR AIMAN BIN AHMAD MOKHTAZA	Verified
2.	2024-09-05T15:23:00+08:00	W5D0002754601	11-0805001ITDM2400003429	Gentamicin 80mg/2ml Injection	Poor Response	Post	SARAH KARTIKA HAMIDI	Verified
2.	2024-09-05T13:23:00+08:00	W5D0002754601	11-0805001ITDM2400003429	Gentamicin 80mg/2ml Injection	Poor Response	Pre	SARAH KARTIKA HAMIDI	Verified
3.	2024-08-30T09:50:00+08:00	W5D0002754578	11-0805001ITDM2400003408	Acetylsalicylic Acid 100 mg, Glycine 45 mg Tablet	Therapeutic Monitoring	Random	MUHAMMAD NUR AIMAN BIN AHMAD MOKHTAZA	Verified



TDM Sample Management at PHIS:

PHARMACY INFORMATION SYSTEM

HOSPITAL RAJA PERMAISURI BAINUN,IPOH Change User Location Logout

Home TDM Verification x Sample Management x

SAMPLE MANAGEMENT

Ordered Date From: Order Date To:

Location Type: Location:

MRN: Status:

IC No/Other Identification:

TDM Drug: Ordered By:

Acknowledged By: TDM Order No: TDM2400003429

[Basic Search](#)

Search Results [1 - 1 / 1]

TDM Order No	TDM Drug	MRN	Patient Name	IC No/Other Identification	Ordered Date	Acknowledge By	Verified By	Status	Drug Info
TDM2400003429	Gentamicin 80mg/2ml Injection	HRPB5000084	HISPHIS TESTING TDM3	654321	05/09/2024 02:23 PM	SARAH KARTIKA HAMIDI	SARAH KARTIKA HAMIDI	Sample Accepted	Drug Info

Information at HISKKM:

TDM View

Order Details

Patient Id	Patient Name	Drug Name	Order Remarks	Sampling Type	Sampling Remarks	Verify By	Verify Date
654321	HISPHIS TESTING TDM3	Gentamicin 80mg/2ml Injection		Post	Sample Accepted	SARAH KARTIKA HAMIDI	05/09/2024 14:30:53

Result Value

Pre	Post	Recommendation Type	Toxic	TDM Result	Pharmacy Note	TDM Reported By	TDM Reported Date	Performed Date
-	-		false		Order Remarks from Medication Order	-	-	2024-09-05T15:23:00+08:00

Order Details

Patient Id	Patient Name	Drug Name	Order Remarks	Sampling Type	Sampling Remarks	Verify By	Verify Date
654321	HISPHIS TESTING TDM3	Gentamicin 80mg/2ml Injection		Pre	Sample Accepted	SARAH KARTIKA HAMIDI	05/09/2024 14:30:53

Result Value

Pre	Post	Recommendation Type	Toxic	TDM Result	Pharmacy Note	TDM Reported By	TDM Reported Date	Performed Date
-	-		false		Order Remarks from Medication Order	-	-	2024-09-05T13:23:00+08:00



TDM Reporting at PHIS:

REPORTING

HISPHIS TESTING TDM3 Others 654321 Age 02 Months 11 Days Gender Female MRN HRPB5000084

Address Phone And Email Diagnosis Allergy: Need To Be Assessed Vital Sign

Height cm Weight kg BMI/BSA 0/0 m² (Last Updated :) Nationality : Warganegara

Demographic | Medication Profile | Pharmacist Notes | Monitoring Parameter | TDM Guidelines

Encounter No: 0641 Actual Admission Date: 29/08/2024 Attending Practitioner: SARAH KARTIKA HAMIDI Visit Location: Pembedahan Pediatrik KWKK Prescriber Dept.: General Medicine

1 / 1 [1 - 1 / 1]

TDM No.	Drug Name	Drug Details	Order Remarks	Actual Sampling Time	Actual Drug Admin Date/Time	Reporting	Pre	Post
TDM2400003429	Gentamicin 80mg/2ml Injection	80mg, TDS PRN, Oral Tablet, Oral, 05/09/2024	Remarks	06/09/2024 10:14 AM	05/09/2024 02:23 PM	Details	8.98	10.98

Pharmacist Note
TDM Completed : 06/09/2024 10:35 AM
TDM2400003429 - Gentamicin 80mg/2ml Injection - Refer to Pharmacist Notes TDM Reporting

Remarks
1860 characters allowed
remarks TDM Reporting

Information at HISKKM:

TDM View

Patient Id	Patient Name	Drug Name	Order Remarks	Sampling Type	Sampling Remarks	Verify By	Verify Date
654321	HISPHIS TESTING TDM3	Gentamicin 80mg/2ml Injection		Post	Sample Accepted	SARAH KARTIKA HAMIDI	05/09/2024 14:30:53

