

Photo-attached Mail Service: i-shot

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In June 2002, NTT DoCoMo launched a new service called i-shot, which enables users to transmit mail with photo attachments to i-mode mobile terminals (MTs), PCs and NCC terminals.

1. Introduction

Recently, there has been a radical shift in the purpose of using mobile phones, from voice communication to e-mail. In conjunction with this trend, the demand for photo attachment as an additional feature to mail services has been steadily increasing especially among the young generation.

In response, NTT DoCoMo decided to offer a new service called i-shot, which enables users to transmit mail with photo attachments from an MT with a built-in camera. By offering this service, NTT DoCoMo aims to catch up with rival companies' mail services with photo attachment features that are winning the young generation's support, and cultivate the visual market so as to realize the smooth transition to Freedom of Mobile multimedia Access (FOMA) visual phones.

This article explains the i-shot service, which was launched in June 2002, and reviews its network configuration and MT functions.

2. Service

2.1 Overview

i-shot is a service that enables servers to receive still images uploaded from an MT with a built-in camera such as the 251i Series (**Photo 1**) and transmit "mail with URL for image browsing" or "mail attachment" depending on the destination.

If the image is to be transmitted to an i-mode user, "mail with URL for image browsing" is transmitted so that the user can view the image by accessing the URL from the i-mode MS at the receiving end.

If the image is to be transmitted to other users, the still image is transmitted as a mail attachment without exception.

2.2 Subscription Requirements

There are no requirements for subscribing to the service apart from the ownership of an i-shot compatible terminal —no particular contract is required.

Table 1 is an overview of the i-shot service.

3. System Overview

This chapter describes the system configuration and the connection sequence of the i-shot service.

3.1 Configuration

The system configuration of the i-shot service is as follows (**Figure 1**).

- ① In order to send a photo taken by a MT with a built-in cam-



Photo 1 Mobile Terminal with Built-in Camera (SH251i)

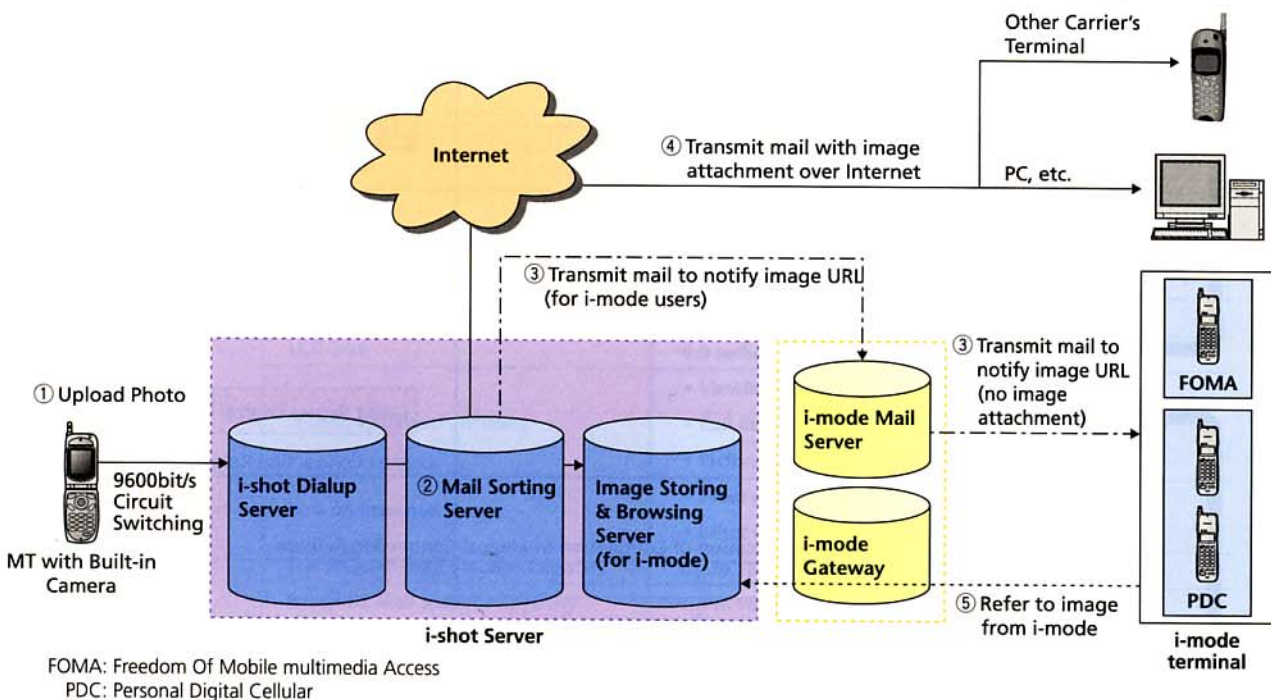
- era to other person, the MT with a built-in camera uploads the photo to an Image Conversion & Mail Sorting Server.
- ② The Mail Sorting Server has the function to convert uploaded photos.

