



EAF/7/2

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MEETING ON THE DEVELOPMENT OF A PROTOTYPE ELECTRONIC FORM

Seventh Meeting Geneva, March 16, 2016

DEVELOPMENTS CONCERNING THE PROTOTYPE ELECTRONIC FORM PROJECT

Document prepared by the Office of the Union

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1. The purpose of this document is to report on developments since the sixth meeting on the development of a prototype electronic form (EAF), held in Geneva on October 26, 2015, and to present proposals for future developments.

2. The structure of this document is as follows:

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BACKGROUND

3. The background to the development of a prototype electronic form and previous developments are provided in document EAF/6/2 "Overview of the Prototype Electronic Form Project".

4. The aim of the project is to develop a multilingual electronic form containing questions relevant for plant breeders' rights (PBRs) applications. As a first step a prototype electronic form is being developed, covering all relevant information required for a PBR application in the members of the Union concerned and with questions translated in the relevant languages for the members of the Union concerned (see document CAJ/66/5 "Electronic Application Systems", paragraph 2).

5. The Prototype electronic application form Version 1 (PV1) is composed of the online form, and a data transfer facility through web services according to an agreed format (i.e. PVP-XML schema). PV1 allows:

(a) users to select the language in which the items in the Application Form for PBR would be presented (Input Template language) (restricted to English for PV1);

(b) users to select the crop for which they wish to make an application (restricted to lettuce (*Lactuca sativa* L.) for PV1);

(c) users to select the authority in which they wish to make an application (one PVP Office at a time, but with the possibility to reuse data already provided). The selection is restricted to the participating members who submitted their forms and data for PV1;

(d) users to complete a blank form or a prefilled form based on existing PBR application data uploaded using an agreed format (PVP-XML);

(e) users to reuse the data in other applications;

(f) users to send/submit the input data to the selected PVP Office.

Developments at the Sixth Meeting on the Development of a Prototype Electronic Form

6. At the Sixth Meeting on the Development of a Prototype Electronic Form ("EAF/6 meeting"), held in Geneva on October 26, 2015, it was agreed by the participating members that the PV1 had demonstrated the feasibility of the project, including the validation on the data transfer from breeders to the participating PVP Offices, in terms of data completeness and in conformity with the agreed data model (see document EAF/6/4 "Report", paragraph 7).

7. On the basis of the validation of PV1 by participating members, it was agreed at the EAF/6 meeting, that the development of a prototype electronic application form version 2 (PV2) should proceed as follows (see document EAF/6/4 "Report", paragraphs 9 to 31):

(a) *Aim of PV2*

8. The aim of PV2 would be to demonstrate the scalability of the system, i.e. addition of further crops, languages and PVP Offices, and also to demonstrate the feasibility of implementation by PVP Offices.

(b) *Different languages*

9. The participating members for PV2 would be requested to provide their application forms in their original languages and, in the case of PVP Offices using forms in languages other than English, French, German or Spanish, the PVP Offices would be requested to provide translations of the forms of all participating members of the Union in the language concerned. It was further agreed that each participating PVP Office would be requested to provide information on the language(s) in which answers could be provided.

(c) *Addition of other crops and new PVP Offices*

10. It was agreed to cover in PV2, three or four of: lettuce, apple; potato; rose; soybean, in an order of priority to be established according to the interest of participating PVP Offices and breeders, and the ability of the participating PVP Offices to provide relevant Technical Questionnaire information.

(d) *Payment modalities*

11. In relation to payments for PVP Offices, it was agreed that two different options would be developed in PV2:

- (i) payment to PVP Offices via UPOV;
- (ii) direct payment to PVP Offices.

12. It was agreed that it would be necessary to provide the possibility for applicants to pay in different currencies.

13. In relation to payment for the UPOV service charge, it was agreed that there would be a possibility of a UPOV service charge to be integrated in PV2.

(e) *User authentication;*

14. Two different options would be developed in PV2:

- (i) via web service at the EAF level (i.e. authorization for signature to be done in the EAF system);
- (ii) after receipt of the application by the PVP Office (i.e. authorization for signature to be done by the selected PVP Office).

- (f) *Possibility for participating UPOV members to introduce or modify their questions in the form using an online interface;*

15. PV2 would be developed on the basis that questions could be added or modified once a month. New authorities' forms would need to be added by March 2016.

(g) *Legal aspects;*

16. With regard to legal aspects, it was agreed that the EAF would need to conform to the legal requirements of the PVP Offices concerned.

