# Are Commonly-Used E-mail Applications Suitable for Information Literacy Courses ?

## – Development of Seemit and the Practical Use in a University-Wide Course

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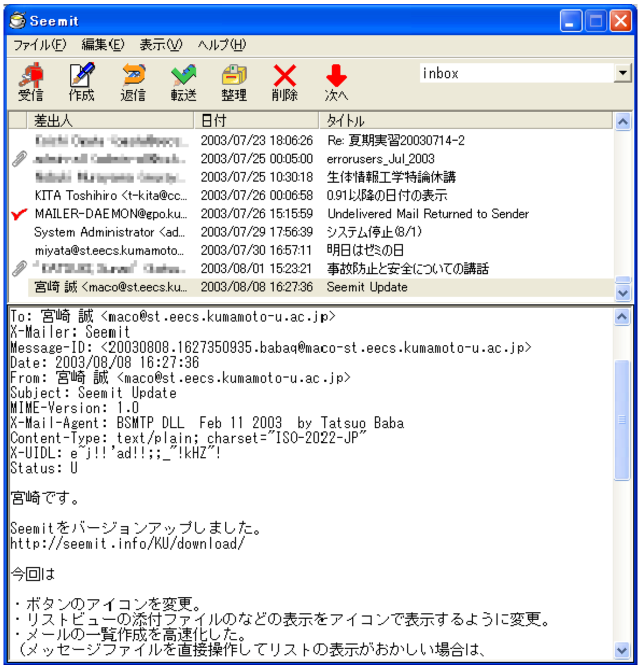
## Abstract

We have developed a simple e-mail application named Seemit which is designed for being used in information literacy courses. Seemit has been intended to be a beginner-proof and instructive e-mail software. It has necessary and sufficient functions for an e-mail application, and it has been developed for the purpose of learning basic operations and mechanisms of e-mail transfer easily. It has been developed in HSP scripting language, which can create compact Windows native binaries. The aims are to help users to avoid common mistakes in typing e-mail addresses and to understand the mechanisms of e-mail transfer. Seemit is a small set of binaries usable in removable media such as a floppy disk without installation procedures and has been released on the Web as a free software. It is equipped with the function to set automatically the configuration of user's SMTP/POP servers and e-mail address, etc. within the intranet. The process of transferring e-mail via SMTP and POP can be demonstrated step by step showing actual messages passed from the client to a server and vice versa. We have utilized Seemit in a university-wide information literacy course. We are also developing the next version of Seemit that is built on Kylix and Delphi for supporting Linux as well as Windows.

## 1 Introduction

Nowadays university students are socially required to master basics of information technology regardless of the faculty they belong to. Since 2002, Kumamoto University has offered courses named "Basic Course of Information Technologies A" and "Basic Course of Information Technologies B" both of which all the 1800 fresh students of the university are required to take. E-mail operation and e-mail delivery mechanisms are indispensable items taught in these courses as e-mail is the one of the most important and common media in the Internet.

One of the authors, as teaching staff of these courses, have used existing e-mail applications and felt the existing softwares were not always suitable for the purpose of teaching beginners unfamiliar with PCs. That is why we have developed an e-mail application called Seemit (Kita, Miyazaki, & Sugitani, 2002; Miyazaki, Kita, Sugitani, & Akiyama, 2003, 2004) designed to be beginner-proof and instructive.