It performs image correction, including the uniform processing of dark images to make them easier to view on MTs and PCs, and changes the format of the photos to suit i-mode terminal.

- ③ If the photo is to be transmitted to an i-mode terminal, the Mail Sorting Server transmits mail to notify the user of the image URL. The i-mode terminal accesses the URL referred

Table 1 Service Overview

Terminals	Mova 251i Series, etc.
Contract Type	Basic service
Basic Fee	Free of charge (i-mode subscription required for reception)
Transmission Fee	A few yen per session (circuit switched)
Reception Fee	Approx. 20 yen (packet switched)
Object of Transmission	i-mode terminal, Internet (transmitted via Internet to other carriers' MSs)
Transmission Capacity in terms of Number of Characters	100 characters
Image Size	Up to 30kB
Storage Period	10 days
Broadcast Function	Up to 10 addresses



FOMA: Freedom Of Mobile multimedia Access
PDC: Personal Digital Cellular

Figure 1 System Configuration of i-shot Service

to in the mail to view the photo.

- ④ If the photo is to be transmitted to a destination other than an i-mode terminal (i.e. to another carrier or PC) the photo is attached to the mail and is sent as Internet e-mail.
- ⑤ Photos to be transmitted to an i-mode terminal is stored in the Image Storing & Browsing Server. The i-mode terminal

referred to in ③ accesses the Image Storing & Browsing Server.

3.2 Image Uploading Sequence

The image uploading sequence is shown below (Figure 2).

The sequence manners are as follows.

