

ANNEX G2

BLACKLINE SHOWING CHANGES TO COMPANION POLICY 52-107CP ACCEPTABLE ACCOUNTING PRINCIPLES AND AUDITING STANDARDS

Companion Policy 52-107CP Acceptable Accounting Principles and Auditing Standards

PART I: INTRODUCTION AND DEFINITIONS

1.1 Introduction and Purpose – This Companion Policy provides information about how the securities regulatory authorities interpret or apply National Instrument 52-107 *Acceptable Accounting Principles and Auditing Standards* (the Instrument). The Instrument is linked closely with the application of other national instruments, including National Instrument 51-102 *Continuous Disclosure Obligations* (NI 51-102) and National Instrument 71-102 *Continuous Disclosure and Other Exemptions Relating to Foreign Issuers* (NI 71-102). These and other national instruments also contain a number of references to International Financial Reporting Standards (IFRS) and the requirements in the Handbook of the Canadian Institute of Chartered Accountants (the Handbook). Full definitions of IFRS and the Handbook are provided in National Instrument 14-101 Definitions.

The Instrument does not apply to investment funds. National Instrument 81-106 *Investment Fund Continuous Disclosure* applies to investment funds.

1.2 Multijurisdictional Disclosure System – National Instrument 71-101 *The Multijurisdictional Disclosure System* (NI 71-101) permits certain U.S. incorporated issuers to satisfy Canadian disclosure filing obligations, including financial statements, by using disclosure documents prepared in accordance with U.S. federal securities laws. The Instrument does not replace or alter NI 71-101. There are instances in which NI 71-101 and the Instrument offer similar relief to a reporting issuer. There are other instances in which the relief differs. If both NI 71-101 and the Instrument are available to a reporting issuer, the issuer should consider both instruments. It may choose to rely on the less onerous instrument in a given situation.

1.3 Calculation of Voting Securities Owned by Residents of Canada – The definition of "foreign issuer" is based upon the definition of foreign private issuer in Rule 405 of the 1933 Act and Rule 3b-4 of the 1934 Act. For the purposes of the definition of "foreign issuer", in determining the outstanding voting securities that are beneficially owned by residents of Canada, an issuer should

- (a) use reasonable efforts to identify securities held by a broker, dealer, bank, trust company or nominee or any of them for the accounts of customers resident in Canada,
- (b) count securities beneficially owned by residents of Canada as reported on reports of beneficial ownership, including insider reports and early warning reports, and
- (c) assume that a customer is a resident of the jurisdiction or foreign jurisdiction in which the nominee has its principal place of business if, after reasonable inquiry, information regarding the jurisdiction or foreign jurisdiction of residence of the customer is unavailable.

This method of calculation differs from that in NI 71-101 which only requires a calculation based on the address of record. Some SEC foreign issuers may therefore qualify for exemptive relief under NI 71-101 but not under the Instrument.

1.4 Exemptions Evidenced by the Issuance of a Receipt – Section 5.2 of the Instrument states that an exemption from any of the requirements of the Instrument pertaining to financial statements or auditor's reports included in a prospectus may be evidenced by the issuance of a receipt for that prospectus. Issuers should not assume that the relief evidenced by the receipt will also apply to financial statements or auditors' reports filed in satisfaction of continuous disclosure obligations or included in any other filing.

1.5 Filed or Delivered – Financial statements that are filed in a jurisdiction will be made available for public inspection in that jurisdiction, subject to the provisions of securities legislation in the local jurisdiction regarding confidentiality of filed material. Material that is delivered to a regulator, but not filed, is not required under securities legislation to be made available for public inspection. However, the regulator may choose to make such material available for inspection by the public.

1.6 Other Legal Requirements – Issuers and auditors should refer to National Instrument 52-108 Auditor Oversight for requirements relating to auditor oversight by the Canadian Public Accountability Board. In addition, issuers and registrants are reminded that they and their auditors may be subject to requirements under the laws and professional standards of a jurisdiction that address matters similar to those addressed by the Instrument, and which may impose additional or more onerous requirements. For example, applicable corporate law may prescribe the accounting principles or auditing standards required for financial statements. Similarly, applicable federal, provincial or state law may impose licensing requirements on an auditor practising public accounting in certain jurisdictions.