| 差出人 | 日付 | タイトル |
|---|---|---|
| [redacted] | 2003/07/23 18:06:26 | Re: 夏期実習20030714-2 |
| [redacted] | 2003/07/25 00:05:00 | errorusers_Jul_2003 |
| [redacted] | 2003/07/25 10:30:18 | 生体情報工学特論休講 |
| KITA Toshihiro <t-kita@cc... | 2003/07/26 00:06:58 | 0.91以降の日付の表示 |
| ✓ MAILER-DAEMON@gpo.ku... | 2003/07/26 15:15:59 | Undelivered Mail Returned to Sender |
| System Administrator <ad... | 2003/07/29 17:56:39 | システム停止(8/1) |
| miyata@st.eecs.kumamoto... | 2003/07/30 16:57:11 | 明日はゼミの日 |
| [redacted] | 2003/08/01 15:23:21 | 事故防止と安全についての講話 |
| 宮崎 誠 <maco@st.eecs.ku... | 2003/08/08 16:27:36 | Seemit Update |

```
To: 宮崎 誠 <maco@st.eecs.kumamoto-u.ac.jp>
X-Mailer: Seemit
Message-ID: <20030808.1627350935.babaq@maco-st.eecs.kumamoto-u.ac.jp>
Date: 2003/08/08 16:27:36
From: 宮崎 誠 <maco@st.eecs.kumamoto-u.ac.jp>
Subject: Seemit Update
MIME-Version: 1.0
X-Mail-Agent: BSMTP DLL  Feb 11 2003  by Tatsuo Baba
Content-Type: text/plain; charset="ISO-2022-JP"
X-UIDL: e~j!!'ad!!;;_"!kHZ"!
Status: U

宮崎です。

Seemitをバージョンアップしました。
http://seemit.info/KU/download/

今回は

・ボタンのアイコンを変更。
・リストビューの添付ファイルのなどの表示をアイコンで表示するように変更。
・メールの一覧作成を高速化した。
 (メッセージファイルを直接操作してリストの表示がおかしい場合は、
```

**Figure 1:** Initial window of Seemit (Mail view window)

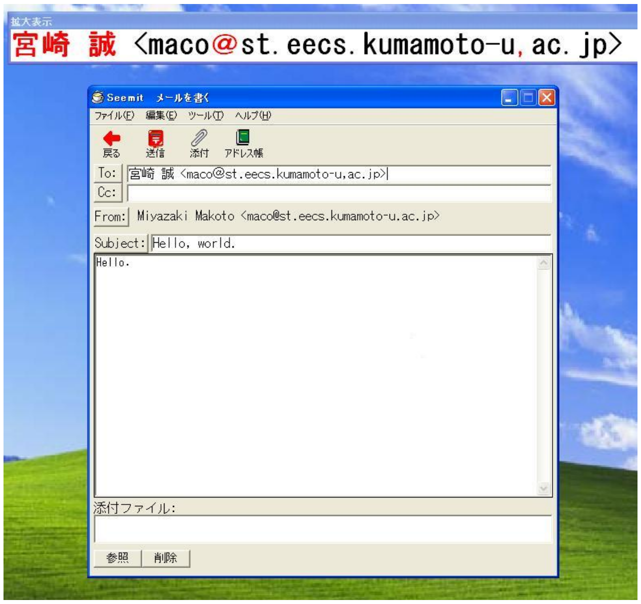
## 2 Specific Features of Seemit

### 2.1 Characteristics and specifications

The initial screen of Seemit (http://seemit.info/) is shown in Figure 1. The features and specifications of Seemit are summarized as follows: It has necessary and sufficient functions for an e-mail application. It aims at learning of the basic operation and principle of e-mails. The development has been done with the free interpreter language HSP (http://www.onionsoft.net/hsp/). With HSP, building the small executable file for Windows is possible. BSMTP.DLL (http://www.hi-ho.ne.jp/babaq/bsmtp.html) via extended plug-in BsmtpHsp.hpi (http://homepage1.nifty.com/dateshim/soft/BsmtpHsp.html) are used as the API for sending and receiving e-mails. In order to avoid for users to forget e-mail passwords, the function to save the password on a disk was intentionally eliminated. Fundamental operations can be done on one window, only by clicking the icon in the menu bar. The binary file is about 600KB, including DLLs, such as BSMTP.DLL, and it can be practically used even if it is stored in a floppy disk or other removable media without the installation procedure. We have two versions of Seemit; one is the ordinary version released at http://seemit.info/ or http://www.vector.co.jp/, the other is the Kumamoto University version customized to be used in the university intranet.