- ① Enter the destination, the title and the text from the MT mail

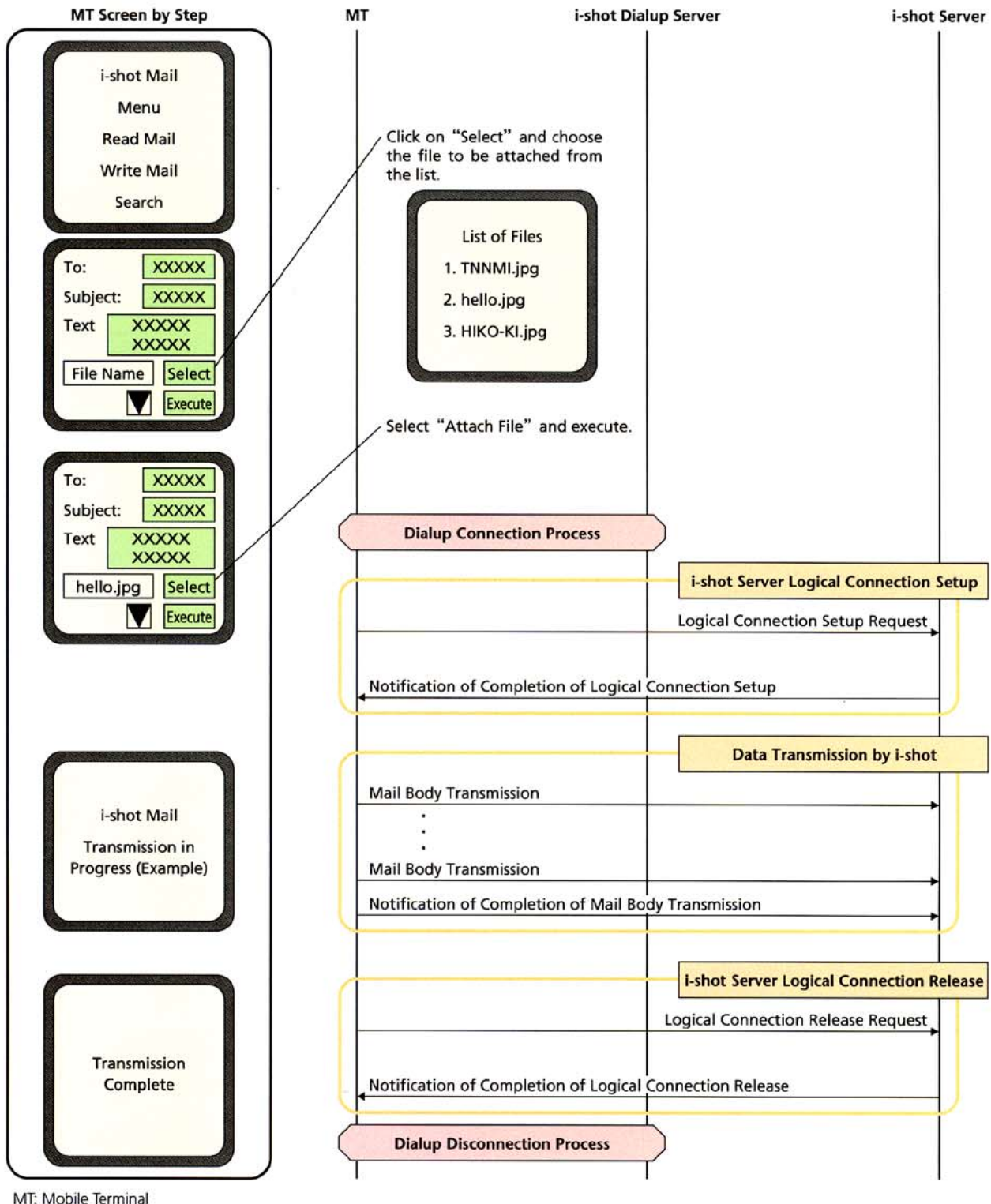


Figure 2 i-shot Uploading Sequence

composition screen.

- ② Select the photo to be transmitted from the MT mail composition screen.
- ③ Select the photo from the list on the screen by pressing the button.
- ④ Press the execution button to upload the photo to the i-shot server via an i-shot dialup server.
- ⑤ Inform the user with successful uploading message.
 - * If there is a photo attachment, the mail is transmitted as an i-shot mail.
 - * If there is no photo attachment, the mail is sent as an i-mode mail. (Note: If the user is not subscribed to i-mode, the mail will not be transmitted.)

4. Mobile Terminals

4.1 Overview

The MT is equipped with a camera, image-transmission/reception feature and other distinguishable functions to provide the i-

shot service. **Table 2** outlines the functions with reference to SH251i as an example.

4.2 Camera Component Functions

The MT has a dedicated button for activating the camera mode to let users switch from standby mode to image-capturing mode, etc. by simple operation.

As for the functions, the camera component is equipped with a 310,000-pixel Charge Coupled Device (CCD) camera and a color Liquid Crystal Display (LCD) functioning as a viewfinder in both main- and sub-LCDs, enabling user-friendliness and high-resolution image capturing.

It also has functions to meet users' needs in various situations, such as digital zoom, self-timer, image-quality options, auxiliary light (picture light) and frame decoration.

4.3 Image Transmission and Reception Function

Captured images can be used as the MT's screensaver, and

Table 2 Specifications of MT with Built-in Camera (Specifications of SH251i)

Functions of Camera Component	Type	310,000-pixel CCD
	Supported Image Formats	JPEG
	Zoom	Digital zoom (up to 4x)
	Shutter Sound	5 types
	Storage Capacity	i-shot (S): Up to 80 images of normal image quality
	Other Functions	<ul style="list-style-type: none"> • Side shutter • Auxiliary light (picture light) • Sequential photos • Self-timer • Frame decoration, etc.
Main-LCD	Type	65536 colors Semi-transparent TFT
	LCD Size	2.0 inches (Display size: 120 dots x 160 dots)
	Distinguishable Functions	<ul style="list-style-type: none"> • Viewfinder function • Call illumination • Picture call
Sub-LCD (LCD on Back Panel)	Type	256 colors STN
	LCD Size	0.9 inches
	Distinguishable Functions	<ul style="list-style-type: none"> • Viewfinder function • Call illumination • Picture call
Mail	Size of Attached Image	<ul style="list-style-type: none"> • i-shot size (S) • i-shot size (L)
	Transmitted Mail Storage Capacity	Up to 100
	Received Mail Storage Capacity	Up to 1000
Catalog Values	Size (mm)	98 x 49 x 25
	Weight (g)	115

CCD: Charge Coupled Device

JPEG: Joint Photographic Experts Group

STN: Super Twisted Nematic liquid crystal

TFT: Thin Film Transistor liquid crystal

can also be transmitted as an attachment to mail up to 200 half-width characters over the Internet or to an i-mode terminal using the i-shot service. The image can be transmitted in two sizes from an MT using i-shot service: “i-shot size (S),” which presumes that the image will be viewed on an MT display; and “i-shot size (L),” which assumes that the image will be viewed on a PC.

As for the image reception functions, the MT has the same image-attached mail functions as existing i-mode terminals, meaning that the image can be received and viewed by existing i-mode terminals as well.

An image transmitted to an i-mode terminal is converted by the server, which informs the MT at the receiving end by i-mode mail that the image is being held. The image can be received and viewed by accessing it via the URL.

4.4 Other Functions

The 251 Series have functions equivalent to the 210 Series, including i-mode. As an ordinary MT, it also has the specifications that are acceptable to a wide range of users.

5. Conclusion

This article described the i-shot service.

We intend to further enhance its usability while observing the user trends of i-shot.

GLOSSARY

CCD: Charge Coupled Device
FOMA: Freedom Of Mobile multimedia Access
JPEG: Joint Photographic Experts Group
PDC: Personal Digital Cellular
STN: Super Twisted Nematic liquid crystal
TFT: Thin Film Transistor liquid crystal