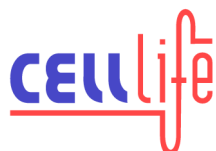


# Capabilities Document

This document provides information on Cell-Life's background, how iDART, C4H and EMIT work, and what services are offered as part of Cell-Life's technological solutions.







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## CELL-LIFE'S BACKGROUND

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Cell-Life is a pioneering initiative that provides effective technology-based solutions for the management of HIV/AIDS and other infectious diseases such as TB. Cell-Life's primary function is to address health-related logistical challenges in developing countries, such as the provision and distribution of anti-retroviral treatments, continuous patient monitoring and evaluation, and collection and communication of relevant data. This is achieved through the use and development of innovative software supported by existing technologies such as mobile phones and the Internet.

Cell-Life is a sustainable, not-for-profit company with experience and understanding of the unique challenges facing the development and implementation of e-health systems working in the public sector in Africa. Our practical insights and research enables us to develop context-specific, cost-effective solutions.

Cell-Life's solutions have great potential for broader application. The systems support monitoring and intervention programs necessary for large-scale management of other infectious or chronic diseases, and even other arenas in healthcare.

At Cell-Life our mission is to become the backbone of managing HIV and TB in Africa, by providing affordable solutions that offer support for communication, information and logistics. By offering our skills and expertise, we furthermore pledge our commitment to combat these diseases, which are threatening the livelihood of our continent and people.



## IDART – INTELLIGENT DISPENSING OF ANTIRETROVIRAL TREATMENT

### WHAT IS iDART?

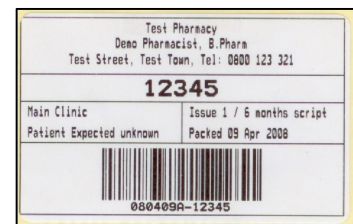
Developed in collaboration with the Desmond Tutu HIV Foundation, iDART is a software solution designed to support the dispensing of ARV drugs in the public health care sector. It supports pharmacists in their important role of dispensing accurately to an increasing number of patients whilst still being able to engage and assist the patient.

The intelligent Dispensing of Antiretroviral Treatment software is used by the pharmacist to manage the supplies of antiretroviral drug stocks, print reports and manage collection of drugs by patients. The software system is also designed to address the reporting requirements of Government, international funders, and internal clinical data.

### HOW IS iDART USED?

Using iDART, the pharmacists and clinicians are able to monitor the drug supply chain from the time the stock is entered into the system, through the dispensing process and to drug delivery to any individual patient. This enables accurate, real time tracking of patient treatment regimens, high control of drug stock levels, and automatic generation of government or donor reports.

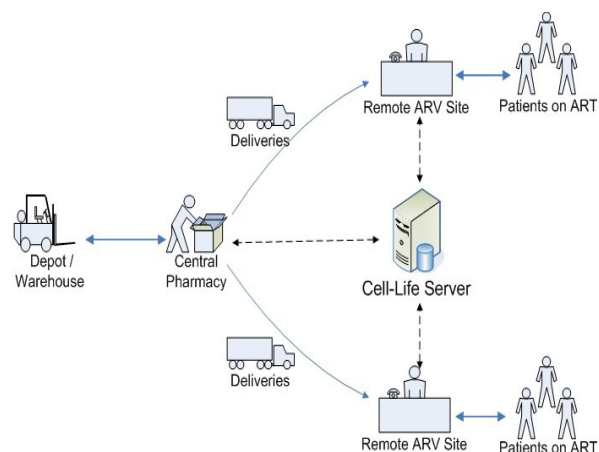
iDART operates through clearly identifiable, multi-lingual bar-coded labels which are created for each and every drug and patient package. In this way, pharmacists and clinicians save a large amount of time dispensing ARV's as they use a barcode scanner to capture information at the click of a button. Because the system accurately tracks the dispensing of drug packages to specific people, it also can be used to identify and reduce any loss of ARVs.



iDART is capable of providing real-time assessment of an ARV programme through the generation of a variety of reports. Reports that can be generated include those relating to pharmacy management (such as monthly receipts and issues of ARVs), funder requirements (reporting to funders such as PEPFAR), and ARV clinic management (such as number of patients initiating ARV therapy by date, drug switches and retention of patients on treatment).

