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**Datasheet for the decision  
of 12 May 2016**

**Case Number:** T 1441/11 - 3.5.06

**Application Number:** 08252340.8

**Publication Number:** 2017731

**IPC:** G06F9/445

**Language of the proceedings:** EN

**Title of invention:**

Program determining apparatus and program determining method

**Applicant:**

Ricoh Company, Ltd.

**Headword:**

Memory consumption testing/RICOH

**Relevant legal provisions:**

EPC Art. 84, 56, 123(2)

**Keyword:**

Amendments - added subject-matter (no)  
Claims - clarity (yes)  
Inventive step - (yes)

**Decisions cited:**

**Catchword:**



**Beschwerdekammern**  
**Boards of Appeal**  
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Case Number: T 1441/11 - 3.5.06

**D E C I S I O N**  
**of Technical Board of Appeal 3.5.06**  
**of 12 May 2016**

**Appellant:** Ricoh Company, Ltd.  
(Applicant) 3-6, Nakamagome 1-chome  
Ohta-ku  
Tokyo 143-8555 (JP)

**Representative:** Mounteney, Simon James  
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**Decision under appeal:** Decision of the Examining Division of the  
European Patent Office posted on 28 January 2011  
refusing European patent application No.  
08252340.8 pursuant to Article 97(2) EPC.

**Composition of the Board:**

**Chairman** W. Sekretaruk  
**Members:** S. Krischer  
M. Müller

## Summary of Facts and Submissions

I. The appeal is directed against the decision of the examining division, dated 28 January 2011, to refuse the application 08252340 for added subject-matter (Article 123(2) EPC) of all three requests. Furthermore, in a section entitled "additional observations", objections concerning lack of clarity and added subject-matter were raised against the main request.

In the search report, the following documents are mentioned:

D1 US 2006/50304 A1.  
D2 US 2005/15668 A1.  
D3 EP 0 578 264 A2.

II. A notice of appeal was received on 28 March 2011. The appeal fee was received the same day. A statement of the grounds of appeal was received on 7 June 2011, including a main and an auxiliary request.

III. In its summons to oral proceedings, the board gave reasons for its preliminary opinion that the claims were originally disclosed (Article 123(2) EPC), but not clear (Article 84 EPC) and not inventive (Article 56 EPC).

IV. With a letter dated 12 April 2016, the appellant filed a second auxiliary request.

V. Oral proceedings were held on 12 May 2016, during which the appellant filed a new sole request and withdrew all other requests.

VI. The appellant requests that the decision be set aside and a patent be granted based on the claims of the sole request filed during oral proceedings on 12 May 2016, with description pages 1-3 and 6-87 as originally filed, page 4 filed on 25 October 2010, page 5 filed on 23 April 2009 and drawing sheets 1-24 as originally filed.

VII. Claim 1 of the sole request reads as follows:

"1. An image forming apparatus (10) comprising:

application manager software (31) configured to install applications (A, B, 321) to operate in the image forming apparatus and selectively to cause the applications to be activated provisionally or fully, such that hardware specific to image forming in the image forming apparatus is not used during provisional activation and may be used by the applications only when they are activated fully;

a log recording unit (42) configured to record, during provisional activation of an application, in response to at least one of a use request for use of a predetermined function of the image forming apparatus from the application (321) for use in the image forming apparatus and consumption of a memory of the image forming apparatus by the application (321), memory consumption of the application in each of a number of states of the application as log information; and

a determining unit (334) configured to determine based on the log information whether a maximum value of memory consumption of the application in each state of the application is less than or equal to a predetermined restriction, and, only if so, to transmit (S160) to the application manager software (31) a message of successful provisional activation, and

otherwise to transmit to it a message of the failure of provisional activation;

the application manager software (31) being configured to respond to the successful provisional activation message to enable full activation of the application and to respond to the failure message to disable the full activation of the application."