1.7 Investment Funds – Section 2.1 of the Instrument provides that it does not apply to investment funds that are subject to NI 81-106 *Investment Fund Continuous Disclosure* (NI 81-106) in respect of their reporting requirements as investment funds. If an investment fund is also a registrant, it is subject to the requirements of this Instrument in relation to its reporting requirements as a registrant. Accordingly, if the same legal entity is both an investment fund that is subject to NI 81-106 and is also a registrant, it will be subject to both the requirements of this Instrument and NI 81-106.

PART 2: APPLICATION – ACCOUNTING PRINCIPLES

2.1 Application of Part 3 – Part 3 of the Instrument generally applies to periods relating to financial years beginning on or after January 1, 2011. Part 3 refers to Canadian GAAP applicable to publicly accountable enterprises, which is IFRS incorporated into the Handbook, contained in Part I of the Handbook.

2.2 Application of Part 4 – Part 4 of the Instrument generally applies to periods relating to financial years beginning before January 1, 2011. Part 4 refers to Canadian GAAP-Part V, which is generally accepted accounting principles determined with reference to Part V of the Handbook applicable to public enterprises. These are the pre-changeover accounting standards for public companies. Part V of the Handbook has differing requirements for public enterprises and non-public enterprises. The following are some of the significant differences in Canadian GAAP applicable to public enterprises compared to those applicable to non-public enterprises:

- (a) financial statements for public enterprises cannot be prepared using the differential reporting options as set out in Part V of the Handbook;
- (b) transition provisions applicable to enterprises other than public enterprises are not available; and
- (c) financial statements must include any additional disclosure requirements applicable to public enterprises.

2.3 IFRS in English and French – The Handbook provides IFRS in English and French. Both versions have equal status and effect under Canadian GAAP. Issuers, auditors, and other market participants may use either version to comply with the requirements in the Instrument.

2.4 Reference to accounting principles – Section 3.2 of the Instrument requires certain financial statements to be prepared in accordance with Canadian GAAP applicable to publicly accountable enterprises. This section includes requirements for an unreserved statement of compliance with IFRS in annual financial statements, and an unreserved statement of compliance with International Accounting Standard 34 *Interim Financial Reporting* in interim financial reports. These provisions distinguish between the basis of preparation and disclosure requirements.

There are two options for referring to accounting principles in the applicable financial statements and, in the case of annual financial statements, accompanying auditor's reports referred to in section 3.3 of the Instrument:

- (a) refer only to IFRS in the notes to the financial statements and in the auditor's report, or
- (b) refer to both IFRS and Canadian GAAP in the notes to the financial statements and in the auditor's report.

2.5 IFRS as adopted by the IASB – The definition of IFRS in National Instrument 14-101 *Definitions* refers to standards and interpretations adopted by the International Accounting Standards Board. The definition does not extend to national accounting standards that are modified or adapted from IFRS, sometimes referred to as a "jurisdictional" version of IFRS.

2.6 Presentation and functional currencies – If financial statements comply with requirements contained in IFRS in International Accounting Standard 1 *Presentation of Financial Statements* and International Accounting Standard 21

The Effects of Changes in Foreign Exchange Rates relating to the disclosure of presentation currency and functional currency, then they will comply with section 3.5 of the Instrument.

2.7 Registrants' financial statements and interim financial information – Subsections 3.2(3) and (4) and paragraphs 3.15(a) and (b) of the Instrument mandate accounting for any investments in subsidiaries, jointly controlled entities and associates as specified for separate financial statements in International Accounting Standard 27 *Consolidated and Separate Financial Statements* (IAS 27). Separate financial statements are sometimes referred to as non-consolidated financial statements. These requirements apply regardless of whether a registrant meets the criteria set out in IAS 27 for not presenting consolidated financial statements. Paragraph 3.2(3)(b) also requires a registrant's annual financial statements to describe the financial reporting framework used to prepare the financial statements. The description should refer to the requirement to account for any investments in subsidiaries, jointly controlled entities and associates as specified for separate financial statements in IAS 27, even if the registrant does not have these types of investments. In addition, if annual financial statements for a year beginning in 2011 are prepared using the financial reporting framework permitted by subsection 3.2(4), the description of the framework should explain the lack of comparatives and the date of transition, as specified in paragraphs 3.2(4)(b) and (c).