17. It was agreed that the terms and conditions for PVP Offices would be provided by the PVP Offices concerned and acknowledgement would be integrated within the EAF terms and conditions, where appropriate. In other cases, a separate procedure would be required at the level of Authority. At the EAF system level, the terms and conditions would be included separately, with the user being requested to accept the terms and conditions at the first connection. At the application level, the terms and conditions would be included in the application form (i.e. specific to each application and completed in the declaration chapter).

(h) *Compliance with Web Content Accessibility Guidelines (WCAG);*

18. Consideration would be given to the extent to which the system in PV2 should be compliant with Web Content Accessibility Guidelines (WCAG).

- (i) *Security requirements in terms of Data confidentiality and Access rights management*

19. In relation to the information to be transmitted from the applicants to the selected PVP Offices, and in order to comply with WIPO and PVP Offices' security policies, it was agreed that all data would be encrypted and considered confidential.

- (j) *High availability (HA) of the system;*

20. It was agreed that the system would work continuously, with a tolerance of one day for the system to be out of operation.

- (k) *Communication with existing and external systems such as the GENIE Database, WIPO Users Account and existing systems in PVP Offices;*

21. It was agreed that it would be possible to use different communication channels as specified by the receiving PVP Office (web service, email, SFTP: Secure File Transfer Protocol).

(l) Architecture of the system.

22. All the preceding items ((a) to (k)) would be considered when drafting the architecture of the system, in consultation with participating members, in the scope of the implementation of an operational system.

(m) International Reference Number (IRN) and unique Breeder's reference

23. A unique International Reference Number IRN would be allocated to a particular variety. All submissions of data to participating PVP Offices, for the same variety, would be attributed the same IRN. It was agreed that Technical Questionnaire data could only be copied when the same IRN was used. Consideration would also need to be given to whether it should be possible for the user to change the breeder's reference after a variety file had been copied, in order to allow the user to provide a different breeder's reference for the same variety in a different PVP Office. It was agreed to verify the functioning of the system during the development of PV2.

(n) Test campaigns PV2

24. It was noted that the participating members in the EAF would be invited to test the system in stages, through different interim test releases, in order to obtain regular feedback. Comments would be taken into consideration for the development of subsequent test releases in order to have a fully functioning prototype (PV2) by August 2016 for a final test campaign in September 2016, before presentation at the sessions of the CAJ, the Consultative Committee and the Council in October 2016, as appropriate.

(o) Participating members in PV2

25. It was agreed that all members of the Union should have the opportunity to participate in the development of PV2, whilst noting that in order to be able to participate the following information would need to be provided to the Office of the Union by November 30, 2015:

- (i) Applications forms and other application information requirements for PVP Offices that did not provide their forms for PV1;
- (ii) Technical Questionnaire information for apple, potato, rose and soybean;
- (iii) Payment procedures;
- (iv) Application authorization procedures;
- (v) Security requirements for data transfer and receipt;
- (vi) Communication protocols for those PVP Offices that wish:
 - to receive application data from the EAF system;
 - to enable breeders to retrieve data from their PVP Offices via the EAF system.

(p) Other matters for consideration

26. In parallel with the development of PV2, it was agreed that the following items would be addressed prior to launch of the EAF:

- (a) Operations such as:
 - (i) users support;
 - (ii) routine maintenance provisions;
- (b) integration with PVP Offices systems;
- (c) training for PVP Offices and applicants; and
- (d) publicity of the availability of the system for breeders.

27. The EAF/6 noted that the Council would need to approve the launch of an EAF system and charges to be paid by applicants.

DEVELOPMENTS SINCE EAF/6

Developments in the Administrative and Legal Committee (CAJ) in October 2015

28. The CAJ at its seventy-second session on October 26 and 27, 2015, noted that the EAF/6 meeting had agreed that the prototype electronic application form Version 1 (PV1) had demonstrated the feasibility of the project, including the validation on the data transfer from breeders to the participating PVP Offices, in terms of data completeness and in conformity with the agreed data model. The CAJ at its seventy-second session endorsed the proposals made by the EAF/6 meeting with regard to the development of prototype application form version 2 (PV2) as set out in paragraphs 7 to 27 of this document (see document CAJ/72/9 "Report on the Conclusions", paragraphs 28 and 29).