### 2.2 Enlarged display window

A fixed-width large font is used for the parts where beginners tend to make typing mistakes, such as the e-mail address field. And what the user types is indicated enlarged in another window as shown in Figure 2. Wrong letters like a comma or a 2-byte character typed within an e-mail address are



宮崎 誠 <maco@st.eecs.kumamoto-u,ac.jp>

To: 宮崎 誠 <maco@st.eecs.kumamoto-u,ac.jp>

Cc:

From: Miyazaki Makoto <maco@st.eecs.kumamoto-u.ac.jp>

Subject: Hello, world.

Hello.

**Figure 2:** What the user types is indicated enlarged

indicated in red for alarming users.

## 2.3 Demonstration function of SMTP and POP session

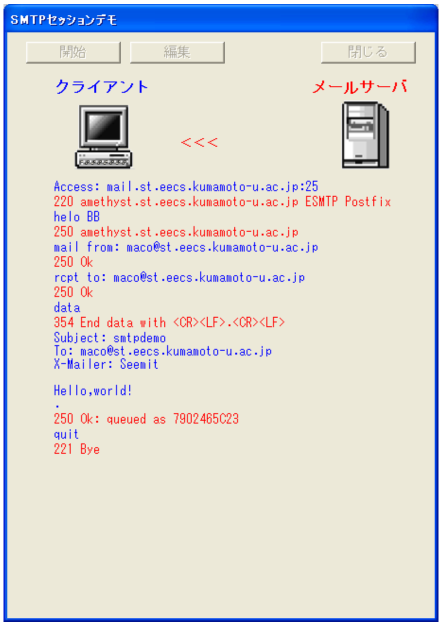
As shown in Figure 3 and Figure 4, Seemit has the demonstration mode of SMTP and POP that can display in real-time the message being exchanged between the server and the client in an SMTP or POP session. Users can see the server-client messages usually hidden from them so that they can know the mechanisms of e-mail transmission. In addition, in SMTP demonstration mode, the mail header is freely editable, so users can actually send a forged e-mail whose ’From’ header is falsified like most of SPAM and viral mails. (The destination address which the forged mail is sent to is fixed to the user her/himself.) With this, they can learn falsification of e-mail headers is really something easy to do and become conscious about e-mail security.

## 2.4 Glossary window explaining header terms

To let the users know that e-mail headers can be falsified as easily as the body part can, all of the e-mail header is displayed in the same window as the body texts. A pop-up window explaining the meanings of various header terms is available. Clicking each line of the header displays explanation of the corresponding header item as shown in Figure 5.

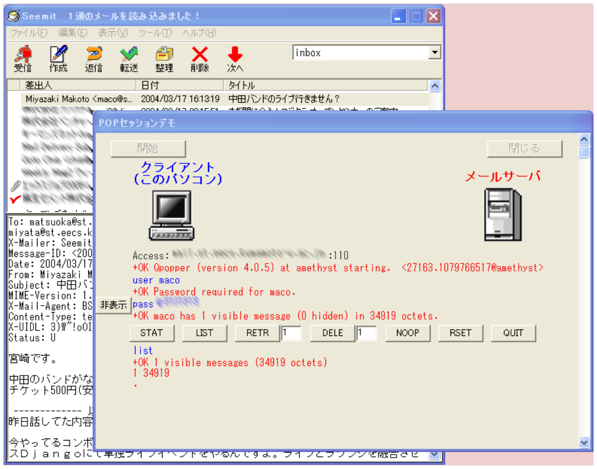
## 2.5 Attention to error mails

Error mails (in fact the mails from MAILER-DAEMON) are somewhat puzzling for beginners, so the body text of an error mail is displayed in red as in Figure 6 to let the readers know it is a warning.