The financial reporting frameworks prescribed by subsections 3.2(3) and (4) are Canadian GAAP applicable to publicly accountable enterprises with specified differences. Although these frameworks differ in specified ways from IFRS, the exceptions and exemptions included as Appendices in IFRS 1 *First-time Adoption of International Financial Reporting Standards* (IFRS 1) would be relevant for determining an opening statement of financial position at the date of transition to the financial reporting framework prescribed in subsection 3.2(3) or (4).

Subparagraph 3.3(1)(a)(iii) requires an auditor's report in the form specified by Canadian GAAS for an audit of financial statements prepared in accordance with a fair presentation framework. The financial reporting frameworks prescribed by subsections 3.2(3) and (4) are fair presentation frameworks.

Subsection 3.2(4) of the Instrument allows a registrant to file financial statements and interim financial information for periods relating to a financial year beginning in 2011 that exclude comparative information relating to the preceding year and to use a date of transition to the financial reporting framework that is the first day of the financial year beginning in 2011. When such a registrant prepares the comparative information for financial statements and interim financial information for periods relating to a financial year beginning in 2012, the registrant should consider whether it must adjust the comparative information in order to comply with subsection 3.2(3). Adjustments may be necessary if a registrant changes one or more accounting policies for its year beginning in 2012 compared to its year beginning in 2011.

2.8 Use of different accounting principles – Subsection 3.2(5) of the Instrument requires financial statements to be prepared in accordance with the same accounting principles for all periods presented in the financial statements.

An issuer that is required to file, or include in a document that is filed, financial statements for three years can, except in the situation discussed in section 2.9 of this Companion Policy, choose to present two sets of financial statements. For example, if the earliest of the three financial years relates to a financial year beginning before January 1, 2010, the issuer should provide one set of financial statements that presents information for the most recent two years using the accounting principles in Part 3 of the Instrument and one set of financial statements that either:

- (a) presents information for a third and fourth year using the accounting principles in Part 4, or
- (b) presents information for a second and third year using the accounting principles in Part 4.

Note that under option (a), a fourth year not otherwise required would be included to satisfy the requirement in the issuer's GAAP for comparative financial statements. Under option (b), information for a second year would be presented in both sets of financial statements. This second year would be included in the most recent set of financial statements using accounting principles in Part 3 of the Instrument and also in the earliest set of financial statements using accounting principles in Part 4 of the Instrument.

If the accounting principles used for the earliest of the three financial years and the most recent two years differ, but both are acceptable in Part 3 of the Instrument, presentation of information for the earliest year would be similar to the example described above.

2.9 Date of transition to IFRS if financial statements include a transition year of less than nine months – Subsection 4.8(6) of NI 51-102 states that if a transition year is less than nine months in length, the reporting issuer must include comparative financial information for the transition year and old financial year in its financial statements for its new financial year. Similarly, subsection 32.2(4) in Form 41-101F1 states that if an issuer changed its financial

year end during any of the financial years referred to in section 32.2 and the transition year is less than nine months, the transition year is deemed not to be a financial year for purposes of the requirement to provide financial statements for a specified number of financial years in section 32.2.

If an issuer's first set of annual financial statements with an unreserved statement of compliance with IFRS includes comparatives for both a transition year of less than nine months and the old financial year, the date of transition to IFRS should be the first day of the old financial year. Since subsection 3.2(5) of the Instrument requires financial statements to be prepared in accordance with the same accounting principles for all periods presented in the financial statements, a date of transition to IFRS using the first day of the transition year would not be appropriate.

2.10 Acceptable Accounting Principles – Readers are likely to assume that financial information disclosed in a news release is prepared on a basis consistent with the accounting principles used to prepare the issuer's most recently filed financial statements. To avoid misleading readers, an issuer should alert readers if financial information in a news release is prepared using accounting principles that differ from those used to prepare an issuer's most recently filed financial statements or includes non-GAAP financial measures discussed in CSA Staff Notice 52-306 *Non-GAAP Financial Measures*.