Developments in the Council in October 2015

29. The Council at its forty-ninth ordinary session in Geneva on October 29, 2015, noted the work of the Consultative Committee at its ninetieth session, as reported in document C/49/16 "Report by the President on the work of the ninetieth session of the Consultative Committee", which included the following information concerning the EAF (see document C/49/18 "Report", paragraph 18):

30. The Consultative Committee considered a presentation by the Office of the Union, including a report by the Office of the sixth Meeting on the Development of a Prototype Electronic Form ("EAF/6 meeting"), held on October 26, 2015, and the conclusion of the CAJ, at its the seventy-second session, held on October 26 and 27, 2015 (see document C/49/16 "Report by the President on the work of the ninetieth session of the Consultative Committee" paragraph 44).

31. The Consultative Committee noted the developments concerning the prototype electronic form and received a demonstration of the prototype electronic application form Version 1 (PV1) (see document C/49/16 "Report by the President on the work of the ninetieth session of the Consultative Committee" paragraphs 45 and 46).

32. The Consultative Committee noted that the EAF/6 meeting had agreed that the prototype electronic application form Version 1 (PV1) had demonstrated the feasibility of the project, including the validation on the data transfer from breeders to the participating PVP Offices, in terms of data completeness and in conformity with the agreed data model. The Consultative Committee agreed with the proposals made by the EAF/6 meeting and endorsed by the CAJ at its seventy-second session, as set out in paragraphs 7 to 27 of this document (see document C/49/16 "Report by the President on the work of the ninetieth session of the Consultative Committee" paragraphs 47 to 51).

33. The Consultative Committee agreed to consider the possible implementation of an operational system (see document C/49/16 "Report by the President on the work of the ninetieth session of the Consultative Committee" paragraph 52).

Developments concerning PV2

34. On November 4, 2015, the Office of the Union issued Circular E-15/258, inviting all UPOV members to provide information and application forms to be included in PV2. In reply to Circular E-15/258, the following 26 members of the Union provided the necessary information to be included in PV2: Argentina, Australia, Bolivia (Plurinational State of), Brazil, Canada, Chile, Colombia, Czech Republic, European Union, France, Georgia, Japan, Kenya, Mexico, Netherlands, New Zealand, Norway, OAPI, Republic of Korea, South Africa, Sweden, Switzerland, Tunisia, United States of America, Uruguay and Viet Nam.

35. On January 8, 2016, a WebEx meeting was organized to report on latest developments concerning PV2, including the crops to be tested in PV2, presentation of the technical architecture to be adopted for the system and the tentative timetable for the test campaign.

Crops to be tested in PV2

36. At the WebEx meeting held on January 8, 2016, it was agreed to add the following crops, in the following order of priority according to the interest of participating PVP Offices and breeders and the ability of the participating PVP Offices to provide relevant Technical Questionnaire information:

- 1) Rose
- 2) Soybean
- 3) Lettuce
- 4) Apple
- 5) Potato

37. It was further agreed by the participants that Rose and Soybean would be done as priority 1, while Lettuce, Apple and Potato would be incorporated in the prototype subject to the workload and comments received during the test campaign.

Technical Architecture and functionalities to be implemented in PV2 and test campaign

38. The technical architecture has been designed and shared with participating members during the Web Ex meeting held on January 8, 2016. The architecture was built on the basis of PVP Offices needs and WIPO's infrastructure's requirements. The functionalities will be developed and tested during the test campaign from March 2016 to October 2016, as follows:

Test Campaign	From/To	Milestone Release (MR) Contents/ Functionalities to be tested
Release 1	01/02/2016 to 12/02/2016	Updated PVP-XML Application Form (AF) for new participants and new crops
Release 2	29/02/2016 to 11/03/2016	Updated PVP-XML Technical Questionnaire (TQ) for new participants and new crops, User feedback from MR1
Release 3	29/03/2016 to 08/04/2016	Authentication/Authorization, Multi-language feature, Add new participants (except BO, MX), user feedback from MR2
Release 4	25/04/2016 to 06/05/2016	Manage forms interface, Add BO and MX, Add crops (Rose+Soybean), user feedback from MR3
Release 5	23/05/2016 to 03/06/2016	Reuse TQ, user feedback from MR4
Release 6	20/06/2016 to 01/07/2016	Add Lettuce*, Payment, user feedback from MR5
Release 7	18/07/2016 to 12/08/2016	Add Apple*, Office/Breeder Preference Interface, integration with Genie DB and CPVO authorization service, user feedback from MR6
Release 8	05/09/2016 to 16/09/2016	Encryption, Secure RESTful services, Add potato*. user feedback from MR7
Final Release	03/10/2016 to 14/10/2016	User feedback from MR8 and Full prototype

*if time permits

NEXT STEPS

Test campaign

39. It is proposed that the participating members in the EAF be invited to test the system for PV2 in stages, through different interim releases, in order to obtain regular feedback. Comments would be taken into consideration for the development of subsequent releases in order to have a fully-functioning prototype by August 2016 for a final test campaign in September 2016, before presentation at the sessions of the CAJ and the Consultative Committee in October 2016, as appropriate. Participating members will receive a presentation of proposed detailed timetable for the test campaign at the EAF/7 meeting.