SMTPセッションデモ
開始
編集
閉じる
クライアント
メールサーバ
<<<

```
Access: mail.st.eecs.kumamoto-u.ac.jp:25
220 amethyst.st.eecs.kumamoto-u.ac.jp ESMTP Postfix
helo BB
250 amethyst.st.eecs.kumamoto-u.ac.jp
mail from: maco@st.eecs.kumamoto-u.ac.jp
250 Ok
rcpt to: maco@st.eecs.kumamoto-u.ac.jp
250 Ok
data
354 End data with <CR><LF>.<CR><LF>
Subject: smtpdemo
To: maco@st.eecs.kumamoto-u.ac.jp
X-Mailer: Seemit

Hello,world!
.
250 Ok: queued as 7902465C23
quit
221 Bye
```

Figure 3: Illustration window of SMTP session

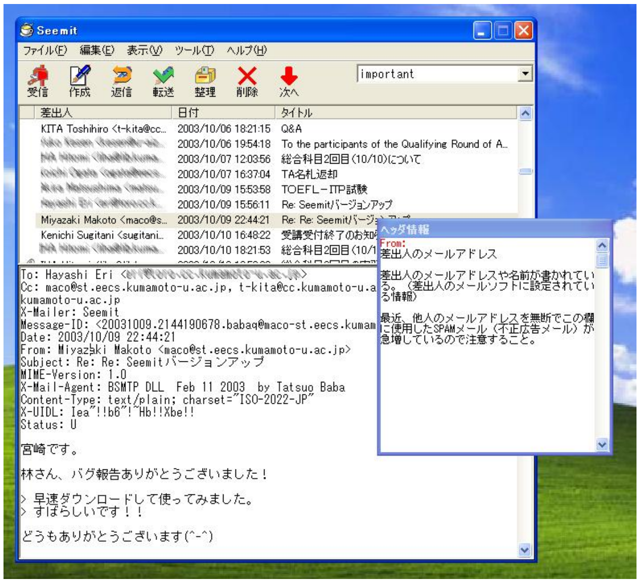

Seemit 1通のメールを読み込みました！
ファイル(F) 編集(E) 表示(V) ツール(T) ヘルプ(H)
受信
作成
返信
転送
整理
削除
次へ
inbox
差出人
日付
タイトル
POPセッションデモ
開始
閉じる
クライアント
(このパソコン)
メールサーバ
非表示
STAT
LIST
RETR
DELE
NOOP
RSET
QUIT

| 差出人 | 日付 | タイトル |
|---|---|---|
| Miyazaki Makoto <maco@s... | 2004/03/17 16:13:19 | 中田バンドのライブ行きません？ |

```
Access: [redacted]:110
+OK Qpopper (version 4.0.5) at amethyst starting.  <27163.1079766517@amethyst>
user maco
+OK Password required for maco.
pass [redacted]
+OK maco has 1 visible message (0 hidden) in 34919 octets.
list
+OK 1 visible messages (34919 octets)
1 34919
.
```

```
To: matsuoka@st.
miyata@st.eecs.k
X-Mailer: Seemit
Message-ID: <200
Date: 2004/03/17
From: Miyazaki M
Subject: 中田バ
MIME-Version: 1.
X-Mail-Agent: BS
Content-Type: te
X-UIDL: 3)W"!oOI
Status: U

宮崎です。

中田のバンドがな
チケット500円(安

 ------------- 
昨日話してた内容

今やってるコンポ
```

Figure 4: Illustration window of POP session


Seemit
ファイル(F) 編集(E) 表示(V) ツール(T) ヘルプ(H)
受信
作成
返信
転送
整理
削除
次へ
important
ヘッダ情報

| 差出人 | 日付 | タイトル |
|---|---|---|
| KITA Toshihiro <t-kita@cc... | 2003/10/06 18:21:15 | Q&A |
| [redacted] | 2003/10/06 19:54:18 | To the participants of the Qualifying Round of A... |
| [redacted] | 2003/10/07 12:03:56 | 総合科目2回目(10/10)について |
| [redacted] | 2003/10/07 16:37:04 | TA名札返却 |
| [redacted] | 2003/10/09 15:53:58 | TOEFL－ITP試験 |
| [redacted] | 2003/10/09 15:56:11 | Re: Seemitバージョンアップ |
| Miyazaki Makoto <maco@s... | 2003/10/09 22:44:21 | Re: Re: Seemitバージョンアップ |
| Kenichi Sugitani <sugitani... | 2003/10/10 16:48:22 | 受講受付終了のお知 |
| [redacted] | 2003/10/10 18:21:53 | 総合科目2回目(10/1 |