2.11 Financial statements for a reverse takeover or capital pool company acquisition – Subsection 8.1(2) of NI 51-102 states that Part 8 of that rule does not apply to a transaction that is a reverse takeover. Similarly, subsection 35.1(1) in Form 41-101F1 indicates that item 35 of that Form does not apply to a completed or proposed transaction that was or will be accounted for as a reverse takeover. Therefore, if a document includes financial statements for a reverse takeover acquirer, as defined in NI 51-102, for a period prior to completion of the reverse takeover, section 3.11 of the Instrument does not apply to the financial statements. Such financial statements must comply with section 3.2, 3.7, 3.9, 4.2, 4.7 or 4.9 of the Instrument as applicable.

Paragraph 32.1(b) of Form 41-101F1 indicates that financial statements of an issuer required under Item 32 of that Form include the financial statements of a business acquired or business proposed to be acquired by the issuer if a reasonable investor would regard the primary business of the issuer upon completion of the acquisition to be the acquired business or business proposed to be acquired. Consistent with this provision, if a capital pool company acquires or proposes to acquire a business, regardless of whether or not the transaction will be accounted for as a reverse takeover, financial statements for the acquired business or business proposed to be acquired must comply with section 3.2, 3.7, 3.9, 4.2, 4.7 or 4.9 of the Instrument as applicable.

2.12 Acquisition statements prepared using Canadian GAAP applicable to private enterprises - Paragraph 3.11(1)(f) of the Instrument permits acquisition statements to be prepared using Canadian GAAP applicable to private enterprises, which is Canadian accounting standards for private enterprises in Part II of the Handbook.

2.13 Conditions for acquisition statements prepared using Canadian GAAP applicable to private enterprises – Paragraph 3.11(1)(f) of the Instrument specifies certain conditions for the use of Canadian GAAP applicable to private enterprises. One of these conditions, in subparagraph 3.11(1)(f)(ii), is that financial statements for the business were not previously prepared in accordance with any of the accounting principles specified in paragraphs 3.11(1)(a) through (e) for the periods presented in the acquisition statements. Paragraph 3.11(1)(a) refers to Canadian GAAP applicable to publicly accountable enterprises, which is IFRS incorporated into the Handbook contained in Part I of the Handbook. The condition in subparagraph 3.11(1)(f)(ii) does not preclude Canadian GAAP – Part V, as defined in section 4.1 of the Instrument.

2.14 Acquisition statements prepared using Canadian GAAP applicable to private enterprises that include a reconciliation to the issuer's GAAP – If acquisition statements included in a document filed by an issuer that is not a venture issuer and not an IPO venture issuer are prepared using Canadian GAAP applicable to private enterprises, the reconciliation requirement in subparagraph 3.11(1)(f)(iv) applies.

For each difference presented in the quantified reconciliation that relates to measurement, clause 3.11(1)(f)(iv)(C) requires disclosure and discussion of the material inputs or assumptions underlying the measurement of the relevant amount computed in accordance with the issuer's GAAP, consistent with the disclosure requirements of the issuer's GAAP. If the relevant amount was measured using a valuation technique, disclose the valuation technique, and disclose and discuss the inputs used. If changing one or more of the inputs to reasonably possible alternative assumptions would change the measurement significantly, a discussion of that fact and the effect of the changes on the measurement would facilitate readers' understanding of the measurement.

Clause 3.11(1)(f)(iv)(C) does not require disclosure and discussion of all the disclosure elements identified in the issuer's GAAP that relate to a difference presented in the reconciliation. As well, the clause does not require disclosure of information not required by the issuer's GAAP.

As an example of the disclosure required by clause 3.11(1)(f)(iv)(C), if the issuer's GAAP is IFRS and the relevant amount is share based payments measured using an option pricing model, disclose the option pricing model used and the inputs used in the model (i.e., weighted average share price, exercise price, expected volatility, option life, expected dividends, risk-free interest rate and any other inputs to the model). Also, discuss how expected volatility was determined and how any other features of the option grant (e.g., market condition) were incorporated into the measurement of the relevant amount.

If acquisition statements are carve-out statements prepared in accordance with Canadian GAAP for private enterprises, as discussed in section 2.18 of this Companion Policy, subparagraph 3.11(6)(d)(iii) requires reconciliation information for non-venture issuers similar to that required by subparagraph 3.11(1)(f)(iv). The above guidance on subparagraph 3.11(1)(f)(iv) also applies to subparagraph 3.11(6)(d)(iii).