### iDART SYSTEM DESCRIPTION

The system comprises of two applications for different functions within the supply chain. The first application (*iDART Pharmacy*) is housed at a central supply pharmacy, and the second application (*iDART Clinic*) is installed at a remote clinic where patients collect their medication from a nurse. These two applications can operate in geographically different locations.



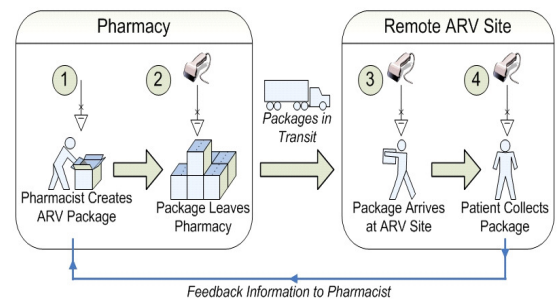
iDART allows for two types of dispensing:

**Direct Dispensing:**

Patients collect their month's supply of ARVs from the central pharmacy directly. For this situation, iDART users have a choice between a further two methods of dispensing. They can either create packages for patients who are scheduled to visit the pharmacy on a given date (and have the packaged drugs ready for the patient when they arrive). Or, the iDART user can dispense directly to patients when they present themselves at the facility.

**Remote Dispensing (Pre-packaging):**

At the dispensing pharmacy, the pharmacist creates a physical package consisting of ARV drugs for each patient enrolled on the system (1). Upon completion, the packages are sent to the remote ARV site by courier service (2). It is at this facility that ART patients visit regularly, for medical consultations and to fetch their medication. When a patient receives the packaged drugs, the nurse scans out the package using a handheld barcode scanner and through iDART (3 and 4), creates a feedback mechanism, prompting the pharmacist at the central pharmacy to create the next month's drug package. In this way, iDART allows patients to receive treatment from clinics closer to their homes.



**NEEDS ADDRESSED**

- **Increasing the capacity of pharmacies in public health clinics by:**
  - Time saving through the use of sticky labels.
  - Allowing pharmacists and clinicians to focus on dispensing of ARV drugs to patients (not on IT systems and manual reporting).
  - Improving basic pharmacy management (monitor stock levels, prescriptions, dispensed drugs).
  - Increasing motivation and professionalism in under-resourced HR sector.
  - Improving reporting to government & other donors.
- **Facilitate dispensing in remote public health clinics**
  - iDART enables and supports the down referral process.
  - The software is simple - easy to learn and use.
- **Clinic information management**
  - iDART assists with ART program monitoring and evaluation and basic patient management.
  - Peer-reviewed and open-source.

## iDART SCOPE

- **Business Analysis**
  - User Requirements Gathering and Documentation: This will be conducted with the management team. Different techniques will be used to elicit the requirements, such as interviews (telephonic and face-to-face) and document reviews.
  - Review of Current Systems: A review of the current tools and methodologies used.
  - Quality Assurance & User Acceptance Testing: The Cell-Life business analyst will manage internal testing of the solution, quality assurance, and be involved in the user acceptance testing.
  - Business Requirements Specification: The Cell-Life business analyst will produce a document giving detailed requirements of the organisation. This will be in terms of functional (what the system will do), non-functional (performance related requirements, etc) and informational (reporting).
- **Training and Implementation**
  - Training of users on the system will take place on site for large number of participants (including end users and managers) or telephonically for a small number of users. Cell-Life endeavours to minimise the cost of training through training of trainers, whereby training is disseminated internally by the client following an initial training session.
  - Cell-Life will produce training material (in English) to cater for the different user types.
  - An implementation team will install, set-up and configure the hardware and iDART software if required.
- **Support**
  - Cell-Life will provide first line support in the form of a telephone Help Desk, available during normal business hours (Monday to Friday between 9am and 5pm).
- **Ongoing Development**
  - Cell-Life is continuously working to improve the system, creating additional functionality, and enhancing user experience. Software upgrades are provided free of charge as they become available.

## ADDITIONAL SERVICES

As most organisations do not have the time or manpower to go out of their way in implementing a system such as iDART, our team at Cell-Life makes your life easier by offering the following additional services:

- All hardware can be purchased on your organisation's behalf.
- Additional reports can be requested, and development time will be billed.