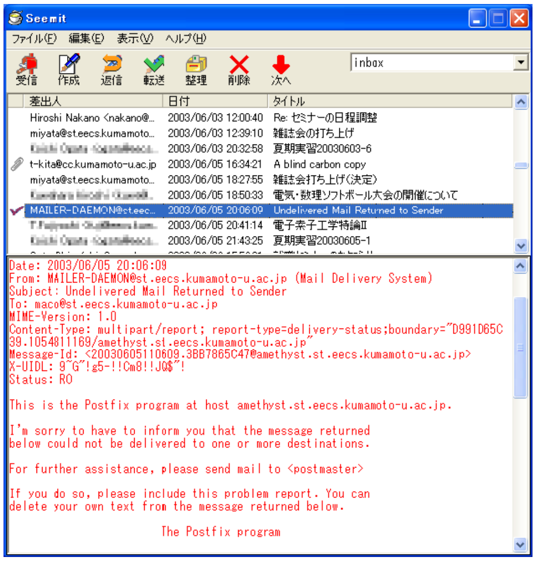
```
To: Hayashi Eri <[redacted]>
Cc: maco@st.eecs.kumamoto-u.ac.jp, t-kita@cc.kumamoto-u.a
kumamoto-u.ac.jp
X-Mailer: Seemit
Message-ID: <20031009.2144190678.babaq@maco-st.eecs.kumam
Date: 2003/10/09 22:44:21
From: Miyazaki Makoto <maco@st.eecs.kumamoto-u.ac.jp>
Subject: Re: Re: Seemitバージョンアップ
MIME-Version: 1.0
X-Mail-Agent: BSMTP DLL  Feb 11 2003  by Tatsuo Baba
Content-Type: text/plain; charset="ISO-2022-JP"
X-UIDL: Iea"!!b6"!"Hb!!Xbe!!
Status: U

宮崎です。

林さん、バグ報告ありがとうございました！

> 早速ダウンロードして使ってみました。
> すばらしいです！！

どうもありがとうございます(^-^)
```

From:
差出人のメールアドレス

差出人のメールアドレスや名前が書かれている。（差出人のメールソフトに設定されている情報）

最近、他人のメールアドレスを無断でこの欄に使用したSPAMメール（不正広告メール）が急増しているので注意すること。

Figure 5: Glossary window explaining header terms



| 差出人 | 日付 | タイトル |
|---|---|---|
| Hiroshi Nakano <nakano@... | 2003/06/03 12:00:40 | Re: セミナーの日程調整 |
| miyata@st.eecs.kumamoto... | 2003/06/03 12:39:10 | 雑誌会の打ち上げ |
| [redacted] | 2003/06/03 20:32:58 | 夏期実習20030603-6 |
| t-kita@cc.kumamoto-u.ac.jp | 2003/06/05 16:34:21 | A blind carbon copy |
| miyata@st.eecs.kumamoto... | 2003/06/05 18:27:55 | 雑誌会打ち上げ(決定) |
| [redacted] | 2003/06/05 18:50:33 | 電気・数理ソフトボール大会の開催について |
| MAILER-DAEMON@st.eec... | 2003/06/05 20:06:09 | Undelivered Mail Returned to Sender |
| [redacted] | 2003/06/05 20:41:14 | 電子素子工学特論II |
| [redacted] | 2003/06/05 21:43:25 | 夏期実習20030605-1 |

```
Date: 2003/06/05 20:06:09
From: MAILER-DAEMON@st.eecs.kumamoto-u.ac.jp (Mail Delivery System)
Subject: Undelivered Mail Returned to Sender
To: maco@st.eecs.kumamoto-u.ac.jp
MIME-Version: 1.0
Content-Type: multipart/report; report-type=delivery-status;boundary="D991D65C
39.1054811169/amethyst.st.eecs.kumamoto-u.ac.jp"
Message-Id: <20030605110609.3BB7865C47@amethyst.st.eecs.kumamoto-u.ac.jp>
X-UIDL: 9~G"!g5-!!Cm8!!JQ$"!
Status: RO

This is the Postfix program at host amethyst.st.eecs.kumamoto-u.ac.jp.

I'm sorry to have to inform you that the message returned
below could not be delivered to one or more destinations.

For further assistance, please send mail to <postmaster>

If you do so, please include this problem report. You can
delete your own text from the message returned below.

                        The Postfix program
```

**Figure 6:** Display of an error mail

## 2.6 Computer virus warning

When the user is going to save the attached file whose name is with the extension often used by computer virus, Seemit refuses to save the file by default and warns about the danger of viral e-mails.