Pre	Post	Recommendation Type	Toxic	TDM Result	Pharmacy Note	TDM Reported By	TDM Reported Date	Performed Date
8.98 nmol/L	10.98 mcmol/L	Refer to Pharmacist Notes	true	From PhIS Pharmacokinetics Profile Total Dose : 1200 mg/daily Creatinine Clearance : 1.867 ml/min	Order Remarks from Medication Order	SARAH KARTIKA HAMIDI	06/09/2024 10:35:29	2024-09-05T15:23:00+08:00

Patient Id	Patient Name	Drug Name	Order Remarks	Sampling Type	Sampling Remarks	Verify By	Verify Date
654321	HISPHIS TESTING TDM3	Gentamicin 80mg/2ml Injection		Pre	Sample Accepted	SARAH KARTIKA HAMIDI	05/09/2024 14:30:53

Pre	Post	Recommendation Type	Toxic	TDM Result	Pharmacy Note	TDM Reported By	TDM Reported Date	Performed Date
8.98 nmol/L	10.98 mcmol/L	Refer to Pharmacist Notes	true	From PhIS Pharmacokinetics Profile Total Dose : 1200 mg/daily Creatinine Clearance : 1.867 ml/min	Order Remarks from Medication Order	SARAH KARTIKA HAMIDI	06/09/2024 10:35:29	2024-09-05T13:23:00+08:00

5 Deployment - Procedures

5.1 List of Items to be Deployed

No.	Items	Components	Path
1	Facility script	ph_tdm_orders_vw.sql	https://175.143.5.124:5522/svn/PhIS/Workspace_Dataaware/31_Implementation/Applications/AdHoc_Deploy/HISKKM_20241008/scripts
2	TDM API	phis_Fhir.jar	https://175.143.5.124:5522/svn/PhIS/Workspace_Dataaware/31_Implementation/Applications/AdHoc_Deploy/HISKKM_20241008/tdm_order_api_fhir_v1.0
3	Channel configuration file	phisIntegration.properties	/home/phiseshb/phisbackprops/phisIntegration.properties
4	TDM API	phisAPI.war	https://175.143.5.124:5522/svn/PhIS/Workspace_Dataaware/31_Implementation/Applications/AdHoc_Deploy/HISKKM_20241008/phishl7_20241008_v2.4/HIS
5	Mirth Connect file	phishl7.jar	https://175.143.5.124:5522/svn/PhIS/Workspace_Dataaware/31_Implementation/Applications/AdHoc_Deploy/HISKKM_20241008/phishl7_20241008_v2.4/HIS
6	Application library	'phishl7_lib' folder	https://175.143.5.124:5522/svn/PhIS/Workspace_Dataaware/31_Implementation/Applications/AdHoc_Deploy/HISKKM_20241008/phishl7_20241008_v2.4/HIS/phishl7_lib

5.2 Backup Procedure before Deploy

5.2.1 Backup Procedure

Using backup tool, backup the following files and folder and database as per table below:

No.	Type	Backup Item	Description
1	Database	phisprod database	PhIS live database

5.3 Deployment/Installation Guidelines

5.3.1 Deployment

Below table is described the deployment steps at facility server:

Step	Items	File Name	Source Path	Action
1	Facility script	ph_tdm_orders_vw.sql	https://175.143.5.124:5522/svn/PhIS/Workspace_Dataaware/31_Implementation/Applications/AdHoc_Deploy/HISKKM_20241008/scripts	Execute script on facility database.
2	TDM API	phis_Fhir.jar	https://175.143.5.124:5522/svn/PhIS/Workspace_Dataaware/31_Implementation/Applications/AdHoc_Deploy/HISKKM_20241008/tdm_order_api_fhir_v1.0	Add phis_Fhir.jar to /home/phisesb/phisjars
3	Channel configuration file	phisIntegration.properties	/home/phisesb/phisbackprops/phisIntegration.properties	Add line 'fhir.jar.file=/home/phisesb/phisjars/phis_Fhir.jar' to /home/phisesb/phisbackprops/phisIntegration.properties
4	TDM API	phisAPI.war	https://175.143.5.124:5522/svn/PhIS/Workspace_Dataaware/31_Implementation/Applications/AdHoc_Deploy/HISKKM_20241008/phishl7_20241008_v2.4/HIS	Deploy updated war file on GlassFish.
5	Mirth Connect file	phishl7.jar	https://175.143.5.124:5522/svn/PhIS/Workspace_Dataaware/31_Implementation/Applications/AdHoc_Deploy/HISKKM_20241008/phishl7_20241008_v2.4/HIS	Copy phishl7.jar only into /opt/phisesb/mirthconnect/custom-lib at facilities that use HIS integration and replace the existing jar file.
6	Application library	'phishl7_lib' folder	https://175.143.5.124:5522/svn/PhIS/Workspace_Dataaware/31_Implementation/Applications/AdHoc_Deploy/HISKKM_20241008/phishl7_20241008_v2.4/HIS/phishl7_lib	Copy over phishl7_lib folder if there is no existing phishl7_lib folder. Otherwise, no need to copy or replace 'phishl7_lib' folder, just include for completeness in case existing folder is missing/corrupted.



Step	Items	File Name	Source Path	Action
7	Mirth Connect Server	N/A	N/A	Restart Mirth Connect server.