2.15 Acquisition statements prepared using Canadian GAAP applicable to private enterprises that include a reconciliation to IFRS – If the reconciliation requirement in subparagraph 3.11(1)(f)(iv) applies, and the issuer's GAAP requires the annual financial statements to include an explicit and unreserved statement of compliance with IFRS, the reconciliation information in annual and interim acquisition statements must address material differences between Canadian GAAP applicable to private enterprises and IFRS that relate to recognition, measurement and presentation.

Consistent with IFRS requirements, for the purpose of preparing the reconciliation information required by subparagraph 3.11(1)(f)(iv), the date of transition to IFRS would be the first day of the earliest period for which comparative information is presented in the annual acquisition statements. For example, if annual acquisition statements present information for the most recently completed financial year and the comparative year, the date of transition to IFRS would be the first day of the comparative year.

Also consistent with IFRS, for the purpose of preparing the reconciliation, IFRS 1 would be applied to determine the opening IFRS statement of financial position at the date of transition to IFRS. The exceptions and exemptions included as Appendices in IFRS 1 would be relevant for determining the entity's statement of financial position at the date of transition to IFRS.

The opening IFRS statement of financial position is the starting point for identifying material differences from Canadian GAAP applicable to private enterprises. Although an opening IFRS statement of financial position must be prepared in order to prepare the information required by subparagraph 3.11(1)(f)(iv), that subparagraph does not require disclosure of the opening IFRS statement of financial position. Similarly, that subparagraph does not require disclosure of differences relating to equity as at the date of transition to IFRS.

As discussed in section 2.14 of this Companion Policy, clause 3.11(1)(f)(iv)(C) does not require disclosure and discussion of all the disclosure elements identified in the issuer's GAAP that relate to a difference presented in the reconciliation. Therefore, it would be inappropriate to include an explicit and unreserved statement of compliance with IFRS in acquisition statements that include reconciliation information for material differences between Canadian GAAP applicable to private enterprises and IFRS.

2.16 Acquisition statements prepared using Canadian GAAP applicable to private enterprises that do not include a reconciliation to the issuer's GAAP – If acquisition statements included in a document filed by a venture issuer or IPO venture issuer are prepared using Canadian GAAP applicable to private enterprises, the reconciliation requirements in subparagraph 3.11(1)(f)(iv) do not apply. However, subsection 3.14(1) requires pro forma financial statements to be prepared using accounting policies that are permitted by the issuer's GAAP and would apply to the information presented in the pro forma financial statements if that information were included in the issuer's financial statements for the same time. Companion Policy 51-102CP *Continuous Disclosure Obligations* provides further guidance on preparation of pro forma financial statements in this circumstance.

2.17 Acquisition statements that are an operating statement – Subsection 3.11(5) requires the line items in an operating statement to be prepared in accordance with accounting policies that comply with the accounting policies permitted by one of Canadian GAAP applicable to publicly accountable enterprises, IFRS, U.S. GAAP, or Canadian GAAP applicable to private enterprises. For the purpose of preparing the operating statement, the exceptions and exemptions included as Appendices in IFRS 1 would be relevant for determining the opening statement of financial position at the date of transition to IFRS.

2.18 Acquisition statements that are carve-out financial statements – Subsection 3.11(6) specifies the financial reporting framework required for acquisition statements that are based on information from the financial records of another entity whose operations included the acquired business or the business to be acquired, and there are no

separate financial records for the business. Such financial statements are commonly referred to as "carve-out" financial statements. Subsection 3.11(6) requires carve-out financial statements to be prepared in accordance with one of Canadian GAAP applicable to publicly accountable enterprises, IFRS, U.S. GAAP, or Canadian GAAP applicable to private enterprises, and in each case include specified line items. For carve-out financial statements prepared in accordance with Canadian GAAP applicable to publicly accountable enterprises or IFRS, the exceptions and exemptions included as Appendices in IFRS 1 would be relevant for determining the opening statement of financial position at the date of transition to IFRS.