## 2.7 Automatic configuration

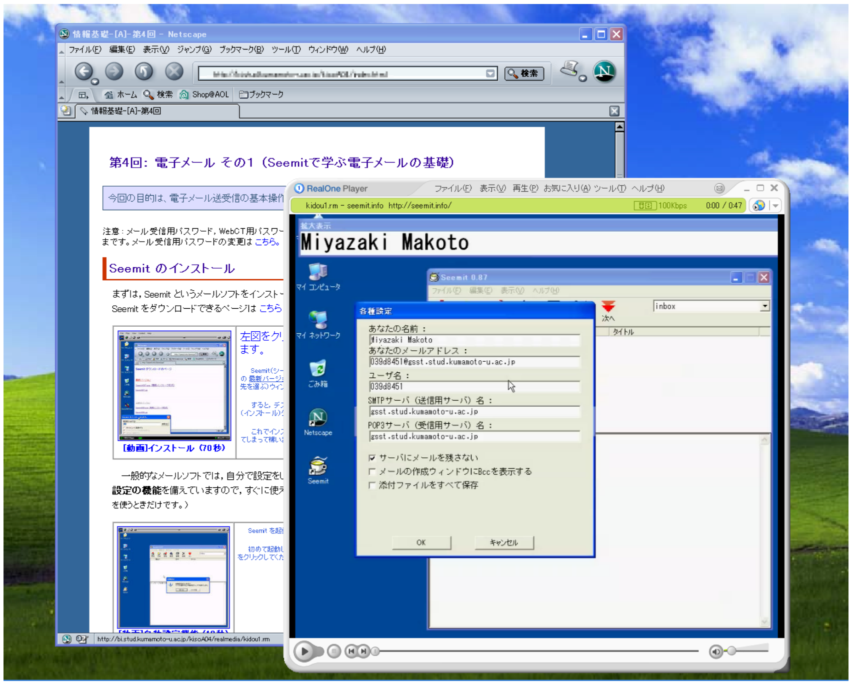
Settings of the user's property like the e-mail address or the SMTP server can be done automatically by connecting to the automatic configuration server. (It is possible only for the Kumamoto University version within the intranet of the university.) Moreover, the signature part and the address book are also automatically created. The automatic setup is done by transmitting the Windows username to the automatic configuration server, and the server returns setting information to Seemit. It is certainly true that the students using Seemit must learn how to do the setting manually, but at the very first stage it is more important to learn how to write and reply e-mails and what are the good manners.

## 2.8 Released as freeware

Seemit is a free software. Anyone can use it free of charge. And the source code is also offered free of charge on request and users may customize it freely.

# 3 Utilization of Seemit in Information Literacy Courses

Kumamoto University has offered information literacy courses named "Basic Course of Information Technologies A" and "Basic Course of Information Technologies B" both of which all the 1800 fresh students of the university are required to take. 7 main teaching staffs are always discussing the


第4回：電子メール その1（Seemitで学ぶ電子メールの基礎）
Seemit のインストール
RealOne Player
kidou1.rm - seemit.info http://seemit.info/
Seemit 0.87
ファイル(F) 編集(E) 表示(V) ヘルプ(H)
次へ
Inbox
タイトル
OK
キャンセル