Validation of PVP-XML Schema Version 2.0 (V2.0)

40. At the Web Ex meeting held on January 8, 2016, it was noted that the XML Schema to be used for the project (i.e. PVP-XML) would, as far as possible, reuse and refer to relevant components of the WIPO Standard ST.96 and be based on the PVP-XML Version 1 released in 2015 and used in PV1. It was agreed that the PVP-XML V2.0 would be updated according to the forms received and the crops agreed (see paragraph 34 and 36 of this document). The meeting was informed that participating members would be invited to check and test the PVP-XML V2.0 during the first two releases of the test campaign as explained in paragraph 38 of this document, to ensure compatibility with their system.

41. At the Web Ex meeting held on January 8, 2016, it was agreed that, on the basis of the comments received during Release 1 and 2, the PVP-XML V2.0 would be approved by participating members and released as the PVP-XML Schema to be used for the development of PV2.

Other matters for consideration

42. In parallel with the development of PV2, the CAJ and the Consultative Committee agreed that the following items would be addressed prior to the launch of the EAF (see documents CAJ/72/9 "Report on the Conclusions", paragraph 33 and C/49/18 "Report", paragraph 18):

- (a) Operations such as:
 - (i) users support;
 - (ii) routine maintenance provisions;
- (b) Integration with PVP Offices systems;
- (c) Training for PVP Offices and applicants; and
- (d) Publicity of the availability of the system for breeders.

43. Those matters above, together with proposals for the financing of the EAF are considered below.

Users support and routine maintenance provisions

44. The proposals for the financing of the EAF (see below) include the need to ensure that user support and maintenance are provided.

Integration with PVP Offices systems

45. In relation to integration with existing PVP Offices systems, two options will be implemented:

- (a) In the case of PVP Offices with no electronic system or who do not wish to integrate their existing system with the EAF, they will receive the submitted application data via an agreed route (e.g. email, regular mail);
- (b) In response to Circular E-15/258 of November 4, 2015 (see paragraph 34 of this document), five authorities (Argentina, Czech Republic, European Union, Netherlands and Norway) expressed the interest to integrate their existing systems with the EAF. In this case, the synchronization for each submitted application data will be done automatically from machine-to-machine via a Web Service developed specifically for this functionality. The integration with existing PVP systems will be tested and assessed during the test campaign for PV2 and will be developed on an individual basis, upon request.

46. In relation to the information to be transmitted from the applicants to the selected PVP Offices, and in order to comply with WIPO and PVP Offices' security policies, it is proposed that all data will be encrypted and considered confidential.

47. With regard to legal aspects, the EAF will conform with the legal requirements of the PVP Offices concerned.

Training for PVP Offices and applicants

48. A program of training for PVP Offices and applicants would be introduced in conjunction with the launch of the EAF and would be included in the work of the staff identified in the operation of the EAF, as well as other relevant staff of the Office of the Union.

Publicity of the availability of the system for breeders

49. A program of publicity of the availability of the system for breeders would be introduced in conjunction with the launch of the EAF and would be included in the work of the staff identified in the operation of the EAF, as well as other relevant staff of the Office of the Union.

Payment by applicants to PVP Offices

50. With regard to payment to PVP Offices, the implementation of the EAF would not affect the fees that PVP Offices would receive per application. However, if requested by a PVP Office, the EAF system may allow for the fees to be collected by UPOV and distributed to the PVP Offices in a form and currency determined by the PVP Office concerned.

Payment to cover the costs of the EAF

51. It is anticipated that applicants would be required to cover all the costs involved in the operation of the EAF system once it reaches its full capacity. It is anticipated that the initial development costs would not start to be covered, by a surplus of income over operational costs, until after the EAF system reaches full capacity. On that basis, the following proposal has been developed for consideration:

- (i) Number of crops: it is anticipated to launch the system in late 2016 or early 2017 with the five crops developed for PV2. It is then foreseen to increase the number of crops available in the system annually, with the aim of covering 50 crops/species for which UPOV has developed Test Guidelines by 2022.
- (ii) Number of participating Offices: it is anticipated to launch the system in 2017 with the PVP Offices from within the 26 UPOV members participating in the development of PV2 that wish to participate. It is anticipated that the number of PVP Offices would increase to 50 UPOV members by 2022, on the basis that participation in the EAF only requires PVP Offices to provide copies of their forms and prepare translations, if appropriate, and would enable PVP Offices to receive applications in their current formats.
- (iii) Number of applications covered by EAF: This number is estimated on the basis of total number of plant breeders' rights applications in 2014 (14,436) (see document C/49/7 "Plant Variety Protection Statistics for the Period 2010-2014"), the number of crops covered by the EAF and the number of participating PVP Offices in the EAF.
- (iv) Percentage of applications expected via EAF: It is anticipated that 10% of the potential number of applications that could be made via the EAF will use the EAF in 2017, rising to 15% in 2018 as breeders become more aware of the EAF.
- (v) Number of applications expected via EAF: This is calculated on the basis of (iii) "Number of total applications covered in by the EAF", multiplied by (iv) "(iv) Percentage of applications expected via the EAF". In 2017, it is anticipated that around 180 applications would be made via the EAF, corresponding to an income of about 25,000 Swiss francs, as projected in the Program and Budget for the 2016-2017 Biennium (see document C/49/4 Rev., Section 3. "Proposed Budget" paragraph 3.18). By 2020-2021 it is anticipated that around 1,500 applications per annum would be made via the EAF system, corresponding to 10% of the total number of plant breeders' rights applications in 2014 (14,436), as presented in document C/49/7 "Plant Variety Protection Statistics for the Period 2010-2014".
- (vi) UPOV charge: A charge of 150 Swiss francs per application is proposed for the first two years of the system (2017-2018) to encourage participation, to reflect the limited number of crops available and the limited number of PVP offices. It is anticipated to increase this charge to 250 Swiss francs by 2019 in order to cover all costs for the operation of the EAF by 2020.
- (vii) EAF operation costs: The costs for the development and operation of the EAF are budgeted in the Program and Budget for the 2016-2017 Biennium (document C/49/4 Rev.). The EAF operation costs are forecast to be the following, from 2017:

Item	Cost/annum (Swiss francs)
IT Officer (one person)	160,000
Administrative Officer (one person)- part time	60,000
IT Development/ infrastructure/ maintenance costs and user support	70,000
Total	290,000

- (viii) **Income:** The estimated income for 2017 (27,405 Swiss francs) corresponds closely to the 25,000 Swiss francs income budgeted in the Program and Budget for the 2016-2017 Biennium (see document C/49/4 Rev., Section 3. "Proposed Budget" paragraph 3.18)

52. The proposal is as follows:

	(i)	(ii)	(iii)	(iv)	((iv)*(v))	(vi)	(vii)	(viii)	(ix)
Year	Number of crops	Number of participating Offices	Number of applications covered by EAF	Percentage of applications expected via EAF	Number of applications expected via EAF	UPOV charge (CHF)	EAF operation costs (CHF)	Income (CHF)	Balance
2017	5	26	1827	10	183	150	290'000	27'405	-262'595
2018	10	30	4676	15	701	150	290'000	105'216	-184'784
2019	15	35	6786	15	1018	250	290'000	254'475	-35'525
2020	30	40	8841	15	1326	250	290'000	331'524	41'524
2021	40	50	10272	15	1541	250	290'000	385'193	95'193
2022	50	50	11296	15	1694	250	290'000	423'581	133'581

53. The comments received by the EAF/7 meeting on the above proposals will be reported to the Consultative Committee, at its ninety-first session, to be held in Geneva on March 17, 2016.

Tentative timetable for the launch of the EAF

54. Subject to approval of the above proposals by EAF participants, CAJ and Consultative Committee, it is proposed to seek the approval by the Council at its fiftieth session, to be held in Geneva on October 28, 2016, to approve the launch of the EAF at the end of 2016 or beginning of 2017.

55. *Participating members in the development of a prototype electronic form are invited to:*

(a) *note the developments of a prototype electronic form since the EAF/6 meeting, as set out in this document;*

(b) *consider the timetable for the test campaign that will be presented at the seventh meeting;*

(c) *consider the validation of PVP-XML Version 2.0 and its use as the PVP-XML Schema to be used for the development of PV2, as set out in paragraphs 40 and 41;*

(d) *consider matters in relation to the possible implementation of an operational system, as set out in paragraphs 42 to 52;*

(e) *consider the proposed timetable for the launch of the EAF as set out in paragraph 54; and*

(f) *note that a report of the seventh meeting on the development of a prototype electronic form, to be held in Geneva on March 16, 2016, will be made to the Consultative Committee at its ninety-first session.*