VIII. Independent claim 8 reads as follows:

"8. A computerized method of operating image forming apparatus comprising:

installing applications (A, B, 321) to operate in the image forming apparatus and selectively causing the applications to be activated provisionally or fully, such that hardware specific to image forming in the image forming apparatus is not used during provisional activation and may be used by the applications only when they are fully activated;

a log recording step of recording, during provision activation of an application, in response to at least one of a use request for use of a predetermined function of the image forming apparatus from the application for use in the image forming apparatus and consumption of a memory of the image forming apparatus by the application, memory consumption of the application in each of a number of states of the application as log information; and

a determining step of determining, based on the log information, whether a maximum value of memory consumption of the application in each state of the application is less than or equal to a predetermined restriction, and, only if so, enabling full activation of the application but, if not, disabling the full activation of the application."

- IX. Claim 15 is an independent claim relating to a computer-readable recording medium and referring back to method claims 8-14.

## **Reasons for the Decision**

### 1. *Overview of the invention*

The application relates to logging and checking the memory consumption of an application program for an image forming multifunction machine (e.g. with print and scan functions, see [23] in the A1 publication; see also figure 2: printing unit 122 and facsimile control unit FCU 203). The application program (for example a scan application; figure 3: 321) may have been developed by a software vendor different from the vendor of the machine ([2]). In order to check in advance the memory restrictions imposed on the software ([3]), the application is provisionally activated in a test environment ([26]) wherein the print/scan functions are disabled and simulated by software ([37], [39]). The provisional activation may be performed on a general purpose personal computer (PC) instead of the multifunction machine ([124] and claim 8). During the provisional activation, operational instructions for test scenarios are automatically entered into the application according to a "scenario script", simulating the input of a human operator ([43]). After successful provisional activation (i.e. if the memory restriction and other conditions laid down in a "main script" are fulfilled, [102]; see figure 9 for a main script), the application is terminated ("moved to the destroy state", [103]) and the result of the provi-

sional activation (successful or not) is presented to a human operator who may enter an instruction for a full activation of the application ([104]; figure 7: S165, S166). In case the provisional activation was not successful, the full activation is disabled so that the operator cannot fully activate the application ([106], second and third sentences).

2. *Original disclosure of the sole request*

- 2.1 The decision raised the following objections with respect to original disclosure which do not apply to the present claims.
- 2.2 The objection raised on page 3, first paragraph has been overcome by the appellant by replacing "program" by "application", as implicitly suggested by the objection.
- 2.3 The board does not agree with the decision on the objection raised in the fourth paragraph on the same page. The description passage cited in that paragraph (page 72, line 6 to page 73, line 10 corresponding to [128]-[129] in the A1 publication) about figure 18B merely shows an exemplary situation of the memory usage of two applications activated simultaneously, without however disclosing a computer-implemented method detecting or preventing this situation. The latter is disclosed in [135]-[145] with reference to the procedure of figure 20 (see [145]: "As described with reference to FIG. 20, it is possible to avoid the situation illustrated in FIG. 18C by restricting state transitions of applications."). In that procedure there are one application requiring a state transition and other applications (see [136]). Therefore, the



expression "applications" in present claim 2 (instead of "two application") complies with Article 123(2) EPC.

- 2.4 The objection raised on page 4, first complete paragraph does not apply to the present claims. The expression "activation unit" is no longer claimed.
- 2.5 The decision objected on pages 4 and 5 with respect to auxiliary request 2 that "*determining which state the application is in and the memory consumption in that state*" was not originally disclosed. The corresponding passage in claim 1 now reads: "to record, ..., memory consumption of the application in each of a number of states of the application as log information". The board considers the latter to be originally disclosed in figure 14.
- 2.6 As to the other amendments in present claim 1 in comparison with claim 1 of the refused main request, the board finds that they satisfy the requirements of Article 123(2) EPC:
- "application manager software (31) ... to be activated provisionally or fully,": see 31 in figures 3 and 7, see also [29], second sentence, and [53]-[56];
  - "such that hardware specific to image forming in the image forming apparatus is not used during provisional activation and may be used by the applications only when they are activated fully": see [124];
  - "[a log recording unit (42) configured to record,] during provisional activation of an application": see [26]
  - "[a determining unit (334) configured to determine] based on the log information whether a maximum

value of memory consumption of the application in each state of the application is less than or equal to a predetermined restriction, and, only if so, to transmit (S160) to the application manager software (31) a message of successful provisional activation, and otherwise to transmit to it a message of the failure of provisional activation;": see [101]-[102], [106];

- "the application manager software (31) being configured to respond to the successful provisional activation message to enable full activation of the application and to respond to the failure message to disable the full activation of the application.": see [104], [106].