## USAGE REQUIREMENTS

In order for iDART to run properly, the following hardware and consumables are required:

- **iDART Hardware Requirements**
  - Intel Core2 Duo E7500 2.8 GHz CPU
  - 2GB DDR3-1333
  - GMA X4500 VGA with HW MPEG2
  - 320GB 7200 rpm SATA HDD
  - Keyboard and mouse
  - Windows 7 or XP
  - LCD Screen
  - HP 366 DeskJet D 2663 Printer
  - UPS-APC Backup
  - External modem - Duxbury EDGE USB
  - SIM-card
  - Zebra GK420T Printer
  - Extension lead
  - Marson laser scanner USB
  - 16G Flash Drive (optional depending on backup decision)
- **iDART Consumables**
  - Labels – recommended: 75mm x 50mm standard vellum white labels
  - Wax ribbon (out) – recommended 84mm width
  - Paper and toner for standard A4 printer

## EXTENT OF THE PROGRAM

iDART is presently in over 70 ART sites, with over 250 down referral sites in South Africa. The number of patients per month receiving prescriptions per month is now over 190 000. We are presently in 8 of the 9 Provinces in SA.

iDART is currently being used by most research organisations in South Africa:

1. DTHF- Desmond Tutu HIV Foundation university of Cape Town
2. RHRU- Reproductive Health Research Unit University of Wits
3. PHRU- Perinatal HIV Research Unit university of Wits
4. CAPRISA -Centre for Aids Programme Research in South Africa KZN
5. Match - Maternal Adolescence and Child Health
6. ANOVA Health Institute



## CELLPHONES 4 HIV

### WHAT IS CELLPHONES 4 HIV?

Cellphones 4 HIV (C4H) uses cell-phones to strengthen the HIV sector. We offer a wide range of cell-phone functions to provide information and communication services that are useful to both organizations involved in the HIV/Aids sector, as well as people living with HIV. This service also allows organisations to send news alerts, scheduled reminders, run opinion polls and hold competitions. We also provide MXIT and USSD services to support HIV counselling and VCT.

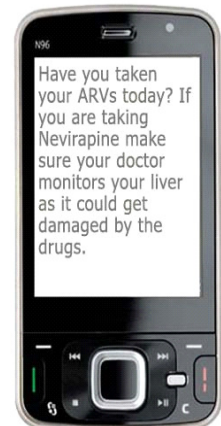
### C4H MODULES AND HOW THEY ARE USED

There are a number of cell-phone functions that form part of the C4H product offering. Any number of these functions can be used in combination with one another, depending on the requirements of the project. Our team at Cell-Life is highly experienced at putting together communication campaigns designed to raise awareness and alter people's perceptions of HIV/AIDS and other social issues.

Below is a brief description of each cell-phone function and how they can be used. The costs mentioned exclude any extra costs such as training and implementation, covering only the cost of data, and are subject to change. The accompanying cell-phones illustrate examples of our previous work, and are an indication of what each module can be used for. Whilst the phones shown are more advanced than the average cell-phone, bear in mind that most of our solutions work on all cell-phone types.

#### BROADCAST SMS

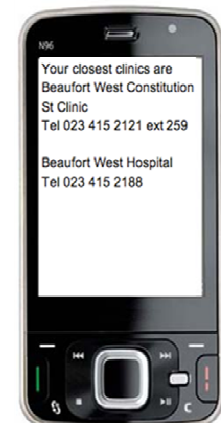
- What is it?** Organisations can send out an SMS to a list of known numbers. These SMSs can be scheduled (e.g. send at 9.00am on Monday).
- Positives:** Everyone can use it; No advanced phone required.
- Negatives:** 160 character limit per SMS.
- Data Costs:** Free to user, cost of 26c to organisation sending.
- Handset:** Any & all.
- Uses:** Any short message, notice or update.



#### INTERACTIVE SMS

- What is it?** People can SMS a keyword and receive information back from an SMS automatically sent by the organization.
- Positives:** Everyone can use it; No advanced phone required.
- Negatives:** 160 character limit per SMS; User has to get keyword exactly right.
- Data Costs:** Free to user, cost of 26c to organisation sending.
- Handset:** Any & all.