Miyazaki Makoto

各種設定

あなたの名前：Miyazaki Makoto
あなたのメールアドレス：039d8451@gsst.stud.kumamoto-u.ac.jp
ユーザ名：039d8451
SMTPサーバ（送信用サーバ）名：gsst.stud.kumamoto-u.ac.jp
POP3サーバ（受信用サーバ）名：gsst.stud.kumamoto-u.ac.jp
☑ サーバにメールを残さない
☐ メールの作成ウィンドウにBccを表示する
☐ 添付ファイルをすべて保存

**Figure 7:** Animation contents for the information literacy course

content of the courses lasting for whole year, creating and sharing the LMS (Learning Management System) teaching materials. So the quality and quantity of the every time class is almost uniform without depending on the teacher or the faculty of the learners. Related to these courses, Japan University Accreditation Association has awarded Kumamoto University a grant-in-aid for unique educational activities in 2004. Naturally, the courses include learning how-to's and principles of e-mail. All the learners used Seemit in the courses. As contents to learn the e-mail basics with Seemit, we provided movie files on Web which explained from the installation, operation methods to the manners. Students can browse these explanatory materials freely during the class and afterward for reviewing. One scene of the movie contents is shown in Figure 7.

## 3.1 Utilization of automatic configuration

With a function of automatic setting of Seemit, the students did their own e-mail configurations. Because the settings were done without mistakes by automatic setting, students were able to send and receive e-mails immediately after that. In addition, the signature and the address book are made at the same time, which helped students who had questions to their teacher to send questioning e-mails.

Of course, there must be an opinion that "making e-mail configuration for him/herself is a part of learning", but we think it is most important to learn, first of all, operations of sending and receiving e-mails and manners and rules. If we explain the meaning of the setting items at the first stage, it seems that most students forget them after all.

Since the setup was automatically done, time was enough spared to instruction of the following items described in the subsequent subsections, and there was also time to check students' understanding by on-line quizzes.

### 3.2 Receive and reply

An e-mail was sent to each student beforehand and let them practice receiving and replying. The point is to "check carefully the destination addresses when replying to an e-mail" not to send it to undesired destinations. In addition, another e-mail (requiring reply to the sender) was sent via a mailing list expecting some careless students reply it to the mailing list and let them experience what to happen.

### 3.3 Sending a message and attention about attached files

We let each student write a new e-mail. There were not so many input errors of addresses, which confirmed the effectiveness of enlarged view of Seemit. In addition, we let students send e-mails to a specified address that automatically returned an e-mail with the attached file whose extension was ".bat" (pseudo virus). When they were going to save the attached file, warning of possibly viral e-mails appeared and let them actually confirm that saving was refused.

### 3.4 Understanding of the meaning of error e-mails

Bounced mails sent from the MTA are often puzzling for beginners. "Wrong address example 1" (an address yielding Host not found) "wrong address example 2" (an address yielding Unknown user) are set automatically in users' address books by the above-mentioned automatic configuration. The students were told to send e-mails on purpose to each address for getting and recognizing error e-mails bounced. Seemit indicates an error-mail mark for each of error e-mails in the summary window, and the body text is displayed in red. In addition, the point for reading content of error e-mails to know the cause was explained.

### 3.5 Using SMTP and POP demo mode

As the SMTP demonstration mode is rather for advanced learners, it was utilized in another later time (not at the first time to use Seemit). The students did self-learning of e-mail delivery mechanisms by watching explanatory animation contents provided on Web. A later survey showed almost all the learners feel that these demo mode are interesting to see the backstage of e-mail delivery, so we think the self-learning was successful in a way. However, most learners felt they have difficulties in understanding the meaning of the demo. We hope to improve the demo illustration to be more easy to understand.

## 4 Next version of Seemit

We are now developing next version of Seemit for supporting Linux as well as Windows. Lately Linux are becoming more popular for running servers and ordinary PCs'. We have 900 PCs' for educational use enabled to boot Windows and Linux in our university and let students use Linux several times (and more often in the future) in the above-mentioned information literacy courses of our university.