3. The features of independent method claim 8 correspond to those of apparatus claim 1. Therefore, this claim also complies with Article 123(2) EPC.

4. *Clarity*

4.1 As an additional observation, the decision states on page 3, third paragraph that the feature of measuring the memory consumption in each state is claimed impermissibly as a result to be achieved (Article 84 EPC). A major modification of the program execution system would be necessary which could not be considered to be general knowledge.

4.2 The board however considers a skilled person capable of programming a system which acquires and stores information about state changes and heap memory consumption as shown in the provisional activation log in figure 14. With such a log file, it is easy to extract the memory consumption values of a certain

state by searching for a line indicating that state and then for indications of memory consumption in subsequent lines before the next state change. Therefore, this objection does not apply.

4.3 The board agrees with the decision (page 3, last paragraph) that the word "activating" in claim 2 of the then main request is unclear, but not - as the decision argues - because this could mean that either a program is launched or a functionality of a program is enabled. It follows from the description that both is meant. The application is launched *and* certain functionalities (e.g. print and scan) are enabled or not, depending on a full or provisional activation. The term "activation" leaves open the type of activation, although the description only discloses that the logging takes place during *provisional* activation (see [26], [147]). Thus, the wording "activation" alone would be unclear. However, this expression is deleted in present claim 2 and is amended to "fully activated" in claim 3.

4.4 Thus, the board considers the claims to be clear.

## 5. *Inventiveness*

5.1 The appealed decision does not raise any objection concerning Article 56 EPC. However, the European search opinion (sections 3-8) contains a detailed problem-solution approach vis-à-vis D1, which the examining division concurred with in its first communication dated 13 August 2009. D1 is concerned with monitoring the remaining amount of ink of network printers managed by a server (Abstract and [49]).

- 5.2 The present claims are significantly more specific than the original ones, e.g. now the memory consumption of the application is logged instead of the "consumption of a predetermined resource". Therefore, D1 has become less relevant. The same holds for D2 and D3 which are about logging of databases or operating system components in order to find "failed dependencies" (D2, [28], [33]) or about a host computer analysing the execution times of a printer by sending draw primitives to it (D3, Abstract).
- 5.3 The present claims are also more specific than the claims which were requested when the summons to oral proceedings were drafted by the board. Claim 1 additionally contains the feature of automatically reacting to an unsuccessful memory consumption test at the end of the preliminary activation phase, namely by preventing the human operator from fully activating the application in that case by disabling its installation.
- 5.4 This means that the apparatus of claim 1 differs from those of the documents of the search report (D1-D3) in that it is about memory consumption (and not about the remaining amount of ink in a printer as in D1), a "dry run" of the application with disabled image forming hardware (as scanning or printing devices) during the preliminary activation is performed and according to the result of the "dry run", the full activation (including the enabling of the image forming hardware) is enabled or disabled.
- 5.5 This solves the technical problem of how to prevent malfunctioning of an image forming apparatus caused by installing a software application on it.

- 5.6 The board considers the claimed solution, namely to perform a "dry run" and to disable installation of an application if the dry run should fail, to be inventive over any one of the documents D1 to D3.
- 5.7 This applies accordingly to the other independent claims (8 and 15) which contain features corresponding to all the essential features of claim 1.

## Order

### For these reasons it is decided that:

- 1) The decision under appeal is set aside.
  
- 2) The case is remitted to the department of first instance with the order to grant a patent with the following documents:
  - claims 1-15, filed during oral proceedings on 12 May 2016;
  - description pages:
    - 1-3, 6-87 as originally filed;
    - 4, filed 25 October 2010;
    - 5, filed 23 April 2009;
  - drawing sheets 1-24 as originally filed.

The Registrar:

The Chairman:



B. Atienza Vivancos

W. Sekretaruk

Decision electronically authenticated