User sees a poster and SMSs keyword 'clinic' and their postal code to 12345



**Uses:** SMS to find date, time & venue of next meeting; where the nearest 'facility' is; or any other specified piece of information.

### "PLEASE CALL ME" MESSAGES

**What is it?** People can send a 'Please Call Me' (PCM) message as a signal to an organisation. This is done on Vodacom by typing \*140\*number# or on MTN by typing \*121\*number#.

**Positives:** Everyone can use it; No advanced phone required.

**Negatives:** No content can be entered in the PCM message by the user.

**Data Costs:** Free to user.

**Handset:** Any & all.

**Uses:** Can be used to signal for various things – joining a subscription list, finding local services etc. It can also be used to trigger a response (e.g. "Send a Please Call Me to *this number* to find out more" then an SMS containing the relevant information is then sent back).



### TEXT MENUS (USSD)

**What is it?** Basic text menus; Users can make selections from menus to go to different pages.

**Positives:** Everyone can use it; No advanced phone required.

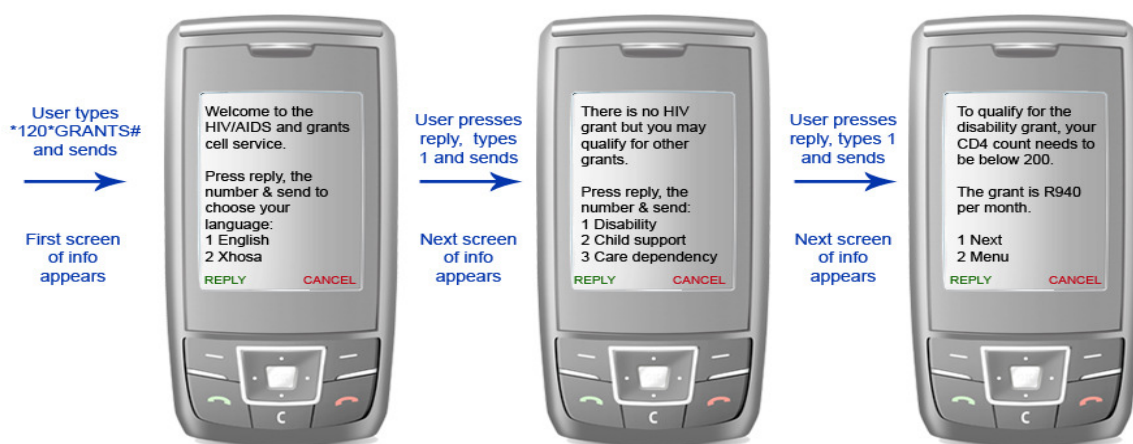
**Negatives:** 150 character limit/screen; bit tricky to use (three key-presses for each selection) 2-min session timeout then content disappears – a USSD selection can trigger an SMS being sent to the user.

**Data Costs:** 1 cent / second.

**Handset:** Any & all.

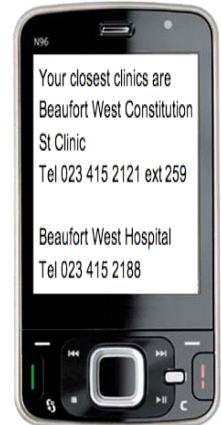
**Examples:** \*111# (Vodacom customers); \*120\*555# (Look for a service); \*120\*8221# (Eng only, 822 = TAC); \*120\*78573# (78573 = PULSE).

**Uses:** Access limited information; Select one of many choices (then sent an SMS of the info, or can read further); or enter a few questions - try \*120\*57573#.



### LOCATION BASED SERVICES (LBS)

- What is it?** As networks use triangulation to pinpoint the location of a cell-phone, they can be utilised by people to find local services. LBS can be used in different ways – SMS, USSD, and GPS. Examples of LBSs include *The Grid* and *Foursquare*.
- Positives:** Everyone can use it; No advanced phone required.
- Negatives:** Usually requires 2-stage communications with user confirming they want to give their location. Privacy issues.
- Data Costs:** Depends on service provider and method of use (SMS, USSD, and GPS).
- Handset:** Any & all (with SMS or USSD), Cell-phones with built-in GPS.
- Uses:** Find where the nearest 'facility' is (e.g. health clinic, support centre or local event); Location based messaging.