2.19 Preparation of pro forma financial statements when there is a change in accounting principles –

Subsection 3.14(1) requires pro forma financial statements to be prepared using accounting policies that are permitted by the issuer's GAAP and would apply to the information presented in the pro forma financial statements if that information were included in the issuer's financial statement for the same period as that of the pro forma financial statements. If the accounting principles used to prepare an issuer's most recent annual financial statements differ from the accounting principles used to prepare the issuer's interim financial report for a subsequent period, subsection 3.14(3) provides an issuer the option of preparing its annual pro forma income statement using accounting policies that are permitted by the accounting principles used to prepare the interim financial report and would apply to the information presented in the pro forma income statement if that information were included in the interim financial report. In this case, the annual pro forma income statement should include adjustments to the amounts reported in the issuer's most recent statement of comprehensive income in order to restate the amounts on the basis of the accounting principles used to prepare the issuer's interim financial report. The pro forma income statement should present such adjustments separate from other adjustments relating to significant acquisitions.

If an issuer does not use the option provided by subsection 3.14(3), in order to avoid confusion, it would be appropriate to present the issuer's annual and interim pro forma financial statements as separate sets of pro forma financial statements.

2.20 Reconciliation requirements for an SEC issuer – If financial statements of an SEC issuer, other than acquisition statements, filed with or delivered to a securities regulatory authority or regulator are

- (a) for a financial year beginning before January 1, 2011,
- (b) prepared in accordance with U.S. GAAP, and
- (c) the SEC issuer previously filed or included in a prospectus financial statements prepared in accordance with Canadian GAAP – Part V,

then subsection 4.7(1) applies. Subsection 4.7(1) requires the notes of the first two sets of the SEC issuer's annual financial statements, and interim financial report during those first two years, to provide reconciling information between Canadian GAAP – Part V and U.S. GAAP that complies with subparagraphs 4.7(1)(a)(i) to (iii).

If an SEC issuer's second set of annual financial statements after a change in accounting principles is for a financial year beginning after January 1, 2011, the reconciliation requirements in subsection 4.7(1) no longer apply. Financial statements for a financial year beginning after January 1, 2011 are required to be prepared in accordance with Part 3 of the Instrument, which does not include any reconciliation requirements when an SEC issuer changes its accounting principles.

PART 3: APPLICATION – AUDITING STANDARDS

3.1 Auditor's Expertise – The securities legislation in most jurisdictions prohibits a regulator or securities regulatory authority from issuing a receipt for a prospectus if it appears to the regulator or securities regulatory authority that a person or company who has prepared any part of the prospectus or is named as having prepared or certified a report used in connection with a prospectus is not acceptable.

3.2 Canadian Auditors for Canadian GAAP and GAAS Financial Statements – A Canadian auditor is a person or company that is authorized to sign an auditor's report by the laws, and that meets the professional standards, of a jurisdiction of Canada. We would normally expect issuers and registrants incorporated or organized under the laws of Canada or a jurisdiction of Canada, and any other issuer or registrant that is not a foreign issuer nor a foreign registrant, to engage a Canadian auditor to audit the issuer's or registrant's financial statements if those statements are prepared in accordance with Canadian GAAP applicable to publicly accountable enterprises and will be audited in accordance with Canadian GAAS unless a valid business reason exists to use a non-Canadian auditor. A valid business reason would include a situation where the principal operations of the company and the essential books and records required for the audit are located outside of Canada.

3.3 Auditor Oversight – In addition to the requirements in sections 3.4 and 4.4 of the Instrument, National Instrument 52-108 *Auditor Oversight* also contains certain requirements related to auditors and auditor reports.

3.4 Modification of opinion – Part 5 of the Instrument permits the regulator or securities regulatory authority to grant exemptive relief from the Instrument, including the requirement that an auditor's report express an unmodified opinion. A modification of opinion includes a qualification of opinion, an adverse opinion, and a disclaimer of opinion. However, staff will generally recommend that relief not be granted if the modification of opinion or other similar communication is:

- (a) due to a departure from accounting principles permitted by the Instrument, or
- (b) due to a limitation in the scope of the auditor's examination that
 - (i) results in the auditor being unable to form an opinion on the financial statements as a whole,
 - (ii) is imposed or could reasonably be eliminated by management, or
 - (iii) could reasonably be expected to be recurring.

3.5 Identification of the financial reporting framework used to prepare an operating statement or carve-out financial statements – Paragraph 3.12(2)(e) requires an auditor's report to identify the financial reporting framework used to prepare an operating statement or carve-out financial statements as addressed in subsections 3.11(5) and (6). To comply with this requirement, the auditor's report may identify the applicable requirement in the Instrument, and refer the reader's attention to the note in the operating statement or carve-out financial statements that describes the financial reporting framework.