Considering there will be more chance to use Linux for literacy learning, we are porting (in fact almost rewriting) Seemit codes to be able to built on Kylix (http://www.borland.com/kylix/). That means it can also be built on Delphi (http://www.borland.com/delphi/) with CLX component to

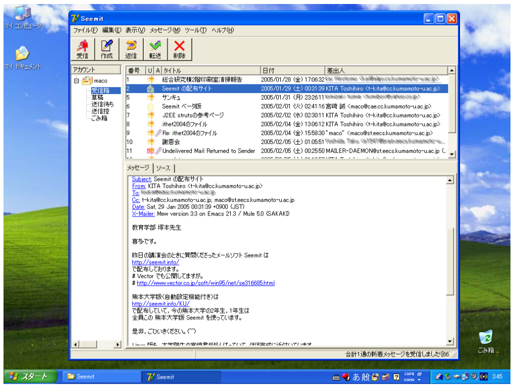
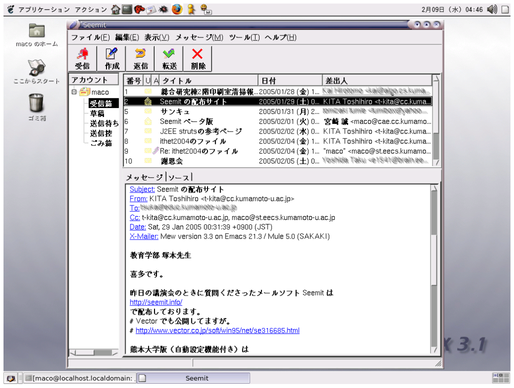


**Figure 8:** Seemit2 for Windows



| 番号 | U | A | タイトル | 日付 | 差出人 |
|---|---|---|---|---|---|
| 1 | | | 総合研究棟2階印刷室清掃報… | 2005/01/28 (金) 1… | [redacted] |
| 2 | | | Seemit の配布サイト | 2005/01/29 (土) 0… | KITA Toshihiro <t-kita@cc.kuma… |
| 5 | | | サンキュ | 2005/01/31 (月) 2… | [redacted] |
| 6 | | | Seemit ベータ版 | 2005/02/01 (火) 0… | 宮崎 誠 <maco@cae.cc.kumamo… |
| 7 | | | J2EE strutsの参考ページ | 2005/02/02 (水) 0… | KITA Toshihiro <t-kita@cc.kuma… |
| 8 | | | ithet2004のファイル | 2005/02/04 (金) 1… | KITA Toshihiro <t-kita@cc.kuma… |
| 9 | | | Re: ithet2004のファイル | 2005/02/04 (金) 1… | "maco" <maco@st.eecs.kumamo… |
| 10 | | | 謝恩会 | 2005/02/05 (土) 0… | [redacted] |

Subject: Seemit の配布サイト
From: KITA Toshihiro <t-kita@cc.kumamoto-u.ac.jp>
To: [redacted]
Cc: t-kita@cc.kumamoto-u.ac.jp, maco@st.eecs.kumamoto-u.ac.jp
Date: Sat, 29 Jan 2005 00:31:39 +0900 (JST)
X-Mailer: Mew version 3.3 on Emacs 21.3 / Mule 5.0 (SAKAKI)

教育学部 塚本先生

喜多です。

昨日の講演会のときに質問くださったメールソフト Seemit は
http://seemit.info/
で配布しております。
# Vector でも公開してますが。
# http://www.vector.co.jp/soft/win95/net/se316685.html

熊本大学版（自動設定機能付き）は

**Figure 9:** Seemit2 for Linux

create Windows binary. It is still beta stage, but core part of Seemit is beginning to run as in Figure 8 and Figure 9.

## 5 Summary

We have developed an e-mail software Seemit aiming at information literacy education, and utilized it in university-wide information literacy courses for 1800 students in Kumamoto University. In teaching beginners how to send and receive e-mails, we face difficulties as the learners do annoying things that cost much time of the class time. And the learners are troubled by trivial errors and can not concentrate on learning the manners, common rules and mechanisms of e-mails operations and delivery. We think the e-mail applications as we developed will be much help to make an effective and instructive course without theses problems. Making contents for learning information literacy is frequently discussed, but it will be another good way to develop the content-specific software that is practical and also instructive.

## References

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