### CELL BOOKS

- What is it?** eBooks can be created that download via WAP to a user's cell-phone.
- Positives:** Inexpensive, and there are no character restrictions.
- Negatives:** Users need to have WAP enabled cell-phones, so about 60% of phones in SA can use it. It is new, and therefore unfamiliar to most users.
- Data Costs:** About R1 once-off (free to read it after that – it is on your phone).
- Handset:** Must be WAP and Java enabled.
- Examples:** Metropolitan "B the Future HIV-AIDS Cell Book" (SMS the word HIV to 32907).



### OUR MAIN SERVICE

C4H's strength lies in our knowledge of the health sector. We determine the best way in which organisations can use the various functions of cell-phones in their communication campaigns. We can also assist in working out how best to approach the intended audience, set project goals, and measure how successful each project was.

### OUR MESSAGING PROGRAMS

We have created various out-the-box messaging campaigns to assist organisations in improving adherence, educating their patients, providing support and encouraging healthy living. These packages can be tailored to suit the needs of any organisation.

#### Adherence Message Program

This program allows for patients on drugs regimes or within wellness programs to receive regular messages to remind them about taking their medication or appointments with their respective clinics. Messages are sent twice a day.

### **PMTCT Message Program**

Pregnant HIV mothers on ARVs need to be reminded about the importance of taking their ARVs, as well as being vigilant with side effects that may result from the administering of certain drugs. The system will also encourage mothers who have given birth to collect their children's' test results at various intervals. 50 messages are sent to each mother over the 10 weeks of the program.

### **Newly Diagnosed Program**

For patients that have been newly diagnosed as being HIV+, the news is generally a huge shock. The post test counselling is often not remembered due to these patients being in shock. The Newly Diagnosed Program is a short SMS campaign that is a simple yet effective way of reinforcing the information imparted by the counsellors. It includes 15 healthy living and support messages.

## **C4H SCOPE**

- **Business Analysis**
  - User Requirements Gathering and Documentation: This will be conducted with the management team. Different techniques will be used to elicit the requirements, such as interviews (telephonic and face-to-face) and document reviews.
  - Review of Current Systems: A review of the current tools and methodologies used.
  - Quality Assurance & User Acceptance Testing: The Cell-Life business analyst will manage internal testing of the solution, quality assurance, and be involved in the user acceptance testing.
  - Business Requirements Specification: The Cell-Life business analyst will produce a document giving detailed requirements of the organisation. This will be in terms of functional (what the system will do), non-functional (performance related requirements, etc) and informational (reporting).
- **Training and Implementation**
  - If required, training will take place on site for large number of participants (including end users and managers) or telephonically for a small number of participants. Cell-Life endeavours to minimise the cost of training through training of trainers, whereby training is disseminated internally by the client following an initial training session.
  - Cell-Life will produce training material (in English) to cater for the different user types.
  - An implementation team will install, set-up and configure the software if required.
- **Support**
  - Cell-Life will provide first line support in the form of a telephone Help Desk, available during normal business hours (Monday to Friday between 9am and 5pm).
- **Ongoing Development**
  - Cell-Life is continuously working to improve the system, creating additional functionality, and enhancing user experience. Software upgrades are provided free of charge as they become available.

## EMIT – MOBILE DATA COLLECTION

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### WHAT IS EMIT?

EMIT is a mobile and web-based data collection system designed to take the hassle out of survey and questionnaire data capture.

The mobile component is a JAVA-based application for mobile phones that enables the phone to be used as a tool for remote data collection. Data is entered directly into an easy-to-use form on the mobile phone, and then sent via GPRS to Cell-Life's secure database upon completion. Forms may be sent immediately or saved on the phone for later sending, for occasions here no cell-phone signal is available or where airtime is limited.

Forms may also be completed on a computer or laptop via a website.

Once forms are sent, managers are instantly able to view and edit completed forms online. Collected data may be exported in for analysis in Excel and similar programs; or reports can be created by Cell-Life according to client requirements.

EMIT benefits users by removing the need for paper-based forms, thus saving the time and expense of data capture, as well as reducing errors inherent in transcription.

### HOW IS EMIT USED?

EMIT was developed as a monitoring and evaluation tool for NGOs using community healthcare workers. Its initial users captured information on HIV prevention and treatment literacy sessions in clinics, training programme, and open day events.

Currently clients use EMIT to capture data on community outreach, treatment literacy, HIV counselling and testing, media programs, training, and other HIV-related activities such as condom distribution. Using this data, clients can monitor and evaluate their programs in real time, report to funders, and manage workers.

Using EMIT is more accurate than conventional paper-based survey forms for several reasons:

1. Questions may be marked as compulsory; the system will not allow forms to be sent if all compulsory questions are not completed
2. Forms have built-in "skip logic", thus a question's result will determine what the following questions will be (e.g. the form will only ask whether a person is pregnant if that person has been entered as female). This improves data integrity and reduces errors.
3. Answer formats are pre-determined, such as numeric values, test fields or selection of options via drop-down lists or button selection.

EMIT may also be used by management as a performance monitoring tool. Managers can monitor the number of form submissions made by fieldworkers and see at what time each form was sent, thus they are able to more accurately deploy and manage staff, as well as noting user irregularities. In this way, staff productivity can be managed effectively.

## OTHER USES OF EMIT

EMIT is not limited to simple text forms. Images, sound and video can also be captured (depending on the capabilities of the user's cell-phone), giving the user maximum flexibility.

A few suggested uses of EMIT include:

- **Medical Research/Drug Trail Monitoring**
  - Medical research participants based locally or over large geographical areas can be simultaneously monitored and instantly analysed by eliminating paper-based forms.
- **Patient Tracking through Home-Based Carers**
  - Home-based carers can capture patient information during home visits. Data can be analysed immediately allowing medical or social workers to react immediately and accordingly. Also enables effective management and deployment of home-based carers.
- **Workshop Monitoring and Evaluation**
  - Mobile data collection ensures that information such as the nature of the workshop, materials distributed, and attendance details can be sent immediately for reporting to an organisation's funders or management. Workshop conveners can also be monitored to ensure that they are running the correct workshops in the right places.
- **Market Research**
  - Intercept surveys or remote location surveys are simplified through the use of EMIT through the time saved in completing a digital vs. a paper form, the expense saved and logistics simplified by eliminating paper forms, as well as the real-time access of data for clients.

## EMIT SCOPE

- **Business Analysis**
  - User Requirements Gathering and Documentation: This will be conducted with the management team. Different techniques will be used to elicit the requirements, such as interviews (telephonic and face-to-face) and document reviews.
  - Review of Current Systems: A review of the current tools and methodologies used.
  - Quality Assurance & User Acceptance Testing: The Cell-Life business analyst will manage internal testing of the solution, quality assurance, and be involved in the user acceptance testing.
  - Functional Requirements Document: The Cell-Life business analyst will produce a document giving detailed requirements of the organisation. This will be in terms of functional (what the system will do), non-functional (performance related requirements, etc) and informational (reporting).
- **Form Creation**
  - Cell-Life will create and design the required forms in mobile and online formats.



- **Training**
  - Training of users on the system will take place on site for large number of participants (including end users and managers) or telephonically for a small number of users. Cell-Life endeavours to minimise the cost of training through training of trainers, whereby training is disseminated internally by the client following an initial training session.
  - Cell-Life will produce training material (in English) to cater for the different user types.
- **Support**
  - Cell-Life will provide first line support in the form of a telephone Help Desk, available during normal business hours (Monday to Friday between 9am and 5pm).
- **Ongoing Development**
  - Cell-Life is continuously working to improve the system, creating additional functionality, and enhancing user experience. Software upgrades are provided free of charge as they become available.
- **Secure Hosting**
  - Cell-Life stores all data in a secure, access-restricted database
  - All data is backed up daily offsite

## ADDITIONAL SERVICES

Cell-life offers the following additional services:

- **Mobile device procurement:** Cell-Life is able to procure low-cost cell-phones on a client's behalf.
- **Data-bundle management:** Cell-Life can procure and remotely send data bundles to user's mobile phone.

## USAGE REQUIREMENTS

Use of EMIT requires the following:

- A computer with internet connectivity for online data capture and management.
- Low-cost, GPRS-enabled cell-phones with java functionality for mobile usage.
- Airtime is required in order to send mobile forms to the database (~R0.02 per form)



## CONTACT DETAILS

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